LONDON:

PRINTED BY WILLIAM CLOWES AND SONS, LIMITED,
STAMFORD STREET AND CHARING CROSS.
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IN

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EXPLORATION
IN
SOUTHERN AND SOUTH-WESTERN CHINA.

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I. Wuchau to Pe-sê.

It had long been my intention to attempt a journey through Indo-China. My idea, the result of much careful consideration, was to take a route through Southern China (comprising the provinces of Kwang-tung, Kwang-si, and Yûnnan), the Shan or Laos country, lying—a sort of debatable land—between Tonquin, Burmah, Yûnnan, and Siam, and thence to cross into South-eastern Burmah. The project comprised some 1500 miles of exploration, of which two-thirds would be over untrodden ground, undescribed by European travellers, and the whole length would afford subjects of great interest.

In May 1881 I was able to take furlough to England, and I went home fully decided to attempt my journey in the winter of that year. After benefitting by the friendly advice of several eminent authorities on Indo-China, and selecting as my companion and assistant Mr. Charles Wahab, C.E., I left London for China on the 8th of December, 1881, arriving at Canton on the 19th of January, 1882. After a fortnight’s vexatious delay, caused by the difficulty in getting Chinese interpreters, servants and coolies to accompany me on what they considered a wild journey, objectless and dangerous, I got together a party consisting of Mr. Hong Beng Kâw (a Chinese gentleman educated in Scotland), a Cantonese interpreter, coolie cook, and two boys, including ourselves numbering altogether seven. We had arranged with the captain of a ho-tau (river boat) to deliver us at Pe-sê, called Pak-shîk by the Cantonese, the highest navigable point on the West river, for 100 taels, or about 151 dollars. He engaged to deliver us there in forty days, an ample allowance for the distance, about 600 miles by the maps. A smaller boat would have sufficed for mere travelling purposes, but as we intended executing a survey of the river, more room was required for the duties attendant on this work. Our stores, medicines, and instruments were packed in cases, each enclosing ten days’ supply, and
not weighing more than 60 lbs. each. Two such packages make one mule-load, and one can be carried by a coolie, but we could learn as little about this before starting as on the subject of the money to be taken, local advice was most conflicting; at last we made up our minds to take Mexican dollars both new and "chopped," for use on the river, and to use sycee silver (stamped) for the Yunnan land journey. We should have been spared the risk and trouble of carrying a considerable sum of money from Canton to Pe-sê had it been possible to arrange a credit on the latter place, but negotiations for this purpose, which at one time seemed likely to be successful, unfortunately broke down. As regards our dress, we acted on the advice of Mr. McCarthy of the China Inland Mission, and Bishop Foucard, taking full Chinese costume with us, to be worn through the Chinese portion of our route; not that it is possible for an Anglo-Saxon to deceive the Chinese by any such disguise, but merely to ward off undesirable curiosity, which would be courted by moving about in public dressed after what the Chinese consider our own barbarous style.

We left Canton on the evening of the 4th of February, after receiving from the Viceroy of the province a most useful recommendation to the Sub-prefect of Pe-sê.

From Canton to Wu-chau the river had been already surveyed by European travellers, our survey therefore begins at this latter point.

After a pleasant and not uneventful journey, we arrived at Wu-chau. This city is said to have suffered very much from the Taipings, but has recovered fast. Steamers of very light draught can ascend to this point.

The Fu-ho or Kwei river, as it is called here, which enters the main stream from the north, above Wu-chau, is 300 or 400 yards wide, and can be ascended to the provincial capital Kwei-lam-fu (Kwei-lin-fu), some 300 miles from this.

Moving away from Wu-chau very early, we had some difficulty in getting clear of the block of boats surrounding us on all sides. Soon after passing the Fu-ho the river divides, and we observed a fertile island, Cheong-chou, six miles in length and three in breadth; on the ridge skirting the southern or right bank of the stream, a pagoda was seen. Soon after we came to the first of a series of rocks, which we met at intervals for a number of miles up the river. These rocks, sharp and rugged, form dangerous rapids. At this season of the year they are well exposed, but in the flood-time they are completely concealed. The cairns erected by fishermen on these rocks give them a curious appearance. In one place I believe a man could wade across.

Some few miles above the island we came to the Tung-tam-hap, or gorge, with three rocks in mid-stream.

The following day we passed, early in the morning, several islands with reefs of rocks showing above the water-level; and above these
Tang-yuen (Tang-hien). A small trade is carried on between Pak-hoi and this place by means of creeks navigable only by small craft; a difficult long journey incapable of improvement. The town is remarkable for its background of red sandstone hills, and a five-storied pagoda close by on the opposite side of the creek. Near a small village there is a temple named Mau-cheong-meu, or "Court of Literature."

We next sailed past the island of Tung-chou (about one-third of a mile in length), and some ten miles above it, the town of Mong-kong, situated on the north bank, noticeable for the prominent pawnbroker's shop standing above all the other houses. Mong-kong lies in beautiful scenery; built upon a small plain where the hills recede from the river, it has a background of red hills, while to the eastward range upon range meet the view. On the other side of the river the hills reach the water's edge in some places, meeting the water in the water-worn bluffs, round which the water runs swift and strong.

Fish and fruit are good and abundant in the neighbourhood. The cultivation of rice became scarcer, Indian corn appearing to be the staple of food. Pork, poultry, eggs, and firewood were not dear.

Leaving Mong-kong before daybreak, we wound through a perfect maze of jagged rocks and swirling rapids, giving the river here, close on a mile and a half wide, the appearance of a succession of locks, losing themselves in a background of densely clad hills. Behind these came range upon range of mountains.

After leaving Mong-kong several islands were passed, the largest of these, Wong-po-chou, being remarkable for its rich verdure and cultivation, amongst which nestle several villages. The scenery here is remarkable; the eye is at once attracted by the ruins of a pagoda, built in a commanding situation on a mountain range overlooking the east and west. Looking from above or below the range appears to cross the river, which it probably did at one time.

The town of Pak-ma-hu, a wretched little place, lies a few miles further on. When approaching the town, and for a long distance beyond it, the Ma-ow-shan or Saddle Mountain attracted our attention. A complete alteration now takes place in the character of the country. The river is no longer flanked by bold hills and ranges, which retire from the river and are soon lost to sight.

The village of Mo-lam-hu, situated on the right bank a few miles further on, is only remarkable as being in communication by a creek with Tai-wu, the great cassia-market of Kwang-si.

The river above Mo-lam-hu takes a sharp sweep, and soon after the little town of Tam-chuk, situated on the left bank, is reached. We anchored there for the night. After leaving Mo-lam-hu we passed nothing remarkable but two pagodas of five stories each, polygonal, with the stories decreasing in breadth and height towards the top—the conventional form in South-eastern China.
A little beyond Tam-chuk we came to the town of Ping-nan-yuen (Ping-nan-hien), situated on the north side of the river, remarkable for its flights of massive stone steps, which wind down to the river-edge on either side of a creek above the town. On the west side a magnificent boulder forms an abutment. Ping-nan, which lies in an amphitheatre, well cultivated and wooded, has fine granite walls and brick ramparts of the usual description.

Above Ping-nan the river is full of bends, and in one place has made a "cut-off" behind a reef of rocks which, cropping out of the bank, stands in places 30 feet out of the water. In these honeycombed rocks there is a tendency to cave-formation. Shortly after this we came to the Ku-yung rapids; next a number of rocks; and then another series of rapids, amongst the worst on the river, namely, the Fu-loong-tan, Loong-mun-tan, and the Fu-ten-tan, or, as it is graphically named, the "Jumping Tiger" rapid.

Tai-wong-kong we reached on the evening of our New Year's Day, soon after passing the last-mentioned rapid. Leaving Tai-wong, the river runs suddenly southwards in great bends, and in the afternoon we reached Tsum-chau-fu, a prefectural town, often locally called Kwei- ping, from the name of its district, and which is situated on the north bank. The character of the river before reaching Tsum-chau-fu is marked by numbers of rapids, exposed banks of sand and shingles, and very rugged massive stone banks. Just before reaching the city the southern bank is formed of immense tiers of stone, laid in horizontal strata, making a magnificent face-wall, around which the stream swirls and rushes at a furious pace.

At the commencement of the stone-face, a mile and a half below the city, stands in a prominent position the Yeong-lan-tap or "Sun-lit Lotus" pagoda, a handsome nine-storied polygonal structure.

The entrance to the Pak-ho, where it joins the main West river at Tsum-chau-fu, exhibits a scene of wild grandeur.

Tsum-chau-fu is a walled city of considerable area, on the apex of the junction of the West river and the Pak-ho. The villages forming the suburbs are larger than the town itself, and the whole place bears at once evidence of Taiping marauders and its past importance as a trading centre.

Tung-chuen, which is some 50 miles above Tsum-chau-fu, is the principal rice-market of Kwang-si. Below Tung-chuen there is a three-storied pagoda. The town itself lies in a well-wooded hollow—peeping out through thick foliage, set on the top of the southern bank, which is lined by dark rock of marked strata. The river between Tsum-chau and Tung-chuen is a succession of bends, including in their bearing all the points of the compass. The main feature of the country where we now were consisted in the sharp-peaked rocks, 200 to 500 feet high, which stand isolated on the plain lying on the left bank. A mass of these,
looking like ruins—called the Ku-lo-sheak-shan—and bearing some resemblance to a castellated fortress, is visible to the westward. These curious piles are met for the next few miles. An eight-storied pagoda, called the “Crooked Turnip,” said to be of great age, was passed on the south bank, a few miles above Tung-chuen. A three-storied pagoda of newer construction was noticed one li above the first.

Proceeding through a stretch of broken level country, the banks being in many places lined with rocks very rugged in outline, two pagodas (one nine- and the other three-storied) were passed before reaching Kwei-yuen (Kwei-hien), where we halted for some hours. Kwei-yuen is a walled city, with suburbs straggling beyond the walls; the partial destruction of these, the remains of a temple, and the ruins of many other buildings on the eastern side mark some of the damage done by the Taiping occupation. The prominent objects visible from the river are the examination-hall, an unsightly red building with yellow roof, the new city wall, and a flight of stone steps from the water edge to one of the entrances of the city.

Above Kwei-yuen the country is a broken level plain, with hills converging to the Ngan-pai gorge, and under cultivation. Several villages, amongst them Nga-ton-hü and Nga-hon-tong, were passed before reaching the Ngan-pai gorge, where the river is suddenly contracted by the approach of low ranges on either side to about 600 feet. Sixteen miles of river can be shortened here by a two-mile cut.

The river has high banks, with rocky slopes, both above and below the gorge. A range of hills, seemingly about 1000 feet high, called the Kou-loong-tam-shan, being seen to the south-west, and a few miles distant. Shortly above Heung-kong a range of low confused hills reaches the river on the south bank, just before joining what resembles a cut or made channel, some 300 feet broad, on the south bank. Immediately after this a small rocky island showed above the water-level, and here we anchored for the night off a village called Tai-ling-hü.

On the morning of 21st February we passed an island soon after our start, and then commenced the ascent of a series of rapids, situated 12 miles above the Ngan-pai gorge, and which are the worst and most dangerous on the river. Amongst these rapids, the Lai-pik-tan or “Ploughshare” is justly named and distinguished as the worst. The channel lies close to the northern bank, with rocks forming a network, through which it is a difficult task to make way against the currents, which foaming and lashing, tear at a terrible pace round the rocks. We were forty minutes in getting over this rapid, a distance of a few yards.

A few miles above the last rapid a bold rocky bluff rises from the river, which at one time called Tehü-tau or Pig’s Head, is now called Ne-to. A temple is erected close to a village called Ping-fat. The same species of peaked rocks or pinnacles, is met with a little higher up,
strewn over the plain next the river, similar to those mentioned near Kwei-yuen.

After this we passed a rock, celebrated in Chinese history, rising abruptly from the right bank of the river, called Pang-tong-ngan.

Passing through sharp bends of the river and several villages of no importance, then through a plain of broken undulating ground, rice and Indian corn being under close cultivation, we came to the city of Hwang-chau. It lies on a sharp bend of the river, here about 400 yards in width. To the north lies a range of mountains, seemingly about 2000 feet high, on the ridge of which some temples are situated; while on the south side a low range of confused hills close in on the river, these are joined, two miles further up stream, by a similar range on the north side, which continues for some time.

In approaching the city, the first things that strike the eye are the remains of some ruined temples, and next them those of the Kwang-tung or Canton guild-house, destroyed by the Taipings. These are admirably situated, and enjoy, as these structures often do, the pleasant shade of magnificent trees. At the upper end of the town a temple of Confucius, in glaring red colour, attracts the eye from its unsightliness. The business suburb, which lies facing the river, is built on a stone-faced wall as a protection against floods.

The country above Hwang-chau is hilly, consisting of low ranges, clad with small trees lining the river, which here widens greatly. Two islands were passed, thickly wooded, and close to them the navigation was very difficult, on account of the maze of rocks and powerful rapids, which here end what is called “the 36 li long rapid.” Soon after this we anchored at the village of Nam-heong-hu, opposite to which on a bold rocky site stands the ruins of a joss-house, blown up by the rebels.

For half-a-dozen miles beyond the “36 li long rapid” the country regains an open character, and is planted with rice, Indian corn, and sugar-cane; but a few miles below the village of Ping-tong low hilly country recommences, and continues for nearly 20 miles, to a small village named Sun-on-hu. Shortly before arriving at Ping-tong we saw a group of ruined buildings, probably the remains of a cluster of temples, and near them were two large round upright stones, lying near a hamlet, Cha-sun-tai. Passing several villages of small size, and some rapids of no note, the prettily situated village of Fo-yin-kok was reached, at a sharp bend in the river. The stream here widens out to close on three-quarters of a mile. Immediately after and on the other side, the village of Sap-ye-lo-shan (“twelve red umbrella hill”) stands, partly over a bluff and partly on the face of a hill.

The river banks after leaving Sun-on-hu are high, and the country abounding in hillocks, is bare and barren-looking. The Sam-chow rapids were encountered a few miles further on, near the village of the
same name, lying opposite a red sandstone bluff. A large village named Ko-cheun was noticed on the south bank; and soon after, the town of Wing-tung-yuen (Yung-shun-hien) on the same side of the river. A red Confucian temple is conspicuous from the river. Just below the city we saw a seven-storied pagoda, partly demolished by the rebels, but rebuilt in 1880. It is a handsome structure, built of grey stone or brick. After passing the main part of the city, the fine old city wall was observed, standing picturesquely on a precipice overhanging the river.

Passing several hamlets, about eight miles further on we entered a very wild bare country, with hills about 2000 feet high, on the north bank, close by. The river here has banks of masses of jagged fierce rocks, standing like rugged stone harrows out of the water, and takes a sharp turn southwards, leaving what looks like its old stone bed at the foot of the high range mentioned before. At the extreme inner point of the bend we noticed a high ruined watch-tower built of stones.

For the next 20 miles the country regains its open character, the banks being high, and we passed two or three villages and sandbanks.

Ling-le-tong is the most important of the petty villages we saw today. We sailed past two villages named Pat-tai-ngan and Po-mieu-hu, remarkable for the beauty of their position. The stream now rushed between high rocky banks, and the country became broken and uneven.

Just before the first-mentioned village a joss-house stands in a most picturesque spot, built into the crest of a precipitous bluff, so shear that a portion of the bluff having given way, the front of the structure appears to overhang the river.

Passing the Pak-chik-kong—a large creek running southwards for some distance—the Fan-tan rapid was reached, where a reef of rocks, looking like stepping-stones, runs across the river. At this season, the lowest water-level of the year, there was only a channel of some hundred feet on the south side. These rapids are very strong.

Immediately above the Fan-tan rapid, the village of Chim-to lies on a sharp bend of the river, which here turns south. Shortly after this an octagonal pagoda in seven stories was seen some distance ahead, situated on a high peak of mountains lying to the north. Ascending the river, past two sandy islands, with no cultivation, opposite the village of Kong-nga-hu, which is on the south bank, we came to a seven-storied pagoda. Close by there is a handsome Buddhist monastery, richly decorated, resting in a fine position, on a precipitous side of the hill.

Just above the pagoda a footpath runs across by a short cut to Nan-ning-fu, some three miles it is said, while by the river it is over ten. The character of the country was now completely altered, being more open, and the hills sinking into the plain close by Nan-ning. The district had a cultivated and civilised air, especially after the wild and bare country through which we had been passing. Nan-ning, which is about
a mile in length, stretches along the concave northern side of a bend in the river. We anchored opposite the On-sat gate, near which are stationed the Lekin and Custom guard-boats.

Nan-ning is a walled prefectural town, with a reputed population of from 30,000 to 40,000, which latter figure is probably not overestimated.

To people who imagine that alongside this water-way of the West river there must exist a teeming population, living on enormous cultivated plains on its banks, I may say here that the province of Kwang-si, compared with other provinces of China, is mountainous, bare, and barren, thinly peopled, and with only a small area which is cultivable, this being where the river-banks here and there spread out into small plains, and these become fewer as one travels westwards. All the land which is cultivable is by no means under cultivation.

We were prevented from landing at Nan-ning-fu by the hostility of the people, the prefect himself expressing a hope that we would give up any idea of landing. There is nothing striking in the appearance of Nan-ning. Between the edge of the bank and the crenellated city wall houses are built. As usual along the river, it has suburbs extra suburbos at either end. Opposite the city, on the southern bank, is a far-stretching village, with a group of joss-houses at the lower end.

We progressed but a short distance from Nan-ning through open country, and for the next few days passed through low, bare, undulating, hilly country, with small villages.

Some 25 miles above Nan-ning, after a long bend southward, a branch of the river—a fine stream, about 200 yards broad—enters from the south-west of Kwang-si. On this lie the most important towns of that part of the province, namely, Sin-ning, Taiping, and Lung-chau-fu. In the apex made by the forking of the stream lies the village of Tam-kong-hii, a place of no importance, while on the other side are a couple of Custom boats, and close by some brickfields.

The country in the neighbourhood is barren and covered with hummocks, and little cultivation on any scale is to be seen. We had no reason to alter the opinion expressed regarding the seeming poverty of population lower down the river. The prevalent idea that the whole of China is one vast garden receives a rude shock in the part of Southern China through which we had lately passed.

Wandering through some clusters of houses on the banks one evening, we noticed a fine limestone slab, which marked, as could be read from the inscription on it, the flood-level of last year, a very high one, and which is reported to have done great damage. We were anxious for reliable information on the point of the maximum rise and fall in the river, and here it was with commendable accuracy. It gave a rise, measured roughly by our calculation, of 60 feet above the present water-level, the lowest of the year.
Every now and then as we went along in the ho-tau we came across some wretched huts, built on the rocky bank, composed of a few cross sticks with grass roofing. They were hardly high enough for a European to crawl into, but are made to serve as habitations for the poorer fishermen.

Two miles above the branching of the river the Kam-ling ("Gold Summit Pagoda") is met on the south bank, and about five miles farther the market town of the same name on the same bank. This pagoda, situated on a site with a fine view, and opposite the strong rapids of the same name, is a handsome three-storied and octagonal structure, built in grey brick, richly ornamented, and in better taste than usual.

It seems curious that with so much excellent stone in the neighbourhood brick should be so largely used. We came across brickworks nearly every day, and evidently a considerable number of people find employment in this class of manufacture.

Some ten miles above the last-named rapid, after a large sandy island, we passed several hamlets and a market town named Lo-long-hii. Two villages close by each other, Yu-tsün and Kow-yu-tsün, stand on the north bank; hard by there is a handsome two-storied temple, of a design not seen before on the river, with a smaller one-storied building alongside. This is called the Wai-long-miao.

We halted for the night close by this, and in view of a fine, serrated, sharply-peaked range of hills, lying to the north, and seemingly about 10 miles distant.

During the day we had passed several curious examples of the manner in which the river cut into the red sandstone hillocks, or knolls lying along the banks. The immense caverns made in the faces of these knolls, almost from their top, present a curious appearance.

From the 1st of March we began to pass through country much more cultivated than we had previously seen, the banks being more wooded, and farms and hamlets showing more signs of life. Curious pinnacled rocks, similar in character to those seen on the plains lower down the stream soon after leaving Canton, approach the river, and begin to crop out of its banks.

We passed soon after a series of sharp angular bends, one after the other, called Kau-kuk-ho or "river of nine turns," which took us four hours to accomplish, and which might be cut off to a mile and a half. A number of brick- and two lime-kilns were met, and we halted close to one of the former, next a small hamlet.

The character of the river had now altered, its banks becoming walls of limestone rock, in which cave-formation was evident throughout, and farther up we actually saw caves of some size.

Black "needled" ranges are to be seen on every side, and the same rocks close in on the river, which bristles with them. These ranges of limestone, black in colour, presented with their "pinnacled or needled"
formation the fantastic appearance of an irregular saw, the teeth of which are long and sharp pointed. When occurring in detached pinnacles they have the appearance of a mass of rather ill-used ninepins strewn about upright in a hap-hazard way.

A curious phenomenon presented itself in the appearance of the burial grounds in the neighbourhood, which had the look of groups of people moving about the plain.

The tracking hereabouts was over most difficult broken rocky ground with high grasses, creepers, and bushes, in places from 40 to 60 feet above the river-level, necessitating a very long tow-line to escape the sharp rocks.

Lung-on (Lung-ngan), which we passed next, is a walled town lying in a small plain, on the south side of the river; on the opposite bank is a small hamlet and a road leading to Sze-ern-fu, a considerable prefec-
tural city, which was said to be situated towards the north-east, but how far we could not ascertain.

There seemed to be some doubt as to whether Tu-yang and S'se-ern-
fu are correctly placed on our maps. I would suggest investigation by
the future traveller.

Lung-ngan presents much the same appearance as many of the
towns already met and described—the same ruined past look, a mere station for a few hucksters.

The surrounding plain is under rice cultivation; the outer suburbs of the town and a few hamlets scattered here and there have vegetable gardens and fruit trees surrounding them. At the rear of the town, and some few miles distant is a range of sharp-peaked hills, at the base of which are several joss-houses.

Passing through reaches of the river whose sides are dykes of rock, rising from 50 to 70 feet above the water-level, of the most extra-
ordinary and jagged shapes, we anchored for the night at the village of Ha-nga, situated at the end of a wild and beautiful gorge, some four miles in length.

Here a splendid vista of champaign country, undulating and verdant, lying on either side of a long straight reach of the river, a rarity on this tortuous stream, meets the eye, affording a pleasant relief after the rocky gorges just passed. The walls of rocks forming these are of very varied shapes, in places caverned out roughly and irregularly, and rising in sheer masses from the water-edge; in other places overhanging the stream in bold grotesque and dangerous-looking, though picturesque cubes. In several cases our boat passed underneath these projecting masses, with our tall mast, about 40 feet in length, unshipped.

We noticed numerous cascades, and a sub-aqueous air-spring bubbling up strongly on the surface, some feet in circumference.

At Ha-ngan we landed, and contrary to what we expected from our recent favourable reception lower down the river, the demeanour of the
people was so hostile as to necessitate a retreat, as dignified as possible, on the boat.

Leaving Ha-ngan we passed through alternate reaches of undulating cultivated country and gorges; the "pinnacled" ranges advancing gradually to the water-edge; we anchored at the foot of one of these for the night. These ranges are all limestone, and crystalline, of a dark blue colour where exposed to the weather. They are jagged on the surface, and furrowed by the rain streams which water their sides. The outlines bristle with peaks. The strata are horizontal, as already mentioned. Their strange jagged appearance has no doubt been caused by water which, in the course of ages, has worn down the level masses of rock gradually until they have assumed their present form.

The geological formations along this river could be easily studied by a geologist ascending it in the dry season as we did. The upper strata are limestone; beneath that lies older limestone; under that slate; and lowest of all, granite.

After meeting again a succession of gorges, the country opened out, and the hills retired rapidly on either side. Here we passed on the south bank the unwalled town of Ko-hoa, a wretched straggling place, only important on account of the magistracy which has its seat there.

In the evening we anchored a little above Shung-Jam-hu, a market town on the north bank with a somewhat prosperous air. Above this the character of the country next the river completely and suddenly altered. As if by magic, the jagged black rocky gorges and pinnacled ranges vanished, and gave place to a scene of cultivated beauty.

On the river banks, every now and then, we noticed brick pillars which are called 10 li stones (one li being equal to one-third of an English mile, the unit of Chinese geographical measurement). They are very irregularly placed, the difficulty or otherwise of traversing a li being allowed to count in estimating the actual distance between stone and stone when placing them.

After passing several unimportant villages, and the small market town of Lum-fong-hu, on the south bank, we anchored for the night some eight miles beyond at Ping-ma. The town is built along a sweeping curve of the river, on a high, steep clay bank, on the north side. It is situated in an amphitheatre of hills, the whole plain being closely cultivated to the water-edge. The shore opposite shelves gently and is thickly wooded.

The country above Ping-ma remained the same in character, only more open, with lower banks; and the river greatly broader, often a quarter of a mile wide, in some places much more.

Nearly parallel to the river, and some eight or ten miles off, on the right bank, runs a very serrated range of hills, and between it and the river again are rounded knolls, the whole country being highly cultivated, with hamlets and farms dotted here and there.
The river, in places, broadens out, with sandy shoals and banks, forming serious obstacles in the channel, which at these places becomes very shallow, often as little as three feet. We anchored late, two miles above Na-pan, a village situated on the southern bank. Opposite it is Pak-yuk, “Hundred peak village,” so called from the pinnacled range facing it on the other side.

Passing through a highly cultivated plain of sandy soil on a sub-stratum of clay, we came to Tien-chau, a large town of the third order, lying off the river about a mile, on a stream called the Ssū-ho, which debouches on the north bank; and some three miles further arrived at Fung-i-chau, some short distance from Tien.

A large island, reaching to Fung-i, is formed by a branch of the Ssū-ho, which joins the main river again just below Fung-i on the north side; while on the south the high serrated range, with low rolling hills in front, closes in on the river.

The stream soon after turns away in a northerly direction, and after a bend, returns to the range some five miles farther on at the Nga-paw rapid, and within a few hundred yards of the village bearing the same name.

In the apex of the bifurcation of the river below Fung-i, and facing a hamlet which is a suburb of the town on the opposite side of this stream, stands a fine group of joss-houses or temples, presenting no remarkable points except the extent of ground which they cover, which is greater than most we had noticed on our way up the West river.

From time to time we had seen a certain number of streams which debouch into the river bridged by substantial stonework. Fung-i is not an interesting place, the only thing remarkable besides the pawn-shop being the gaudy red Confucian temple.

A short distance beyond the town we came upon some half-a-dozen grass cabins or huts along the slope of the bank, the residences of Chung-koo fisher-people, who settle here at certain seasons of the year.

Close on half-past seven in the evening we reached a hamlet, five miles beyond Nga-paw, which lies close beyond the furious rapids of the same name. This village is romantically situated at the foot of wild and angry-looking peaked crags, the hills forming a buttress which turns the river with force to tear its way over the rapids below.

Before leaving Nga-paw, the last place on the West river which has any communication overland with the various ports along the Tonquin Gulf, a few words may be said regarding trade routes in these regions.

Between the West river and Pak-hoi there may be said to exist only one trade route, a land journey of five days. The route diverges close to the river to two places, from either of which it takes four or five days by boat to Nan-ning-fu.

From Haiphong and Hanoi, ports situated on the Tonquin Gulf,
Annamese traders find their way to Tai-ping-fu and other cities in the south-west of Kwang-si.

Regarding the Red river route, from the Tonquin coast to the extreme south-east corner of Yunnan, the upper part of the river is in a disturbed lawless state which is fatal to trade.

About Nga-paw the country still remains cultivated on either side of the stream, but thickly interspersed with knolls which approach the river more closely. The high serrated range noticed before again recedes from the bank, while a small range approaches the river on the north side for a short space and then again retires.

In several places we saw small cave-dwellings in the side of soft reddish coloured sandstone formation. There were no signs of permanent habitation.

It is interesting to note that we have traversed the "Two Kwangs"—Kwang-tung and Kwang-si—which Marco Polo described as the kingdom of Manzi, in contradistinction to Cathay Proper. The term Manzi still survives in the contemptuous epithet Man-tzü occasionally employed by Northern Chinese when speaking of the Chinese of this part.

Above the spot reached by us in the evening for the most part low hills lie close to the river. Between these and the bank are bluffs and knolls of soft red sandstone overlying white sandstone.

The country had now assumed a more bare and barren look, relieved here and there by a stretch of level plain, highly cultivated. Close to the village of Pak-quat, which stands opposite a large sandy island of the same name, which is cultivated, the channel narrows on one side of the island to 100 feet. On the other side there is a passage some 600 feet broad, but too shallow for boats of our draught. Pak-quat stands on a high sandy (south) bank, at the bottom of a low range of hills on a sharp bend in the river. A couple of tall cotton-wood trees stand bare and rugged, like huge bamboo poles, in front of the village.

Some five miles above this Nga-wan was passed on the south bank; it is a hamlet of no consequence. Soon after we came to an old fort, standing on a small bluff on the south bank. This fort was constructed and held by the Taipings. Its walls are of mud, having four large gateways and a turret at the corners which lie next the river.

A mile further the Pon-tsün rapid was passed. It is a very fierce one, with the water running like a mill-stream, and lies just below a village of the same name.

The tracking and poling throughout the day was very severe; the men could hardly get over the Pon-tsün rapid.

From the bend of the river below, Pe-sê came in sight. It lies on the apex formed by two branches of the West river, one running north, still in Kwang-si, and one west, which enters Yunnan for a short distance. The town is a t'ing, or town of the second order, and is under the orders of a sub-prefect.
We stopped at Pe-sé and presented our letters of introduction to the sub-prefect, by whom and other officials of the place we were most kindly received.

The unfortunate, although not quite unforeseen, desertion of Mr. Hong Beng Kaw at this point was a very serious blow to my hopes of the expedition, and necessitated a change of plan. The other servants were in a state of scarcely disguised mutiny, and it was only by putting a bold front on matters, declaring my intention to proceed even without them, that I held my party together. Having induced my Cantonese interpreter, and with him the underlings, to follow me, as they said, "anywhere," I had no resource left but to push on towards Yünnan-fu. There we hoped to get assistance of some sort to enable us to get south to our old projected route, and down to Maulmain through the Laos country. We hoped it might not prove necessary for us to make our way by Shunning-fu or Tali-fu to Bhamo, or anywhere in that neighbourhood, on the north-eastern Burma frontier.

The 14th of March we spent in preparation for our march, distributing and receiving parting presents amongst and from the officials. In the evening our two small boats were alongside the ho-tau, and we had everything ready to start next morning. From this point we had to discharge our ho-tau and proceed by boats of a smaller draught to the highest navigable point on the river for boats of any reasonable size.

Before bidding adieu to Pe-sé a few words on the West river may be useful. The striking points met with were:—

1. The small areas of cultivable land, compared with the immense area of hilly country. It is possible that there may be fertile plains or table-lands, once cultivated, farther from the river, and that the horrible destruction of the population during the rebellion is the main cause of the deserted appearance of the country.

2. The small amount of population to the area of the country. Even the whole of the cultivable land, comparatively small as it is, is not taken up.

3. The ruined cities along the river, so often alluded to, which all more or less show signs of past prosperity and former grandeur. The effect of the Taiping and Yünnan insurrections, disastrous as their influence was in so many ways, has been found not to be the sole reason of the decay of the cities on this grand waterway. The cause seems to have been the diversion of the carrying trade between Yünnan and Canton to the route by the Yang-tze river.

4. From the above, by deduction, the inference seems probable that Yünnan must have had great wealth and resources to create and support such a prosperous carrying trade.

5. The navigation on the West river might easily, and at no extravagant cost, be vastly improved.
II. Pe-sê to Ssê-mao.

On the 15th of March we left Pe-sê, after five days’ delay there, longer than we had anticipated.

The first part of the day we passed through a flat country, highly cultivated, with villages and hamlets occurring frequently. Only rounded knolls were visible near the river, but hills and mountains were seen far ahead. The river had a gravel-and-shingle bed and sand-banks; the sides, however, were steep, and about midday became rocky. Early in the afternoon we entered a rocky gorge, the hills running abruptly into the water. After this cultivation almost ceased. Later in the afternoon the river-bed became rocky, and numerous rapids appeared, the rise becoming considerable. The average width of the stream was 100 to 150 yards. At about four o’clock the hills became more steep and approached closer, and cultivation ceased, bamboo groves taking its place.

We started next morning in a driving mist, which made it a difficult matter to see the banks of the river. Early in the morning we passed an overhanging bluff, rising some 400 feet above the water on the north bank; and some five miles further another, 500 feet high. They were magnificent bluffs formed by the river cutting through the hill.

Close above Tung-tsün, which we passed early, on the north bank, the first of a series of rapids much worse than those we passed below Pe-sê, was encountered. These rapids now became so frequent that they may be said to occur at each reach in the river. Between this and Pa-oi, the point where our march was to commence and where transport was obtainable, we passed some fifty bad ones at least, without counting the smaller. Their character may be best realised by the fact that we have ascended on the river roughly about 500 feet since leaving Pe-sê, a distance of not much more than 30 miles; whereas from the seven hundred miles up to Pe-sê we only registered a rise of exactly the same amount.

In the afternoon we passed the village of Ho-hau, where a small joss-house stands under the shade of two large trees on the north bank, just opposite a bad rapid of four feet fall. Soon after struggling up a three- and six-foot rapid we came to and surmounted the worst one on the river up to Pa-oi. Here there is a sharp bend in the river; on the south side is a wall of rock, and on the other a boulder shoal.

The water tears down this rapid, which has about eight feet fall, with a force and violence which we had not before witnessed. Boats cannot ascend the natural channel. A cut has therefore been made by excavating a channel through the boulders, up which the boats are dragged.

In the evening we anchored close to a small hamlet. Next morning we passed a succession of rapids. The river, since leaving Pe-sê, had an
average width of 150 yards, sometimes contracting to 100, and broadening out to a quarter of a mile.

We reached Pa-oi, after passing several villages, at ten o'clock. The place lies on the south bank of the river, perched up on high stone foundations or wooden piles, to protect it against the fierce floods. Here our land journey commenced.

Whilst waiting for transport we took up our quarters in a joss-house, on the south side of the town, having arranged to start early next day.

In the morning, after some difficulty with the coolies, we started on our land journey. As we ascended the tortuous hill-roadway which skirts one branch of the West river, now a mere hill-stream, our caravan, consisting of six baggage ponies, some dozen coolies, the cook and boy on ponies, the interpreter in a chair, our own two chairs, and then ourselves on foot, presented a most imposing appearance, not without its grotesque side.

After skirting the stream for some time we crossed it some four miles from Pa-oi, and soon after reached the first halting place. The road from here to the end of the day continued ascending and descending in a most provoking manner. We observed small valleys lying on one or the other side of the road, here and there small patches of cultivation, and hamlets of the poorest description. The road was tolerably well aligned, but in execrable order.

Our first day's march, a distance of 24 miles under a blazing sun, consisted of walking over blocks of stone worn round, variegated with enormous ruts.

After a weary march we halted for a few minutes at four o'clock, and then crawled on until we reached our destination, Chay-song, at about half-past six. Chay-song is a small village, with only a petty official in charge.

We stayed all the 19th of March here to recruit our energies, not yet quite up to full marching order after the long boat journey.

The next morning the coolies gave us some trouble before starting, but finally we got away once more. Our next march was much cooler than the one from Pa-oi. We noticed the teak tree for the first time to-day.

For the first portion of the day we kept skirting the left bank of the stream, then crossed and recrossed it, and finally proceeded up the dry bed, until about nine miles from Chay-song we came to the apex of the valley. A few miles farther, at the head of a long valley, we reached an exceedingly steep gorge. From this point a magnificent view of the valley, some 10 miles long, was obtained, and Kwei-chau, a town of some size and importance, was seen in the distance.

During the descent, whilst winding down the hill-side, a "black country" was entered, whose wildness and barrenness were remarkable.
The hill-sides from top to bottom were blazed by fire, and this gave it the jet-black appearance which made it so desolate looking.

Two miles above Kwei-chau, the stream which we had been skirting is crossed close to its junction with the main stream, on which the town is situated. Turning a spur of the hill, on the opposite side of the valley to the one we had been descending, we came upon a cultivated valley, about a mile in width, of great beauty, with a lovely rocky stream winding through it. Crossing the stream, the town was reached by us, after passing over a fragile and rickety bamboo bridge, on stone-weighted gabions.

The town lies most picturesquely situated, built tier upon tier up the side of a lofty and precipitous mountain. It is approached from the river by means of a succession of fine stone steps and archways.

We met a caravan of salt-traders going to Fu-chau, a place some two days beyond Kwei-chau. They belonged to Kwang-nan-fu, a place six days farther on our route, and expressed their willingness to accompany us to Fu-erh, or anywhere. After the customary trial of strength as to which side was to make the best terms for itself, I bound them down to carry our things as far as Lin-an-fu, which lies in the centre of the southern portion of Yunnan, a distance of sixteen long day stages. The route was to take us through Kwang-nan, which is some six days from Kwei-chau, and thence ten days to Lin-an-fu. The rate was the usual one, equivalent to about half-a-dollar a day for each horse; payment to be made in stamped sycee silver, which luckily I had brought. This was the best bargain I could make, and although the number of animals was slightly in excess of our wants, it was hire the whole caravan or nothing.

A few villages and hamlets are scattered about the vicinity of Kwei-chau. The stream on which it stands is a most beautiful one. As we looked down on it we could see numberless windings, the shingle shoals and the rocks forming tiny rapids here and there, while the stream contracted at times and flowed through rocky gorges.

We got away at ten o'clock, later than we expected. Our march led us across the river to our old road, which we followed upwards on the north side for a mile and a half. We then entered a valley, skirting a northern branch of the main stream, which has a general south-west bearing. This stream is about forty yards wide, and corresponds in every particular with the one we had just left. The road skirts it the whole way, winding in and out along the hill-sides, which are here covered by small, but good, fir-trees. A few large stout ones were also passed.

Lofty mountain ranges rise at the back of those close by the stream, seemingly about 1000 to 2000 feet above our level, which was from 2500 to 3000 feet above that of the sea.

After passing a number of unimportant hamlets, the only one worthy
of mention being Sam-t'ing, on the south bank, we reached Ssu-t'ing in the evening, about five o'clock. Here we made our first acquaintance with a ma-tien or "horse-inn," not very clean, nor very comfortable.

On the 22nd of March we left Ssu-t'ing early and reached Fu-chau. After following the valley for some distance, we passed through the same sort of country and hamlets as hitherto. At midday, a heavy mist and rain compelled us to cut short our march. This place is known by three names, being generally called Fu-chau or Fu-t'ing. It sometimes is also called Fu-fu, as on European maps. It is a wretched little place, with no trade or importance of any sort. The town, containing some two hundred houses, lies straggling along the stream, which is called by various names locally. It runs east, past Kwei-chau, into the upper southern branch of the West river at Pa-oi. The only things noteworthy were the absence of pawnshops, a broken-down bridge, and the Canton guild-house, which we inhabited, standing in a good position on the hill-side at the back of the town.

Next morning was wet and miserable. We started early for what was called an "eighty li" march, which was to take us eleven hours. The road after twenty-four hours' rain was something terrible, and we had at first to march in heavy driving mist, which towards midday changed to rain. In one place the mist was so dense I had to stop.

In the afternoon we came upon caves, four in number, lying some few hundred yards off the road to the south. The largest, some sixty feet high, was seemingly of considerable depth. It had two portals or archways over the masonry approach, and the front had a face-wall of rough rubble stone, built up securely, and steps led up to it from the stream, over which there was a small granite culvert. The caves are formed of natural limestone. Soon after this we came upon beautiful cascades, five in number, some hundred feet in height altogether, tumbling one into the other.

In the afternoon I halted in a wretched village, in a miserable house, having lost all signs of my companion, and the rest of the caravan. In the end all came well, and we passed a damp, though tolerably comfortable night.

The weather cleared, and we got away next morning for another long march, with some arduous mountaineering. During the day we came upon a market being held at a village named Si-yang, where there is one every five days.

Late in the evening we reached the village of Yang-liu-tsin footsore and worn out. It was here that my companion first had a touch of dysentery, which however yielded to such treatment as we were able to apply.

The next day we skirted valleys as usual, through fir and cypress clad hills and beautiful green-coloured foliage of small growth. The air at this height (5000 feet) was delicious, and the scent of the
pines was very refreshing. After passing two unimportant hamlets, we reached Fo-cho, which is only remarkable for a stone bridge with steps on both sides.

After a march, the shortness of which was very welcome after the toil of the previous day, we halted at Pau-yü-kwan, a small mountain village, situated in a hollow in the hills, where airy quarters, and cold damp weather caused us to spend a comfortless night.

On the 26th of March, a short stage along broken hilly country about 4500 feet above the sea, brought us to Kwang-nan-fu, a prefectural city and the end of our opening march of nine days. This is reported to be the worst bit of road in Yünnan, and it was satisfactory to have conquered such an enemy.

The country now was the real plateau of Yünnan, with a mass of hills cropping out 500 to 1000 feet above the plain. This part may truly be called what I have seen the whole of Yünnan termed, "an uneven tableland."

The hills look as if they were volcanic in their origin, being composed of black, broken, jagged masses, terribly sterile. They are, I believe, limestone ranges, worn by the rains into their present bare appearance. Red clay washed down from the exposed portions has been deposited in the hollows. Little cultivation is visible on the high lands, and the country is very poor.

Kwang-nan is seen as a turn is taken in the hills about two miles from the city. From some few hundred feet above it the town looks a large straggling series of villages rather than a city. When you enter, however, it seems larger. It is enclosed by walls, and lies in a basin some five miles in diameter encircled by an amphitheatre of hills.

We found that by great good luck we were able to make our way to Lin-an or thereabouts, by Kai-hua and Men-tzu, which both lay on our originally projected route; so that we were after all able to take up our intended line, having made a most interesting detour to Kwang-nan.

The diversion from our route enabled us to travel through a part of Yünnan never before set foot on by any European, and was therefore rather a matter for congratulation than regret.

The direct road from Kuei-chau to Kai-hua was said to be merely a track travelled by the Pén-ti-jen, or "people of the country," and to take nearly as long as the road via Kwang-nan, which is almost double the length on the maps. From here to Men-tzu is nine days' journey, in average stages of 20 miles.

On the 27th of March, after the usual delay, we got away from Kwang-nan at about ten o'clock, and commenced our march over a bad road, consisting of the usual mixture of boulders and clay mud, rendered almost impassable by the heavy rain we experienced.

As we left the city we passed several joss-houses in the outlying suburbs, and looking over the plain, encircled by the amphitheatre of
hills in which Kwang-nan lies, saw numerous villages dotted all round. The large basin is covered with bare mounds or knolls, the intervening spaces being not altogether cultivated, and the country generally appearing to be rather sterile. There is no sign of any large stream, though water does not appear to be scarce. The soil is mostly a reddish clay and very poor.

A mile and a half from the city we crossed a stone bridge, and then entered a valley zigzagging alongside the stream. The hills were high and bare, and we noticed in the roadside slates and grits cropping out, but the rocks are mostly limestone.

At midday we passed a handsome carved gravestone set up on the roadside, and immediately after a three-arched bridge. Crossing a ridge and entering another valley, the village of Ka-ling, a place of some forty houses lying on the stream-side, was reached in the afternoon. Here we lodged in the headman's house, who afforded us a kindly welcome to his rickety abode.

The next day we passed over a road of the same character. There appeared to be a little more population and agriculture, though both were still poor. The limestone hills now changed to conglomerate. The hill-sides were thinly clad with pines of a very poor quality.

An honorary portal of carved limestone stands over the roadway at a place we passed early in the day. Numerous gravestones, some of them of the usual shape, others mere heaps of boulders, marked the resting-place of those who had gone to "wander amongst the genii."

Just before we halted for the day at the village of Hung-she-nai we passed a precipitous rock some 300 feet high, jutting over the stream, into which pour some fine waterfalls.

The following day we passed a succession of little valleys, and crossed from one to the other by small saddles in the hills. A number of villages, all very poor, and a considerable quantity of cultivation, principally poppy, were met with.

The hill-sides, bare as usual, were seemingly strewn with huge boulders scattered here and there, but in reality they were the outcrop of the hill-rocks. During the day the conglomerate ceased and limestone again appeared.

We halted at Achi-to, a well-paved village of some two hundred houses, which were better than any we had met with since leaving Kwang-nan.

On the 30th of March our road lay through a country that had the appearance of a plateau, somewhat irregular in appearance throughout, and pierced, as it were, by numerous knolls, hills, and ridges, which rise out of the ground in a most irregular way. The hills are of limestone, very conical and steep, but none more than 500 feet in height.

Occasionally the road, after a stretch of undulating level country, passed through a gorge between the hills, and once or twice over a high
spur. The hills were covered with pine and shrubs, none of any size. The cultivation of the valleys was meagre, and the population sparse and poor.

At midday we halted at Tu-po-nee, a market village of twenty-five houses, built on either side of one street.

On the next day we had a trying march of 20 miles to Chang-na-hsien, a magistracy town. Immediately on leaving Achi we made a sudden ascent, and had a magnificent view, a perfect sea of hills all round, with a few high ones, away to the north and east, towering above.

During the morning we passed several Long-jen hamlets, and soon after midday skirted a lake of clear water, some 1500 feet in diameter, and nearly round, hid in the hollow of bare hills.

There is a gorge at either end of the lake. The hills here, and for some days afterwards, were bare, barren, and rocky.

After the lake we entered a large extent of bare moorland, with no villages except one by name Po-pyan, inhabited by Long-jens. Near the village was a large reservoir or tank on sloping ground, bounded in by earthen dams which were faced by stone.

Some four miles before reaching Po-pyan, a curious tunnelled cavern, some 200 feet long and 15 feet square, was met in a sharp peaked limestone hill, standing isolated in the plain.

About three miles before Chang-na-hsien, the village of Chang-na-gai was passed, with a fine stone causeway enclosing tanks and a small stone culvert.

Close by Chang-na-hsien, a small stream, called the Papien-ho, runs some hundred miles north, joining the northern branch of the West river. On our way from the place we noticed the red soil deeply furrowed by the rains, in some places to the depth of 30 feet, the whole country near Chang-na-hsien being seamed with these gullies.

On the 1st of April we left the moor or plateau on which Chang-na-hsien is situated. The road took us through several small valleys and hollows, past numerous hamlets and small patches of cultivation.

A large valley was entered about four miles beyond our start, and then we proceeded to the right and penetrated a narrower valley. Some six miles of small valleys were skirted in all; then about two o'clock, at 5900 feet above the sea, we commenced a long descent, which was steep in parts, and had a few level stretches. In the afternoon we passed a couple of ruined villages, in one of which we saw a large stone trough, about five feet long by two feet broad, hewn in limestone, and a ruined fort of considerable area on a hill about half a mile to the left.

Three lakes were seen during the afternoon—one half a mile long by 200 yards broad, and one about one mile by half a mile. The smallest was of insignificant size. None had any apparent outlet, unless a stream issuing from the rock below the last lake is a subterranean outlet.
A wonderful panorama met the eye as the descent to Kai-hua was made by our road. The town is situated in a huge valley, on the river Tsin-ho (the Rivière Claire of the French maps of Annam), which runs into the Red river not far from the Gulf of Tonquin. The river winds like a serpent, glistening in the evening sun through the valley, which is beautifully cultivated. The river, here some thirty yards wide, opens out at times into small lakes or lagoons with islands, the valley smiling with vegetation.

Kai-hua lies on the south bank, on a large bend, enveloped in trees, of which there is a considerable number scattered throughout the city. On the south side of the valley a serrated hill-range runs the entire length, backed by a rounder and loftier range, seemingly of granite. The valley runs south-east and north-west.

After a somewhat inquisitive although friendly reception at Kai-hua we moved westwards again. Soon after starting the road leaves the valley, which has several villages dotted about it, and proceeding alongside the river, here very tortuous, ascends a gorge in the hills to the left, turning a hill soon afterwards, and running north-west over bare red-soiled rocky ground.

For the next five miles the country was barren and desolate, and only here and there, in some low-lying hollow, could a patch of poppy or rice be found. A few straggling wretched pine-trees appeared on the hill-sides.

Here we met the subterranean passage named the Tien-sheng-chiao. It is under a rocky roadway—a ridge between the hills—and a very narrow gorge, some 200 feet high, and averaging 30 feet broad, takes the river to the south past Kai-hua. No sign of water was to be seen anywhere just above the passage. The rocks have limestone cave-formations, and are precipitous. A few hundred yards beyond, a village bearing the same name as that of the passage was passed.

In the afternoon we crossed the stream by a fine stone bridge, some 25 feet span and 40 feet high, with a double-roofed building over it, having the usual upturned eaves.

Immediately after making a small steep ascent we entered an undulating hilly country and came to several lakes (or ponds), the largest 1500 by 500 feet. Passing the stream again by a 20-feet span bridge, and crossing the valley, we gained our halting-place, Matang.

On the 4th of April our short march was over bare undulating red soil, a hilly country, with no vegetation to speak of, the whole aspect being most desolate.

After a halt and inspection of a fair at Low-lung we journeyed on the 5th of April over a road much the same as hitherto, skirting valleys of varying length and breadth and crossing the ridges between them, ascent and descent being made time after time. There was little vegetation in the valleys except at Nia-la-chon and Meenju. At midday we
entered a country in which on either side of the road itself towered lofty hills with easy slopes. There were no trees at this height (about 7500 feet) and only grass. Grass-clad hills brought us to Meenju, after a trying march of 25 miles.

For the first part of the day we passed through undulating ground, with detached hills or hummocks. In one of these, shortly after leaving Matang, we noticed a tunnelled cavern pierced through the hill a little below its summit. Three miles further on we came to several Long-jen villages situated in a large valley, one of which, named Shau-zia, is romantically situated, with smiling fields in front, at the foot of a perpendicular cliff.

Six miles further brought us to Nia-la-chon; a small ruined fort stands near the village, on a small bluff above the stream.

In the afternoon, just after passing some Miao and Moozi Poula hamlets, wretchedly poor places, with houses of mud and rubble, situated at a height of 7500 feet, with hills all around about another 1000 feet in height, we passed through the last part of the prairie and approached Meenju by a short cut winding alongside the dry bed of a stream.

The first half of the next day we continued skirting the usual valleys; afterwards we entered a bare red-soil country, with hills but no cultivation or villages. Early in the day we passed a number of flat-roofed villages; we had before met houses with flat roofs, but none of this pattern. Our height at two o'clock was 7500 feet, the highest of our day's march.

A sudden descent and quite as sudden a rise brought us to the summit of the easterly ridge bordering the Men-tzu plain, which was barely visible through a thick mist. Zigzag curves took us down into the valley, and then a very winding road over a causeway made the approach to the town amazingly long.

The strata seemed to be limestone, sandstone, and conglomerate, and a poor kind of slate, but it was impossible to see in what order each occurred in situ. A number of deep fissures or gullies cut out by the rains in the red soil were frequently observed.

Men-tzu is a large rambling place, not so fine or well-to-do as Kaihua, and not nearly so picturesque. It is in fact uninteresting except as an entrepôt of a very considerable transit trade from Manhao and the Shan country to different parts of the province.

On the 7th of April, next day, we commenced our march by going northwards for nearly 10 miles, to the border of the large lake which lies at the north end of the plain. On leaving the town through the north gate we passed several fine stone carved portals in the same damaged state to which they were reduced a dozen years ago.

On the left-hand side, a mile and a half from the town, a cemetery is met with, close by which a stone water-trough, measuring four feet
by two feet, stands under a tree on a solid block of stone. This useful institution is for the use of the numerous passers-by.

A fine paved causeway leads from the town. In some places it is badly broken up, and in other places it is lost altogether, to be resumed further on.

A couple of miles from the city a large village called Pe-ma is passed on the left hand, and a mile farther on a village of sixty houses, named Shu-li-fu, on the right. There is a joss-house near the entrance to the latter village, and a second stone water-trough.

Beyond the village a large portion of the plain remains uncultivated, the ground being undulating and too high for irrigation. The large lake, several miles in length and of an average breadth at the western end of half a mile, approaches the road. Here a long paved causeway, with only eight openings, which saves those going to Yunnan from a long detour, is met with. This is the stone bridge of some twenty arches mentioned by Rocher, but it scarcely deserves the name of bridge.

Our road to Lin-an took us past the southern side of the lake, which we skirted after passing the causeway. The lake narrows to about a couple of hundred yards near the villages of Tsan-leen and Yee-go-paw, and soon after becomes shallow; the end being protected by a rubble wall having an opening in it for the passage of a stream which enters it at that place. Soon after this, and before reaching Yee-go-paw—a village of some hundred houses—another huge expanse of water is seen, lying half a mile to the south. This lake appears to be separated from the other by a high rising ground or large spreading knoll, which we skirted on the northern side.

The highest hill in the range surrounding the Men-tzu plain is seen to the south in the afternoon. It is apparently 2000 feet higher than the plain.

A winding road through a bare barren country for some five miles, brought us to a valley of considerable area, in which untumbled rising grounds form the central portion, on which stand several villages, and at one of which, Chee-kai, we halted. The windings, as we neared our resting-place, converted what seemed a mile into a good hour's march.

Most of the villages we passed on the Men-tzu plains, as far as the Lin-an village, were flat-roofed, and the rains therefore are probably not heavy in these parts.

On the north side of the valley in which Chee-kai lies, a village larger than the others, Shatien, and numerous hamlets are situated. Shatien is seen about a mile to the north, at the foot of a low range of hills.

Men-tzu is a hsien or sub-prefecture, under the Lin-an department.

The road wound on the 8th of April through valleys. The lowest hollows, at the foot of sandy hills, much broken up by nullahs, were
under irrigation. The low hills on either side did not exceed 800 feet in height. About midday the sandy downs disappeared, and the road proceeded amongst hills, displaying highly cultivated and irrigated little valleys at their foot.

Cultivation largely increased as we approached our halting-place, Mien-tien, and the hills which in the morning were exceedingly bare, became more clothed with trees of various kinds. Little pine was visible, and that was of the poorest description. Conglomerate became the ruling formation in the afternoon, with limestone and sandstone here and there.

From Lin-an I hoped to be able to reach the Nam-ho or Hou-kiang, which on the French maps is shown as about a week's march from Talan or Yuan-chiang, but whether this would be possible or not, events would have to show. Should it be possible, fifteen days' steady marching would be necessary from Lin-an before we could reach boats, which I hoped to secure on the Nam-ho, and at that point penetrate a perfectly unexplored region, the easternmost part of the independent Shan country.

On the 9th of April our road ran alongside low bare hills, which we skirted for some miles on the southern side of a valley studded with hamlets, many of them partly ruined. We then entered a gorge through which the path ran three miles, part of the road being the bed of a small stream. On entering the gorge we found a bleak barren country, with low bare rocky hills on either side, and no trace of cultivation until within three miles of Lin-an, when we reached the large plain of the same name.

Lin-an does not come into view until the plain has been well entered, hidden as it is by several villages. The road skirts the eastern side at the foot of the hills. On the left there is no cultivation, and the hills gradually retreat; while on the other side cultivation becomes more common, until round Lin-an all available space is utilised for agriculture.

A paved causeway gives approach to Lin-an across the fields. Immediately beyond the fields there is a cemetery of huge area, extending over a mile and a half in length. This is the burial-ground which is noticed in Garnier's work. We came upon several large villages on the right, and some containing ruins, as well as a fort, which was close to a bridge spanning a stream some ten yards wide. Half a mile beyond this we encountered another stream, which, though shallow, was nearly 200 feet wide, with no bridge, but spanned by a slab causeway. To the left was a fine stone bridge of some eighteen arches. Immediately after this the city is entered. Lin-an lies in the centre of the immense plain surrounded by trees. We saw little remarkable as we approached, beyond a three-storied pavilion, a double-storied edifice, a minaret-looking pagoda, and several groups of joss-houses in the suburbs.
We were very kindly received and treated by the officials of the place, and enjoyed a most welcome immunity from that obtrusive popular curiosity which it is impolitic to check. After a stay of some days, we prepared to set out on our march to Talan, which takes nine days without a halt, and is about 160 miles in length. Two days further we should pass Shih-ping or Che-pin, on the direct route from Laos to the capital. As far as Talan we should follow the route of the French party, and after that we hoped to diverge to untrodden ground southwards.

The road from Lin-an after leaving the city wall—once a substantial structure, but now a patched-up affair, in wretched condition—is over rising ground, which for a distance of 2½ miles, forms a huge cemetery. This seems to stretch nearly all round the city like a belt, and extends as far as the eye can reach. As the French work has described a considerable portion of the ground over which we were to travel for the next nine days, I shall pass briefly over this portion of our journey. The feature of the Lin-an plain is undoubtedly this huge cemetery.

After a couple of ascents and descents, so thrilling after what we had undergone in this respect as hardly to deserve mention, we entered upon a wide and highly cultivated valley. The road wound alongside a stream some 20 yards broad, between trees and shrubs and pleasantly green hedgerows, consisting chiefly of what seemed to be a species of laurel. The southern side of the hill was beautifully wooded with verdant foliage.

We followed the stream on its wandering way, alongside which were dotted numerous villages, for nearly 10 miles. Numerous hill-torrents, with stony beds, were skilfully trained down by rubble side-walls into the main stream.

To the west of Lin-an, contrary to our experience east of it, the number of joss-houses became remarkable. In our first day's march we saw several new, and two more in course of erection.

Crossing a shoulder of the hills, which here close in, we obtained a glimpse of the lake of I-long, from which the stream we had followed takes its origin, and runs to the valley of Lin-an, which it waters.

We halted for the night at the village of Hai-tung, lying close to the north-eastern extremity of the lake. This sheet of water, some 13 miles long and close on five miles broad, is one of great beauty.

Early in the day, when some five miles from Lin-an, we crossed the stream by a bridge, which was a handsome structure, built of massive slabs of beautiful limestone. The stream itself was spanned by two arches of some 20 feet, and at either side there was a smaller outlet of 10 feet. The bridge piers had fine cutwaters and were protected, both above and below, by stone wings. Massive elephants and the usual lions adorned the parapets on either side; the former not the usual caricatures which adorn Chinese buildings. A handsome tower, square in its
ground and octagonal in its upper story, gave protection to the shrine of some deity.

On the following day after leaving Hai-tung, we skirted the lake all day, moving chiefly along its brink and on fine paved causeways, occasionally ascending to cross some small ridge which here and there jutted out into the water.

The northern margin, along which our road lay, was studded with villages, some of which were of considerable size, and the whole margin was under careful cultivation. The hills on both sides slope down close to the lake, the northern edge being broken up by little promontories which give a variety to this bank seemingly absent on the southern shore.

The causeways act as bunds or levées against the lake waters, and a large area is thus reclaimed. Near the western end of the lake lies Shih-ping, beautifully situated, projecting from the rich plain behind it. In the waters of the lake a number of hamlets and villages are situated on promontories. These are joined to the shore by narrow causeways running in many directions. Near the south shore are two beautiful islets, covered with houses built up the hill-side, and crowned by joss-houses.

On a rising ground south of the town stands a tower, which must command a fine view, and which we wished to ascend, as de Carné did at this very spot thirteen years ago. The French sailed down the lake, and entered Lin-an by a different road from the highway which we used.

The flat-roofed houses in this neighbourhood are crowned by stacks of straw, which at a distance give them the appearance of so many mosques. The town is walled.

Next day, soon after leaving, we passed a stone portal or pai-fang. These, from all reports, seem to be very numerous in the south of Yünnan. Nearly all we saw were of handsome carved limestone, solidly built and finely carved, not disfigured by any colouring.

On leaving Shih-ping we crossed the end of the valley, and proceeding along the high ground came to a small lake, called Hai-kau-ho, some three miles long by one mile broad. Near its head lies a large village. We skirted a number of valleys, and found the country more populous and cultivated than any we had seen.

After leaving the lake we headed the valley, crossing a ridge, and descended a long and narrow valley, where cultivation in terraces was carried up the hill-sides. A thick undergrowth resembling laurel covered the hills; azaleas, as well as trees which we took to be ash, oak, elm, and birch, were abundant.

We stopped at a small hamlet, and found quarters in a house whose lower terrace-roof gave us a beautiful outlook.

Next day, after going five miles down a hill-stream, over a bed of large boulders, we entered a large valley. The stream draining it,
called the Si-ho-ti, after joining the small one we had descended, runs southward and joins the Yuan-chiang or Red River.

Directly afterwards a steep zigzag ascent carried us winding in and out hill-sides, gradually rising until we reached the village of San-tai-pan, which is situated most beautifully among lofty mountains. From the inn we stayed at we had a charming prospect. We were nearly 2000 feet above the valley which we had left in the morning.

Our next march was a trying one, over very hilly country to the summit of the range which closes in the Red River, and which we had to cross. The height of the pass was 8100 feet, the greatest height to which we had as yet ascended. Villages were frequent, and terrace-cultivation was skilfully carried out to the tops of the ridges surrounding us.

One very high hill, probably 2000 feet above us, was passed, from which Yünnan-fu and Lin-an were said to be visible.

After commencing the descent we had some beautiful views of the Yuan-chiang plain, the river winding through it, and villages dotted here and there on the hill-sides next the valley. Terrace-cultivation was continued up in an unbroken line to the top of the ridges, in some places 1000 to 1500 feet above the valley. Pine of several sorts was abundant, the biggest only two feet in diameter. There were other trees, but none of large growth.

The number of bridges in Southern Yünnan and their excellence is surprising. They are usually built of massive slabs of fine limestone, and are well put together.

We got into Lu-tung in a shower of rain, and were glad to find shelter, poor as the accommodation was.

Leaving Lu-tung-po on the 17th of April, we commenced the descent of the Yuan-chiang valley, the Song-ka or Red River of the French. Two hours' marching by a very winding road skirting the spurs of the high ranges brought us to the top of a ridge from which there is a rapid descent to the valley; the distance was only a few miles, but it took us two hours to accomplish.

Three miles from our starting-place we had a first view of the valley, with the Yuan-chiang winding through it. Several streams, notably the Chin-shui-ho, join their waters to it on the southern side.

As we made our first descent, over 2000 feet, the view of the valley was grand. The hills on either side were bare and precipitous.

The plain, some six or eight miles long by two miles broad, disappointed us in its size after the reports we had heard of it.

The town (Yuan-kiang), on the river-side, was enclosed by groups of trees, which gave a pleasant air to the old and crumbling place. As we neared the river we found that the lower slopes of the hills were covered to a large extent by graves, the walls of which were of the usual circular shape, the back being built into the hill-slope.
The town is a squalid one. A considerable portion of the walled inclosure is waste land, with ruins scattered about, exactly as the French found it thirteen years ago.

From this place to Talan we followed the French route for three days.

To digress a little on trade matters: after having traversed so much of Yünnan, and having seen the Red River, we can say a few words on the best route to tap the trade of South-eastern Yünnan. Does any trade, such as the French have been fighting and striving for, exist, or can it be created in that portion of the province? The fact is that Eastern Yünnan is a poorly cultivated and, on the whole, barren region, with nearly as sparse a population as the northern portion of the province. The real agricultural wealth lies in the central, south-west, and western portions, which can best be tapped by a railway from British Burma, passing through Zimmé and Kiang-hung to Ssü-mao.

We left Yuan-kiang on the 18th of April, after having been most kindly treated by the local authorities. Our road ran up a valley situated at right angles to, and south of, the plain. The ascent up this grand glen, down which a stream poured over a granite bed, gave us magnificent views as we turned the corners of this very steep and incessantly winding road.

From our halting-place, Molang, we could see the river winding through the plain past the town of Yuan-kiang. We ascended close upon 4000 feet, making only a few miles progress on account of the steepness of the road.

On the following morning we started in such a heavy mist that we could hardly see anything. After six miles of winding close to the summit of a mountain, we made a most abrupt and fierce descent, over a broken and neglected causeway, to the stream of Chin-tien, which runs into the Yuan-chiang, at a point some miles north-east of our resting-place. A fine bridge spans the stream, and here two valleys intersect each other. The old causeway, once a fine and noble work, now lies neglected and broken up, forming the bed of a torrent.

We halted at a wretched stable, and were glad to see daylight, so as to get on the march again.

On the previous day we had passed many houses and parts of villages in ruins, and continued to meet with them on the 20th of April.

We crossed at midday a ridge about 5000 feet high, and soon afterwards reached Tien-so, a village of 100 houses, lying on the side of a small stream in a considerable valley.

Leaving Tien-so on the 21st of April, we made the usual ascent by a very winding road, up valleys, crossing a couple of ridges about 1000 feet above the valley levels. A halt was called on the hill-top overlooking Talan.

We were met by the officials and treated with the utmost kindness
by them. Here again, where the goodwill of our informants was
undoubted, we found the greatest difficulty in gaining information about
routes and the situation of neighbouring places; those who did know
anything used different names for the same places, and the majority
neither knew nor professed to care anything at all.

On the 23rd of April we started from Talan. The road took us up a
small side valley. After five miles of this we crossed a stream, and
ascending a thousand feet, to a plateau which we traversed, descended
to Tchang-luping, a village prettily situated on the side of a small
stream running into the Lysien river, some few miles further down.

The descent to the Lysien, which we accomplished on the following
day, was very steep, and wound in and out most picturesquely alongside
the hill-stream. Suddenly we came, on turning a bend of the road, to
the river, and a few steps further showed us what we little expected to
see in this region, an iron suspension bridge erected over the river, at a
beautiful and admirably chosen site. The abutments rest on the solid
rocky sides, and the span between them is 264 feet, forming a graceful
structure, though of course more primitive and less finished in design
than those found in Europe. There is a handsome portal, highly
ornamented at each end, and a small pavilion stands perched on the
southern hill-side, while a joss-house is in a similar position on the
northern.

When we crossed, the river had a width of only some 20 yards, and
its depth was scarcely two feet; but with the heavy rains of August, it
increases its volume and violence to such an extent as to render it useless
as a means of navigation.

After the ascent from the Lysien river, we followed a beautiful
winding road, which generally took us along the ridges separating the
valleys, on the broken plateau-land lying between the Lysien and
Papien rivers. Parts of the road approaching Tong-kwan, where we
rested for the night, were of great beauty, and afforded us a most pleasant
change from the incessant ascent and descent involved in the crossing of
all the waterways and watersheds of Southern Yunnan.

Tong-kwan is a thriving place of about 200 houses, with a fertile
valley on its northern side, in which are situated several small hamlets;
on its southern side there is another valley of smaller extent, and less
cultivated. Here we rested in a small temple, some few hundred yards
beyond the western limit of the town.

Descending about 2000 feet from Tong-kwan, on the 25th of April,
by the side of a small stream in the same way as we had done to the
Lysien river, we came upon the Papien river. Although of greater
size and volume than the Lysien, it is not so picturesque at the point
where we first encountered it. Everything was on a larger scale—hills,
river, and ravines—but wilder, and its turbulent muddy waters were
less beautiful than the clear shingle bottom of the Lysien.
The heat was terrible, and after our long march, now nearly forty days, with poor food and worse lodging, we were little able to stand this new discomfort. Mr. Wahab was obliged to be carried, he was so debilitated by fatigue and disease (dysentery) as to be unable to walk.

In the afternoon we stayed for the night at the village of Papien, which lies some five miles up a side valley. All the villagers had a wretched sallow fever-stricken look, besides which many were afflicted with goitre and eye-diseases.

An ascent of 2000 feet, which we made next day, took us to a small plateau, which we crossed, and descended, in pouring rain, nearly to the same level to Mo-hii or Mohé, a large village of some 200 straggling houses lying on the side of a stream of the same name running northwards into the Papien.

The hills in the neighbourhood to the north and south were lofty and well timbered, unlike those we had seen the day before, when they were barren. On the hill-side of the Mohé they are nearly bare, except for grass and low trees.

We found shelter in a wretched shanty, which gave protection neither from wind nor rain, and we were all glad to get away next morning.

On the 27th we made another ascent of 2000 feet, straight up the face of a range which divides the valley which we had left, from Puerh. Here we were at a great height, some 8000 feet, and numerous high peaks in the ranges close by were seen towering far above our level.

Puerh-fu, the town, could not be seen from the summit of the range, owing to its lying behind some knolls in the plain, which seems to be much broken up by knolls or rising grounds, round which we wound till we came in view of the town. As we passed the last of these knolls the cultivable area seemed not to be so great as we had expected, or would appear to be warranted by the town and numerous villages scattered round it. The high hills seem to wedge in and give a confined air to the town. The hill-sides are bare, with less timber and hardly any cultivation, but all the side valleys and the plain itself are under close cultivation.

The town, which fifteen years ago suffered greatly from the war, does not yet seem to have recovered its place. A large walled town, it has one main street, with shops and houses running along either side. The most remarkable figures about Puerh are the two twelve-storied pagodas, one on the summit of a hill close by, and the other, a newly-erected structure, on the top of a ridge some five miles distant, at the southern end of the valley.

Two days' march took us to Ssū-mao, which is a t'ing or town of the third order, and the last administrative town on the south-western frontier of Yünnan. Like all other Yünnanese towns, it lies in the centre of a plain, which has a more open and considerable look than that of Puerh, owing to the hills being lower on all sides. We lodged in an
old and tumble-down temple, the worst in the place, to which the ill-will and boorishness of the local mandarin had consigned us.

I am not likely to lose my recollections of Ssū-mao, for here I received a disappointment from a quarter little expected by me. The reader will recollect that failing the possibility of finding a route, or making our way to the Nam-hou river, and thence by Luang-prabang to Burma, I hoped to succeed in crossing the Yunnan frontier from Ssū-mao, and getting down the Mekong, or east of it, through the unknown Laos countries. In the event of that not being possible I had hoped to proceed to Kiang-hung, and thence to South-eastern Burma or Tenasserim via Zimmé. But now my right-hand man, the interpreter, showed signs of insubordination, professing to be fearful of the climatic and personal risks of my proposed route. I found it impossible to secure a substitute locally, such as a Burman who spoke Laotian, or a Chinaman speaking Burmese.

The mandarin was studiedly rude, placed every obstacle in our way, and used every art to misdirect us, putting pressure on my interpreter and servants, knowing them to be indispensable to my journey. Had I gone on by the route the mandarin recommended me to follow, I was certain to be turned back by the first Shan chief. My funds were getting low, my companion was seriously ill, further delay was impossible. There was only one way open to me now, and that was to strike north to Tali-fu, and thence make my way to Burma by the route to Bhamo, so I made up my mind to proceed by the unknown route to Tali, via Ching-tung or King-tong, a place some twelve days’ march from Ssū-mao.

III. Ssū-mao to Tali.

I lost no time, but hired horses, and arranged to go direct to Tali, a stage of over twenty days’ marching. From here (Ssū-mao) we had to retrace our steps to Mohé for three days, and then strike north to Chintung, following the valley of the Papien river, so that we did not anticipate such hard marching as we had lately gone through. Having lightened our already light baggage, we set out on the 2nd of May by the same road by which we entered Ssū-mao, and arrived at Mohé on the 4th of May.

For the next three days our march took us through valley after valley continuously. On the third day we reached the Papien river, which from Garnier’s map and our survey we expected to have sighted sooner. This part of its course is evidently wrongly shown in existing maps.

Many of the valleys which we had passed, though of no great size, were highly cultivated, especially in terraces, from the valley stream-bed up the lower slopes of the hill-sides, and curiously enough, almost all the west side of the valleys.
On the 8th of May we halted at Hsin-fu, a small walled town lying on the west side of the Papien. It is of no importance. The ferry-boat takes one across the river to the eastern bank, along which the road runs for a number of marches. During the day, two marked peaks in the eastern range had been visible, rising 2000 feet above us.

On the 9th of May we went from Hsin-fu to Kwan-yü. Our road there ran up the left bank of the Papien river. It was very winding, and followed the tortuous river along the lower slopes of the hills. At first, these latter were close to the river and lofty, but they soon gave place to spurs of less altitude.

After leaving this place, we passed nearly a whole day without seeing any habitations or cultivation until evening, when we came upon En-lo, where we halted. It is situated on the eastern side of a small plain, enclosed by an amphitheatre of hills, with several other villages scattered about. It has a handsome three-storied pavilion, and an old joss-house under repair, in which we lodged.

Soon after leaving En-lo we met some portals (pai-fangs) which were carved in sandstone. The river valley from time to time presented a pleasantly cultivated air, after the desolate regions we had passed lately, but still dilapidation was continually seen in ruined sites and deserted villages.

On the 11th, we lodged at Chay-kaw in a nice clean house, belonging to an old woman who kept a shop. The road had been of the same character as for the last few days, except that the hills became lower, and the valley widened out to close on a mile. Cultivation and villages were scarce, and the latter were frequently in ruins. The river changed here from a torrent full of rapids and shoals to an even-flowing stream, with many long pools, having but a slight flow through them.

The next day, after an hour’s march alongside the Papien, we followed one of its numerous affluents until it became dry. And then, after crossing a small saddle, came upon a view of the Ching-tung plain, a magnificent surprise, and a most welcome one it was in this land of contrasts and surprises. Here lay a grand valley or plain, many miles in length, of considerable breadth, and remarkable beauty. Patches of cultivation, prosperous-looking villages, enclosed by serrated hills, made up a pretty picture. Passing through the plain, we found we had entered upon a series of almost totally deserted villages.

Our first impression of the beauty and richness of the Ching-tung plain was more than borne out by what we saw later. It is the finest plain we had seen, and both in regard to fertility and beauty, surpassed all those in the south of Yunnan, and from what one could learn, any in the whole province.

We marched for more than two days up the winding causeway, which skirts the plain at the base of the hill-spurs, and the ever-varying beauty constantly forced exclamations of surprise from us.
The deserted villages became more frequent, while razed sites were common; and in parts of the valley might be said to make for miles a continuous line. This scene of ruin culminated at Ching-tung. Here we found, not the city we had expected, but a paltry village of some five hundred houses, but there was ample evidence of its former prosperity.

Our way lay up the valley, first on the eastern side of the Papien river, which winds gracefully through bamboo and wood, then on the western edge of the plain we passed a curiously great number of temples, wei-kuans, pai-fangs, and cemeteries. A fine sandstone gives admirable material for these structures, which add an air of affluence and civilisation to the already deceptive scene.

On the summit of the hill-saddle at the southern end of the plain, stands the Nam-ting-ting pagoda, famous throughout South-western Yünnan, a handsome old structure of nine stories, square in section, each tier decreasing as it rises. The usual banyan trees flourish at its apex, and the whole pagoda and its surroundings show no signs of being cared for in any way. It is apparently of considerable age.

Some five miles to the south of Ching-tung stands another smaller pagoda, hexagonal, and seven tiers in height; the four lower stories are of the same breadth, while the upper three decrease with a batter. Some 12 miles south of the town is the Fungs-hui-tah, a two-storied pagoda.

We were very civilly received by the officials at Ching-tung, and kindly treated by them so far as their resources went.

On leaving, we passed some six miles up the western edge of the Ching-tung valley, and crossing several streams, two of which were bridged, we came to the foot of a small ascent. We then crossed several spurs and branch valleys, and rejoined the Papien in the evening at a small hamlet. Opposite this place stands a sharp isolated rugged peak, rising abruptly some 800 feet from the river-edge. This peak, with another behind it, which we could not see till the next day, are called Ssu-mai Shan or "Brother and Sister Hills."

On the 15th of May we continued to follow the river, and early in our march came to a wild gorge, where the Papien had torn its way through walls of rock, close to the Brother and Sister peaks. On the western summit of the gorge stands a small temple.

The road was of the same character as on the previous day, and we crossed spurs and side-valleys with their streams, affluents of the Papien, until we reached Lungai, where we halted.

Lungai is a dirty village, only remarkable for possessing a water-wheel of a description which was novel to us. Several bridges were passed, some of which were roofed with tiles throughout their length.

On the following day we skirted the Papien again, only leaving it once to cross a lofty spur about 2400 feet above the river, and about 6000
above the sea, and then rejoined the river at Chu-kai. The morning walks under the shelter of the eastern hill range in this portion of our journey, free from the sun and skirting the river, were most delightful. Not the least pleasant part of them was the absence of the 2000 feet steeps up which we had previously to toil continuously for forty days.

The road for the next two days ran near or alongside the river, occasionally rising to cross a high spur, and in some cases a diversion had been made to avoid places where the river fought its way through the gorges. On the evening of the 17th of May we halted at Mau-kai, a village lying on the eastern hill-side, from above which a fine view of the valley is commanded. A handsome group of new temples had been lately built on the hill behind the town. The number of pai-fangs, wei-kans and temples, many of the latter handsome structures newly built, met with was remarkable, and taken along with the bridges, protection wall, and other public works, argues a considerable degree of present affluence. The hill-sides are cultivated nearly to the top. The number of hamlets and isolated farm-steadings is remarkable, for the Lolos and others of the aborigines in the neighbourhood do not from choice congregate in villages. There are, however, many villages, and the population, from all we could see, must be great, while peace and prosperity seem stamped upon the face of the country.

For some days, the number of watch-towers, generally placed near a village or on some prominent height, was noticeable. They were built during the late war. Close to some of them may be seen a yamen guard-house, but many of these latter have been allowed to fall into ruin.

A handsome arched bridge, of about 30 feet, with fine rubble abutments, which had been newly erected, spans the Papien river a few miles before Chu-kai. It stands just above a bend in the stream, which gives approach to the steep ascent to the village.

At the foot of this precipitous ascent is a small hamlet, called Shee-tung, where a cluster of cave temples is niched in the rocky sides. These temples, which are of various sizes, are built into the sheer face of the cliff at various heights, and are in full view from the river.

A very handsome three-storied temple has been recently built in an overhanging ledge of the cliff, above a branch stream near the hamlet.

The next day we found ourselves surrounded by mountains, none of them of very great height. We left the Papien, crossed a number of high ridges and small valleys, and in the evening reached the plain or valley of Nan-tien, and crossed a stream running eastwards. This was one of the head branches of the Yuan-chiang river, known here as the Mong-hoa-ho, and further down, until it joins the main river, as the Dayang-chiang.

The town, which consists of some 300 houses, is remarkable for the number of temples in and about it, and for three two-storied pavilions.
One stands behind the town, near the small fort which crowns a height. Another stands on the hill-side on the opposite, or south-east, side of the valley; and the third on an island in the centre of the valley, where it opens out. A great number of villages line the sides of the valleys in every direction. The red marl of the lower slopes of the valleys, all around this town, is torn by the rainfall into very abrupt ravines or fissures, looking as if they had been furrowed by some giant hand. In places some sections were displayed, cut clear and sheer down some 300 feet. A curious spectacle presented itself in the pyramids standing in these ravines, but the columns were still more remarkable. These displayed the strata in a most comical way.

A couple of days' marching up the side of the Mong-hoa-ho brought us to the extensive and beautiful plain of Mong-hoa. For the greater length the hills were steep on both sides, and therefore less cultivated. The eastern slopes were nearly bare. In the upper length the banks were in places lined with willows. At the extreme southern end of the plain, on a spur some 600 feet high, stands a most graceful and handsome seven-tiered pagoda. This is called by the villagers to the north Shih-tsow-tah, and by those to the south Wu-fong Po-tah.

The road skirts the eastern side of the stream, and a couple of miles before we reached Mong-hoa, we came upon a handsome nine-storied pagoda. A temple on the lower hill-side stands on the other side of the stream. The pagoda is square in section.

The valley sides are lined with villages, and after the town is passed, they become so numerous as to almost form a continuous row on either side. The plain is, however, not one-half cultivated, and the handsome substantially-built villages are frequently in part deserted.

Little is seen of Mong-hoa from the outside above the blackened city walls, except a two-storied pavilion, the two-storied gateways, and the official wei-kans.

The city is not visible until close up to it, on account of a rising ground, which hides it from the south approach. It is very large and well built, and far superior to any we had yet seen. Several very handsome pai-fangs in fine sandstone, stand near the northern approach.

We halted on the 20th of May at a small Lo-lo hamlet, and received a hearty welcome from an old lady in whose house we stayed.

Next day's march brought us to Sun-tien at the northern end of the plain; numberless villages lined the valley, but a great proportion of it is waste.

At night we lodged in a village close by Sun-tien, called Yensi-chang, which was almost entirely deserted. A winding paved causeway led us through unpeopled streets, on either side of which were fine, almost magnificent buildings, substantially built and handsomely decorated.

There must be an immense number of villages lining this plain.
Some twenty could be seen, as we wound our way next day up the lower slopes of the northern hill-sides of the valley.

Close by Mong-hoa are some hot boiling springs, which we had not time to visit. They have a great local reputation for the cure of almost every ailment.

A toilsome ascent of a couple of hours brought us to the greatest height we had yet crossed, 9200 feet, and to the summit of the range dividing the Tali lake from the Mong-hoa plain. The lake finally became visible to our delighted eyes. It is some 20 miles by four, and is incased in magnificent mountains, estimated at 14,000 to 15,000 feet in height, though they are probably higher, as snow is found on the peaks all the year round.

At Hsia-Kuan, a strongly fortified town at the south-west extremity of the lake, we were met and very kindly treated by Mr. and Mrs. George Clarke, of the China Inland Mission.

Here our survey ended, for although we were very far from being "out of the wood" with a long and perilous march of twenty days to Bhamo before us, that part of our journey had already been surveyed and described by other travellers.

The foregoing is a mere account of the features of the country passed, the route taken, and our reasons for departing from the original plan. It gives no idea of the difficulties encountered. Although we were generally well treated by the native officials, some of them were suspicious and obstructive. Our native followers, being Chinese, thought and acted as if the fate of the expedition depended on their goodwill; and besides this conceit, they were rendered more intractable by having their fears, self-interest, or superstition played upon by those officious people who, in China, are never well-disposed to foreigners. Our funds were very low, my own private means and money generously supplied by a few English merchants, barely sufficing to pay our way through, even if all went well. The sickness of Mr. Wahab towards the latter end of the journey, and unforeseen delays, caused such a drain on our resources that I was forced to borrow from the missionaries at Tali and Bhamo.

The provinces of Kwang-tung and Kwang-si were still in a state of turmoil from the recent insurrections; brigandage was rampant.

Transport, after leaving the boat, could scarcely be obtained, and was bad at the best. Plague and malaria infested a great part of the route, most of my party, including Mr. Wahab, contracted dysentery, or fever, before reaching Tali, and had to go into hospital on arriving at Rangoon. I myself was so jaded by long marches, bad food, and unhealthy quarters, the anxieties of our situation, the constant labour of surveying and taking frequent angles, that only a deep sense of the heavy responsibility for the rest of the party, and a determination to pull through, aided by a robust frame, kept me from breaking down altogether.
Since this journey was made, many of the cities passed through by me on the river between Canton and Pe-sê have been included in a vast system of internal telegraphs, which is still being vigorously pushed by the Chinese Government. The erection and maintenance of these lines necessitates the occasional presence of European engineers, but although these are in the direct employ of the Chinese Government, and some have high Chinese official rank, they have to move about under large military escorts. Even then insult and robbery cannot be prevented. My position five years ago, poor in funds, with no official status, and subject to having my aims maliciously misrepresented to a lawless unthinking populace, may be imagined.

The aggressive attitude of Russia, and the recent trouble with France, have forced the Chinese to recognise the value of European scientific appliances. They have given practical proof of their convictions in this respect by building a costly line of telegraph from end to end of the empire.

The leading Chinese statesmen are thoroughly convinced that if China is to hold together as a nation, and avert the threatened disrupation consequent on uncontrolled internal and external pressure, they must have railways. Their political and commercial value has long been proved to them, and if English capitalists will build a line traversing the rich provinces of Siam and the Shan States, joining our Indian railways with the south-western frontier of China, the inducements to the Chinese to meet them half-way will, in all probability, give the necessary impetus to railway construction in China.
BIBLIOGRAPHY AND CARTOGRAPHY

OF

HISPANIOLA.

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BIBLIOGRAPHY AND CARTOGRAPHY
OF
HISPANIOLA.
By H. Ling Roth.

I. INTRODUCTION.

The Island of Hispaniola has become known by several names. Originally named Española by Columbus, it was generally called Hispaniola, and occasionally Santa Dominica. It is also spoken of as Saint Domingue, Santo or San Domingo, Hayti and Haiti.

When we consider that Hispaniola has been known to the civilised world for a period extending over nearly four hundred years (it was discovered 5 Dec. 1492), and that it is a rich tropical island with a most remarkable history, we may be somewhat disappointed at the paucity of works which describe it, but this paucity is no doubt due to the depressing influence of the unhappy political disturbances which, with a few lucid intervals, have prevailed during the last century at both ends of the island. Travellers and naturalists visit Jamaica, Cuba, the Bahamas, Porto Rico, and other surrounding islands, but they appear carefully to avoid the island Hispaniola itself. The maps of the country are also comparatively few, but we have a considerable number of charts of the coast.

The history has been well threshed out and includes some standard works. Most of the historians have given a good account of the geography and of the people of the island; but of its meteorology our knowledge is almost nil, and with its zoology and botany we are but imperfectly acquainted. The herbaria in Kew collected by Schomburgk, Wright, Parry, and Brummel appear never to have been published.

The last naturalist who visited Hispaniola was the late R. L. Fleming, who died there, and whose collections and papers never reached England.

In order to facilitate reference to the works whose titles are mentioned in this Bibliography, the names of the libraries where the writer has seen them are indicated by initial capitals placed at the end
of the title. This does not at all mean that the locality of every existing copy of a book is stated. Thus:

A.I. Anthropological Institute of Gt. Brit. and Ireland.
A.D. Library of the Admiralty Department.
B.M. British Museum.
B.T. Board of Trade Library at Foreign Office.
F.O. Foreign Office.
K.G. Kew Gardens.
L.S. Linnean Society of London.
R.G.S. Royal Geographical Society.
R.Met.S. Royal Meteorological Society.
R.S. Royal Society.
S.S. Statistical Society of London.
Sch. M. Royal School of Mines.
U.S.I. United Service Institution.
Z.S. Zoological Society of London.

All the books, &c., referred to, however, are not to be found in England, but the books or papers from which their respective titles have been extracted are expressed by initial capitals in the same manner as with the libraries. Thus:

A.B. Alex. Bonneau, Haïti—Ses Progrès ... etc., in B.M.
A.L. Catalogue of Astor Library, in B.M.
E.C. Edu. Charton, Voyageurs anciens ... etc., in B.M.
E.U. E. Uriceochea, Mapoteca Colombiana, in B.M.
H.H. Henry Harrisse, Bibliotheca Americana, in B.M.
J.W. John Weiss, Atlantic Monthly 1862-3, in B.M.
K.L. Kayser's Vollständiges Bücher-Lexicon, in B.M.
O.L. Otto Lorenz, Catalogue Gen. de la Librarie Française, in B.M.
P.M. Petermann's Geogr. Mittheilungen, in R.G.S.
Rich. Rich's Bibliotheca Americana, in B.M.
S.H. Sam. Hazard, Santo Domingo ... etc., in B.M.
T.C. Ternaux-Compania, Bibliothèque Americaine, in B.M.

There is in the British Museum a numerous collection of French purely revolutionary pamphlets bearing on Hayti. It has not been considered advisable to publish their titles in this Bibliography. Any one wishing to consult them will find a very complete set of these titles, about 250 in number, prepared by the present writer, in the library of the Foreign Office.
II. AUTHORS' CATALOGUE.


Aa, Pieter van der.—See Herrera.


Note.—With table of rainfall and number of rainy days from Aug. 1863 to Dec. 1867. Dr. Julius Hahn has incorporated this paper on pp. 354-355 Handbuch der Klimatologie, Stuttgart, 1883. R.Met.S.

Adlerstam.—See Ledebour.


Americus.—The Annexation of San Domingo. The Galaxy, New York, i. 1871, pp. 414-421. B.M.

Note.—With official correspondence on the question.

Anglerius, Petrus Martyr.—Hakluyt's Collection of Voyages. London: 1812, 5 vols, fol. B.M.

Note.—The chief references to Hispaniola, its inhabitants, and the doings of the Spaniards there, are to be found in the first of his Decades of the Ocean, p. 127 et seq. According to Muñoz, they are badly arranged and very mixed. Originally published in 1511 (T.C.).


Antunez y Acevedo, Rafael.—Memorias historicas sobre la Legislacion y Gobernador del Comercio de los Españoles con sus Colonias en las Indias Occidentales. Madrid: 1797, 4to, pp. 230 cv. B.M.

Note.—With appendix (cv. pp.), giving copies of the documents quoted.

Archenhols, J. W. von.—The History of the Pirates, Freebooters, or Buccaneers of America. Translated from the German by George Mason. London: 1807, 12mo, 240 pp. B.M.

Note.—St. Domingo was at one time the chief refuge of the Buccaneers; hence the short account of the island (taken from Charlevoix). Also a French ed., Paris, 1804, 8vo. (A.B.)

Ardouin, B.—Géographie de L'île D'Haiti, précédée du précis et de la date de événements les plus remarquables de son histoire. Port-au-Prince: 1832, 4to, 184 pp. B.M.

Note.—The chronological table extends from 1492 to 1830; there is also a gazetteer (pp. 106-173), &c.


Note.—The studies begin at the revolution of 1789, and extend to 1843. The 11th vol. wanting in B.M.


*Note.*—Polydesmus Sallei and Julus haitensis are described by Saussure in pp. 42 and 105 in Memoires... L'Hist. Nat. du Mexique, des Antilles, etc. Geneva: 1860, 4to. L.S.


This spider is described by Descourtiz, which see.


Barbé Marbois.—Mémoire laissé par M. B., Intendant à Saint-Domingue. [Port-au-Prince: 1789] 4to, 15 pp. B.M.

*Note.*—A report on the state of the Government for the use of his successors.

— État des Finances de Saint-Domingue, Contenant le Résumé des Recettes et Dépenses... 10 Nov. 1785-1 Jan. 1788. Paris: 1790, 4to, 55 pp. B.M.

*Note.*—With 12 statistical tables.


Barcia.—See Gonzalez de Barcia.


*Note.*—Map wanting.


*Note.*—An account of the state of the island during the author's sojourn there.

Beard, John R., D.D.—The Life of Toussaint L'Ouverture, the Negro Patriot of Hayti; comprising an account of the struggle for liberty in the island, and a sketch of its history to the present period. London: 1863, 8vo, 335 pp. B.M.
Beauvais.—See Palisot de Beauvais.


Note.—With separate engraved title-page, dated 1768, and 33 plates (charts), including the Bahamas and the Bermudas.


Note.—With index and original woodcuts. Pages 13 to 108 are descriptive and historical of S. Domingo. The work was originally published in 1565 in Venice, entitled La Istoria del Mondo Nuovo. There are numerous editions and translations.


Berlioz d’Auriac, I.—Le Guerre-Noire, Souvenirs de Saint Domingue, Paris: 1862, 12mo, 408 pp. B.M.

Note.—A novel founded on the incidents of the first revolution.

Bert, Sir Thos.—See Hakluyt.


Note.—Pure Haytian proverbs collected by Mr. Bigelow.


Note.—Includes Hayti in full.


Note.—Includes some mollusks from Hayti.


Note.—Includes some mollusks from Hayti.


Boisrond-Tonnerre.—Mémoires pour servir à l’histoire de Haïti. Port-an-Prince: 1804. A.B.


Note.—This deals with the revolution and the first years of independence.
Bona, Felix de.—Cuba, Santo-Domingo y Puerto Rico. Madrid: 1861, 8vo, 155 pp. B.M.

Note.—Pp. 1-49 deal with St. Domingo Republic, its finances, &c., and its incorporation with the Spanish crown, &c.

Bonne.—See Raynal.

Bonneau, Alexandre.—Les intérêts français et européens à Santo-Domingo. Paris: 1861, 8vo. A.B.


Note.—This small Bibliography is largely aided by that of Le Pelletier de St. Remy.

Bonnet, Edm.—Souvenirs de G. J. Bonnet. . . . Documents relatifs à toutes les phases de la Révolution de Saint Domingue, recueillis et mis en ordre par. . . . Paris: 1864, 8vo, xxii. + 502 pp. B.M.

Bossi, Luigi.—Vita di Cristoforo Colombo scritta e corredata di nuove osservazioni di note storico-critiche e di un appendice di documenti rari o inedita. Milan: 1818, 8vo, 255 pp. B.M.

Note.—This gives a short account of the island, together with the doings of C. C. and his followers there.


Bourgeois.—See N. . . . [Nougaret.]

Bourguignon d’Anville, J. B.—See Charlevoix.


Bowler.—See Auguste.


Note.—On the encouragement of agriculture.

—— République d’Hayti.—Loi sur l’Instruction publique. Port-au-Prince: 1820, 8vo, 9 pp. B.M.

Note.—No title-page.

—— Pièces Officielles relatives aux Négociations du Gouvernement Français avec le Gouvernement Haïtien, pour traiter de la formalité de la Reconnaissance de l’Indépendance d’Haïti. Port-au-Prince: 1824, 4to, 84 pp. B.M.

—— The Rural Code of Haïti; in French and English with a prefatory letter [by the translator] to the Right Hon. the Earl of Bathurst. London: 1827, 8vo, 100 pp. B.M.

—— See also Walliez.


Note.—The specimen was forwarded by Jaeger from Hayti. With two plates. Peters, Mivart, and Dobson have since described this mammal peculiar to Cuba and Hayti.

Breton, J. B. J.—See Edwards.
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Brewer.—See Kolb.

Brinton, D. G., M.D.—The Arawak Language of Guiana.... Philadelphia: 1871, 4to, 18 pp. B.M.

Note.—Contains a vocabulary of the Haytian language, and comparison with the Arawak, &c.

Britannicus.—The Dominican Republic and the Emperor Souloque; being Remarks and Strictures on the Misstatements, and a Refutation of the Calumnies of M. D'Alaux in the article under the above title in the Revue des deux Mondes; preceded by a precise account of the Historical Events of the Dominican Republic, and a glance at the Peninsula of Samana, by Britannicus. Phil.: 1852, 8vo, 72 pp. R.G.S., F.O.


Note.—On Communal agriculture on the island.


Note.—Very few references to authorities.


Bry, Théodore de.—See Herrera.


Burney, James, F.R.S., Admiral.—A Chronological History of the Discoveries in the South Sea or Pacific Ocean. London: 1803-17, 5 vols. 4to. B.M.

Note.—With Index. Vol. iv. (ch. ii. and iii.) gives a review of the Dominion of the Spaniards in Hayti or Hispaniola, &c.

C. * * * F.—Soirées Bermudienes, ou Entretiens sur les événements qui ont opéré la ruine de la partie française de l'île Saint Domingue. Bordeaux: 1802, 8vo, pp. xiii. and 306. B.M.


Note.—This work is probably the same as the one quoted above.

C., G. W.—See W., F. and C., G. W.

Cabot.—See Hakluyt.

Calendar of State Papers, Colonial Series, America and the West Indies. Edited by W. Noel Sainsbury. London, 8vo. B.M.

Note.—In two vols. Vol. i. 1860, contains the documents dated from 1574-1660, and vol. ii. 1880, contains those dated 1661-1668. The General Indexes to these volumes are exceptionally good. The reader will find references to Hispaniola under the titles Hispaniola (2), St. Domingo, San Domingo and Tortuga (2).

Calle.—See Díaz de la Calle.

VOL. II. E
[Campbell, J.]—A Concise History of the Spanish America; containing a succinct relation of the discovery, settlement. . . . London: 1741, 8vo., vii. and 330 pp. B.M.


Carderera.—Informe sobre los retratos de Cristobal Colon. Madrid: 1851. S.H.

Carranza.—See Gonzalez.


Casas, Bartholomé de las, Bishop of Chiapa.—Brevissima relacon de la destruccion de las Indias. Seville: 1552, 4to. B.M.

*Note.*—Describes the barbarous annihilation of the aborigines of Hayti, Cuba, New Spain, &c., &c. Jacques de Miggrode published a translation in French, entitled: Tyrannies et cruautés des Espagnols, 8vo, Antwerp, 1579. B.M. There are several editions, copies, and translations in B.M.


*Note.*—Pp. 15–26 deal with Hispaniola.

——— Historia de las Indias. In vols. lxii.–lxiv. of Coleccion de Documentos Inéditos para La Historia de España, edited by Fernandez de Navarette and others. Madrid: 1875, 8vo. B.M.

*Note.*—This history was written between the years 1552 and 1561, and is now first printed. The account of Hispaniola commences at chap. xliii. of the first volume.

——— See also Varnhagen, Helps, Herrera.

Cassagnac.—See Granier de Cassagnac.


*Note.*—A paper read before the Academy of Medical, Physical, and Natural Sciences of Hannavah.


*Note.*—The name is incorrectly given as Gastro by Peternann.

Cerisier, Lauriston.—Biographie d'Alexandre Pétion.

*Note.*—Quoted by St. Rémy.

Ch. * * * * *, Ch. de.—Plan de Constitution pour la colonie de Saint Domingue, &c. Paris: 1791, 8vo, pp. 140. B.M.


*Note.*—Pp. 543–546 deal with Hayti; with a map (Pl. XIII. facing p. 528).

Chanca.—See Major, Scillacio.
BIBLIOGRAPHY AND CARTOGRAPHY OF HISPANIOLA.

Charlemagne, Philémon.—Royanne d'Hayti. Réfutation D'un Écrit de Charlevoix, ex colon, intitulé: Coup d'œil sur St.-Domingue. [Cap-Henry: 1820], 8vo, 9 pp. B.M.

Note.—No title-page.


Note.—History commences with the discovery of the island. Contains numerous maps, by Bourguignon d'Anville, and plans, and separate copious indexes to each volume. According to Margry (which see) Le Pers MSS. are still in existence and are worthy of publication, as the author repudiated Charlevoix's edition of them.

Charnilly.—See Venault de Charnilly.

Charolais.—L'Indépendance d'Haïti et la France. Paris: 1861, 8vo, 32 pp. B.M.

Note.—On the results of the annexation of St. Domingo to Spain.


Charrault.—See Charlemagne.

Charton, Édouard.—Voyageurs anciens et modernes ou choix des relations de voyages les plus interressantes et les plus instructives, &c. Paris: 1854-57, 4 vols. 8vo. B.M.

Note.—Vol. iii. (pp. 78-191) gives a new account of Columbus's four voyages and a description of Hispaniola, from most authentic sources. On pp. 189-191 there is a bibliography of the older writers on the life and discoveries of Columbus (including numerous works on Hispaniola).

Chastenet-Puységur, A. H. A. de.—Instructions nautiques sur les Côtes et les Débouquemens of Saint-Domingue, avec le détail de la position des principaux points qui ont servi de base à la construction des cartes publiées, en 1787, au dépôt général des cartes et plans de la Marine et des Colonies; ... publié, pour la première fois, par ordre du roi, en 1787. Paris: 1821, 8vo, 259 pp. B.M.


Note.—From the Spanish. Author's name not given. Pp. 102-150 deal with the navigation round St. Domingo. With Index.

Chevalier.—Lettres à M. de Jean, etc. I. Sur les Maladies de Saint-Domingue. II. Sur les Plantes de la même île, etc. Paris: 1752, 12mo, 254 pp. Rich, K.G.

Chotard, ainé.—Dissertation sur la Nécessité de l'ouverture des ports de Saint Domingue à toutes les nations, Servant de suite à la question de la garantie de la République française dans ses colonies des Antilles. Paris: [1797], 8vo, 24 pp. B.M.

25324
Christophe. See Harvey, Henry, W. (F.), and C. (G. W.)


Note.—With Indexes. Vol. ii. (pp. 557–688) contains a new translation of Ferd. Columbus’s life of his father, and of the discoveries in the W. Indies. It includes F. Ramon Pané’s account of the aborigines of Hispaniola (pp. 622–633). Vol. v. (pp. 591–640) gives Herrera’s account of Columbus’ discoveries with the account of Hispaniola.

[Cinna le Conte, grandson of Dessalines? ]—Les Principes de Révolutions en Haïti. Privately printed. S.H.

Clark, B. C.—A Plea for Hayti, with a glance at her relations with France, England, and the United States, for the last sixty years. Boston: 1853, 8vo, 50 pp. B.M.

Cobbett, W.—See Moreau de Saint-Méry.

Cocchia, Roque, Monseñor.—Los Restos de Cristobal Colon en la Catedral de Santo Domingo. Contestacion al informe de la real academia de la Historia al Gobernador de S.M. el Rey de España. Santo Domingo: 1879, 8vo, 330 pp. F.O.


Note.—With appendices including proclamations by Mirbeck, Soume, and Saint-Leger.

Coke, Thomas, LL.D.—A History of the West Indies. Liverpool: 1808–11, 3 vols. 8vo. B.M.

Note.—Vol. iii. (chaps. xliv.–lv., pp. 304–530) deals with Hispaniola.

Columbus.—See Colombo.


Coma, G.—See Scillacio.

Conant, S. S.—See Hazard.


Contzen, Heinr.—Haiti und seine Rassenkämpfe, historisch entwickelt. Cologne: 1863. J.C.


Note.—Several Haytian species are here described.


Note.—Includes specimens from Hayti.


Note.—A new frog from Hayti, found by W. M. Gabb, is here described.

Note.—On pp. 218-220 are described the new species collected by W. M. Gabb.

Cormier.—Mémoire sur la situation de Saint Domingue A l’époque du mois de janvier 1792. Paris: 1792, 8vo, 72 pp. B.M.

Cory, Chas. B.—The Birds of Haiti and San Domingo. Boston: 1885, 4to, 198 pp. B.M.

Note.—A sumptuous work, with 23 hand-coloured plates and index. The birds are scientifically described, but notes on habits are meagre.


Cosa, Juan de la.—See Major.

Coulon.—See Garran.

Courtney, W. S.—The Gold Fields of St. Domingo; with a description of the agricultural, commercial, and other advantages of Dominica. And containing some account of its climate, seasons, soil, mountains, and its principal cities, rivers, bays, and harbours. New York: 1860, 12mo, 144 pp. B.M.

Note.—It does not appear that the author visited the island. With map.


Note.—Compare with 24.

Cromwell.—See Pinkerton.


Note.—The specimen was sent from Hayti by M. Ricord.

D’Alaux, Gustave.—L’Empereur Soulouque et son Empire. Paris: 1856, 8vo. A.B.

Note.—Reprinted from Revue des deux Mondes.


Note.—With two statistical tables by M. Wante.


Delva, A.—Considérations sur l’article 7 de la constitution d’Haiti. Paris: 1873, 8vo. O.L.

Denis.—See Auguste.


Note.—No title-page.
D’Ennery, Comte.—See also La Mardelle.


De Prat.—See Lamartine de Prat.


*Note.*—The nat. hist. account of St. Domingo begins with vol. ii. In vol. iii. the habits of the slaves are described, and an account of the revolution is given. The notes on the aborigines are apparently from hearsay.


*Note.*—With an index, and coloured plate for every plant described. Grisebach says the plates are execrable.

Désert, Enoch.—Les Réformes Financières de la République d’Haïti. Paris: 1879, 8vo., 244 pp. B.M.

*Note.*—An exhaustive criticism.

Desportes.—See Pouppé-Desportes.

Dessalines.—See Dubroca, Vastey.


*Note.*—In vols. i., ii., iv., and v. are several chapters devoted exclusively to St. Domingo. The author has drawn chiefly from Moreau de St. Méry’s works and from the Archives de la Marine, Paris. Vol. v. is by P. R. Dessalines.

Devost.—See Auguste.


*Note.*—Pp. 140-162 deal with Vaudoux worship, extracted from the first edition of Une visite chez Souloque. The third part, pp. 202-252, is called Une République aux Enchères (Santana et les Dominicains), reprinted from the Revue Européenne, and relates to the cession of St. Domingo to the Spanish.

Díaz de la Calle, Juan.—Memorial Informatório. [Madrid ?]: 1645, 4to, 32 folios. B.M.

*Note.*—The civil list for the Spanish Indies (including St. Domingo, &c.).

— Memorial y Noticias Sacras y Reales del Imperio de las Indias Occidentales. Escorial: 1646, 4to, 190 folios. B.M.

Dorvo-Soulastro.—Voyage par terre de Santo Domingo, capitale de la partie Espagnole de Saint Domingue, Au Cap Français, Capitale de la partie Française de la même ile. Paris: 1809, 8vo, 407 pp. B.M.

*Note.*—With Juan Nieto’s account of the mines in the Spanish colony.

Drake.—See Hakluyt.
Drouin de Bercy.—De Saint Domingue, de ses guerres, de ses révolutions, de ses ressources et des moyens à prendre pour y retablir la paix et l'industrie. Paris : 1814, 8vo. A.B.


Note.—Translation from the French, by K. L. M. Müller, with Dessalines' portrait.


Ducasse.—See Margry.


Note.—The introduction (cviii. pp.) consists of an historical and a statistical account. The slave system and home products are described, as are also the social state and the climate. Pouppé-Desportes' medical treatise is incorporated in the work, and a Pidgin-French vocabulary given. Map wanting.

Dufour de Pradt.—See De Pradt.


Note.—Vol. viii., pp. 65, 110-280, 303-337, 457-480; vol. xi. pp. 111, 115-122; vol. xv. pp. 86-88 deal with Hispaniola. In the atlas are a map of the island, one of the French possessions there, two charts and a map of the West Indies, all drawn and engraved by Tardieu.

Dumeslé.—See Herard-Dumeslé.


Note.—The San Domingo fossils occupy a prominent position in this paper. With numerous plates.


Note.—Quoted by J. F. Riaño in Athenæum, No. 3036, p. 26, and P.M.


Du Tertre, Jean Baptiste.—Histoire Générale des Ant-Isles habitées par les Français. Paris: 1667-71, 4 vols. 4to. B.M.

Note.—This work is based on the author’s Histoire Générale des Isles de S. Christophe, Paris, 1654, 4to, 487 pp., B.M. In the H. G. des Antilles, vol. i. chap. vi. (pp. 168-188) deals with the French defeat of the Spanish and the French settlement, on the island Tortuë (Tortuga); vol. ii. (pp. 30-31) gives a description of the island Tortuë; vol. iii. (pp. 126-154) describes the state of the island, the defeat of the English there, &c.

Duvert, É. et Lauzanne.—La Fin d’une République, ou Haïti en 1849; A-propos vaudeville. Paris: 1850, 8vo, 13 pp. B.M.

Edwards, Bryan, M.P., F.R.S.—An historical survey of the French Colony in the Island of St. Domingo; comprehending a short account of its ancient government, political state, population, productions, and exports; A narrative of the calamities which have desolated the country ever since the year 1789, with some reflections on their causes and probable consequences; and a detail of the military transactions of the British army in that island to the end of 1794. [With map.] London: 1797, 4to, pp. 247. B.M.

——— The History, Civil and Commercial, of the British Colonies in the West Indies. To which is added an Historical Survey of the French Colony of St. Domingo. Abridged from the history written by B... E... London: 1799, 8vo, 373 pp. B.M.

——— An Historical survey of the Island of Saint Domingo, together with an account of the Maroon Negroes in the Island of Jamaica; and a history of the war in the West Indies in 1793 and 1794, by B. E... Also a tour through the several islands of Barbadoes, St. Vincent, Antigua, Tobago, and Grenada, in the years 1791 and 1792, by Sir W. Young, Bart. London: 1801, 4to, 443 pp. B.M.

Note.—Edwards’ History extends to p. 258. Young gives a Postscript to the Historical Survey of St. Domingo on pp. 383-404. This is a separate edition of vol. iii. of Edwards’ History, Civil and Commercial, of the British Colonies in the West Indies.

——— Histoire de L’île Saint Domingue; extraite de l’Histoire Civile et Commerciale des Antilles... Traduite de l’Anglais par J. B. J. Breton. Paris: 1802, 8vo, 209 pp. B.M.

Note.—With map.

——— See Venault de Charmilly.


Elliot, C. W.—St. Domingo, its Revolution and its Hero, Toussaint L’ouverture. New York: 1855, 12mo. A.L.

Elliot, D. G.—The Humming Birds of the West Indies. The Ibis, 3rd ser., ii. 1872, pp. 344-357.

Note.—The humming birds of St. Domingo are included in this paper.

English Pilot, The.—The Fourth Book... London: 1689, fol. 65 pp. B.M.

Note.—With two charts and with sailing directions on pp. 31-38. Several editions in B.M.

Ennery.—See d’Ennery.

Estaing, C. H., Comte.—Ordonnance portant création d’un corps de Troupes-légères, désigné sous le nom de Premier Légion de S. Domingue. Cap-Français: [1765], 8vo, 81 pp. B.M.

Exquemelin, Alex. Olivier.—De Americaenische Zee-Roovers. . . Amster-
dam: 1678, 4to, 186 pp. B.M.

Note.—Chap. ii. describes the island of Tortuga (Tortue), ch. iii.–v. the island of St. Domingo. An English translation appeared in 1684 (London: 2 vols. 4to. B.M.) and a French one in 1686 (Paris: 2 vols. 8vo. B.M.), both with index. There are also several other editions and translations.

Fabens, Jos. Warrens.—Facts about St. Domingo, applicable to the present crisis. An address before the American Geogr. and Stat. Soc. of New York, April 3, 1862. Illustrated by the only complete [sic] map of Santo Domingo and Hayti that has yet [?] appeared. New York: 1862, 8vo, 32 pp. B.M.


Fernandez de Navarette, Martin.—Coleccion de los Viages y Descubrimientos, que hicieron por mar los Españoles desde fine siglo xv. Madrid: 1825–37, 5 vols. 8vo. B.M.

Note.—Vol. i. contains the voyages of Columbus, with two charts illustrating his routes across the Atlantic and in the West Indies. Vol. ii. Authentic documents relating to Columbus and the early inhabitants of the islands, &c. A French edition of the 1st vol. is called: Relation des Quatre Voyages entrepris par C. . . . Colomb. . . . Paris: 1828, 3 vols. 8vo, with maps, portraits, &c. B.M. This translation is by Chalumeau de Verneuil and de la Roquette, with numerous notes by French savants. This work of Navarette’s is considered one of the most reliable records of Columbus’ discoveries.

Fernandez de Oviedo y Valdes, Gonzalo.—Oviedo de la natural hystoria de las Indias. Toledo: 1526, fol. B.M.

Note.—Gives a short account of “Española” (St. Domingo).

——— La Historia General de las Indias. Seville: 1535, fol. B.M.

Note.—This is an enlarged edition of the above, and gives an account, dispersed through the work, of the discovery, settlement, aborigines, and natural history of the island of St. Domingo. Jean Poleur translated the ten first books into French [L'Histoire Naturelle et Générale des Indes, &c. Paris: 1556, 135 folios. B.M.], and according to A. B. the rest of the books were not published until 1783 by the Marquis Travello. There are several editions, copies, and translations in the B.M. According to H. H., republished at Madrid, 1851–55.


Fisher, R. S., M.D.—A Statistical Account of the West India Islands, together with General Descriptions, &c. New York: 1855, 8vo, 68 pp. B.M.

Note.—Pp. 16–25 deal with the Empire of Hayti and the Dominican Republic.


Note.—At San Domingo on 4th February, 1872.


Note.—The result of three years' exhaustive reconnaissance on the island; the memoir includes Topographical Description, Geological Formations, Local Geology, and Palaeontology. With a new map, the result of the work. Noticed in P.M., xx. 1874, pp. 358–360.

Gabet.—See Payen.

Garcia, José Gabriel.—Compendio de la Historia de Santo Domingo. Santo Domingo: 1867. S.H.


Gardyner, George.—A Description of the New World, or America Islands and Continent, &c. London: 1651 [1650], 8vo, 187 pp. B.M.

Note.—From the preface it appears the author visited the lands described. Pp. 57–62 deal with Hispaniola.


Note.—See also 23.

Gastine, Civique de.—Histoire de la République d'Haiti ou Saint-Domingue, L'esclavage et les Colons; Dédieée à Étienne Coulon. Paris: 1819, 8vo, 264 pp. B.M.

Gastro.—See Castro.

Gayangos.—See Pascual de G.

Gomara de Lopez, Francisco.—Histoire Générale des Indes Occidentales. Paris: 1568, 8vo, 259 folios. B.M.


Note.—Sailing directions, including those for the coast of Hispaniola.

Gonzalez de Barcia Carballido y Zuniga, Andres.—Historia de res primitivos de las Indias occidentales, &c. Madrid: 1749, 3 vols. folio. B.M.

Note.—A collection of voyages, with separate index to every volume. Contains Ferdinand Columbus' history of his father, Lopez de Gomara's Historia de las Indias, &c.


— Grand Dictionnaire Universel du XIX Siècle. Paris: 1873, 4to. B.M.

Note.—In vol. ix., on pp. 24-26, there is a very good article on Haiti.


Note.—Pp. 200-256, Part II., deal with the author's visit to Hayti.


Note.—Volume entitled "Amérique" has four pages on the "Habite de l'île Saint-Domingue," and six highly coloured plates representing coloured people and negroes of the island.

Greenville.—See Pinkerton.


Note.—Very little reference to Hayti's flora.


Note.—An account of affairs during the author's detention in captivity by the insurgents Jean-François and Biassou, 26 October to 24 December, 1791. 3rd edition.

Grynæus, Simon.—Novus Orbis Regionum ac Insularum veteribus incognitarum . . . Basiliæ: 1552, fol., 584 pp. B.M.

Note.—A collection of voyages. Contains a short account of Columbus' discovery. Translated into German: Die New Welt, der Landschaften unnd Insulen . . . Strassburg: 1593, fol. B.M. According to H. H., John Huttich was the real author of this work.
Guérin, L.—See Moreau de St. Méry.


Guillermin de Montpinay, Gilbert.—Journal Historique de la Révolution de la partie de L'Est de Saint-Domingue, commencée le 10 Août 1803; avec des Notes Statistiques sur cette partie. Philadelphia: 1810, 8vo, 315 pp. B.M.

Note.—With portrait of General Ferrand and table of cost of food during siege. A second edition, with slightly different title-page, was published with 494 pp. (Paris: 1811, 8vo. B.M.), and contained a view of ruins of Christopher Columbus' chateau at Santo Domingo, and a map of the seat of war round the city.


Note.—With 2 plates. For description of new genera see Gabb, 1872.

Guridi, Zavier Angulo.—Elementos, etc., de la Isla de Santo Domingo. Sto. Domingo, 1866. S.H.

[Haïtien, Un.]—Aux Hommes Impartialx sur les Attaques dont l'Empire d'Haiti et les Haïtiens ont été l'objet. Paris: 1850, 8vo, 24 pp. B.M.

Note.—A reply to French and New York newspaper attacks.


Note.—In vol. iii., pp. 592 et seq., a short account is given of Sir Thomas Bert's voyage to Sto. Domingo with Sebastian Cabot, with evidence of this journey extracted from Oviedo's work. Also an account of Hawkins's three voyages to the West Indies.

Vol. iii., pp. 39 et seq.: "An excellent ruttier for the islands of the West Indies, and for Tierra firma, and Nueva Espanna." There are sailing directions.


Hanna, S. W., Rev.—Notes of a Visit to Some Parts of Hayti. London: 1836, 8vo, lxxi. and 153 pp. B.M.

Note.—With engraved title-page, bearing map of the island, and a few sketches.


Note.—A review from several works.


Note.—Written partly from new sources.


Note.—On pp. 603–610 the author reviews our knowledge of the birds of Hayti. He says after Oviedo, Brisson (Ornithologie, 6 vols. 4to, Paris, 1760) and Vieillot (which see) described the birds of Hayti.

Harvey, W. W.—Sketches of Hayti; from the expulsion of the French to the death of Christophe. London: 1827, 8vo, 416 pp. B.M.


Hassal.—Secret History of the Horrors of St. Domingo; written by a lady (Miss Hassal) at Cape François, during the command of General Rochambeau. Philadelphia: 1808, 12mo. Rich.


Hazard, Samuel.—Santo Domingo, Past and Present; with a glance at Hayti. London: 1873, 8vo. B.M.

Note.—With map; profusely illustrated and very interesting. The author travelled through the country with the United States Commissioner. The Bibliography on St. Domingo includes many West Indian Works which have no bearing at all on the subject, and also unfortunately contains several errors. Reviewed, London Quarterly Review, London, xlii. 1874, pp. 67–87, B.M., and by S. S. Conant, under the title of Cradle of the New World, Harper’s New Monthly Magazine, New York, xlvi. 1873, pp. 641–658; also The Nation, New York, xvi. 1873, pp. 183–184. B.M.

Hearne, John.


Note.—With index. Books ii. and iii. relate to Hispaniola. In the same author’s Life of Columbus (London: 1869, 8vo, 262 pp., B.M.) and Life of Las Casas (London: 1868, 8vo, 292 pp., B.M.) both increased from the above, will be found many references to Hispaniola.


Note.—With two plates of the fossil shells.

Note.—With geological woodcut of bed of river Yaqui, and other sections.

[Henry Christophe.]—Royaume d’Hayti. Manifeste du Roi. [Sans-Souci: 1814.]

8vo, 44 pp. B.M.

Note.—Issued on the fall of Bonaparte; contains several proclamations of Bonaparte, Leclerc, Hardy, and others in 1802. No title-page.


Note.—A reply to, and containing a copy of, the proclamation of Louis XVIII. No title-page.

See Prevost, Vastey, W. & C.

Hérrard-Dumesle.—Voyage dans le nord d’Haïti. Port-au-Prince, 1824. A.B.

Herrera Tordesillas, Antonio de.—Historia General de los hechos de los Castellanos en las Islas i Tierra Firme del Mar Oceano. Madrid: 1601-1615, 8 Decades, 4 vols. fol. B.M.

Note.—This history is generally accepted as the most reliable account of the discovery and early settlement of America. In the first decade will be found all notes relating to Hispaniola. The English edition was translated by Captain John Stevens (The General History of the Vast Continent and Islands of America, commonly called the West Indies. London: 1725-26, 6 vols. 8vo, B.M.). The Dutch translation appeared in Pieter Van der Aa’s De Gedenkwaardige en alom Beroemde Voyagien der Spaniaarden na West-Indiën (Leyden: 1727, fol. B.M.). There is also a very condensed account to be found in Theodore de Bry’s America (Part xii., Frankfort: 1623, fol. B.M.). There are also several French and other editions.

Heuvel.—See Van Heuvel.


Note.—Translated by Dr. Crepin from Efvers. K. v. A’s. Förhandl., 1858. A short geographical account of the island.


Note.—Description of Hjalmarson’s collection of land shells from Haïti with exact locality of every specimen.


Note.—With Index and Bibliography.

Hormoys.—See Dhormoys.

Huttich, John.—See Grynseus.

Note.—With numerous plates, hand-painted. The flora of Hayti forms an important part of this work.

Jaeger, B.—Lectures sur l'histoire naturelle d'Haiti, appliquées à l'économie rural et domestique. Tome i. contenant la botanique. 1. Livraison. Port-au-Prince: 1830, 4to.

Note.—Quoted in Engelmann's Bibliotheca Zoologica. Z.S.

See also Brandt, Ménétriers.


See Auguste.

Jefferys, Thomas.—The Natural and Civil History of the French Dominions in North and South America. Giving a particular account, ... London: 1760, fol., 2 parts, 168 and 246 pp. B.M.

Note.—Part ii. (pp. 3-175) gives an historical account of the island; with map of island and chart of harbour of Cap-François.

A Description of the Spanish Islands and Settlements on the Coast of the West Indies, &c. London: 1762, 4to, 108 pp. B.M.


The West India Atlas. ... London: 1775, fol. B.M.

Note.—Pp. 14 and 23-24 and two charts deal with Hispaniola. These charts have been reproduced without the text in: A Complete Pilot for the West Indies, London, fol. 1792. B.M.

Inginac, Jos. Balthazar.—Mémoires. Kingston: 1843, 8vo. A.B.

Note.—From 1793 to 1843 (A.B.)


Note.—With portrait of T. Louverture. The 2nd division of 2nd part is wanting at B.M.

Irving, Washington.—A History of the Life and Voyages of Christopher Columbus. London: 1828, 4 vols. 8vo. B.M.

Note.—With Index, and Navarette's charts of C. C.'s voyages. Many editions, &c., in B.M.


Note.—Letters reprinted from the New York Herald. The appendix (pp. 333-336) consists of a "Memorandum of Facts relating to the Proposed Annexation of the Island of San Domingo [by the U. States]."
Kerverseau, F. M. de.—Rapport sur la partie espagnole de Saint Domingue depuis sa cession à la république française par le traité de Bâle jusqu'à son invasion par Toussaint-Louverture, &c.

*Note.*—Quoted by Lepelletier de St. Remy, l. p. 301, from Archives of the Marine, Paris.

Kettell, S.—Personal Narrative of the First Voyage of Columbus to America, from a manuscript recently discovered in Spain. Translated from the Spanish. Boston: 1827, 8vo, viii. and 303 pp. B.M.

Kimball, R. B.—See Settler.


Complementary notes to A. Petermann's map of the island of St. Domingo, which map is compiled from Gabb's and Schomburgh's.

Kolb, Gust. Fried.—Handbuch der vergleichenden Statistik—der Völkerzustande—und Staatenkunde... 7th ed. Leipzig: 1875, 8vo. B.M.


[Labat, J. B.]—Nouveau voyage aux Isles de l'Amérique... Paris: 1722. 6 vols. 12mo. B.M.

*Note.*—In vol. iv., chaps. iii.–xi. deal with the author's visit to S. Domingo. He describes the country through which he passes. With map.


Lacoste.—See Gragnon de Lacoste.


*Note.*—With map. Reviewed Quarterly Review, xxii. 1819, pp. 430–460. B.M.

Lacroix de Mariès.—Histoire Descriptive et Pittorescque de l'Île Saint-Domingue. (Haïti). New ed. Tours: 1852, 12mo, 236 pp. B.M.

*Note.*—With separate engraved title-page and frontispiece. Forms part of the Bibliothèque des Écoles Chrétiennes. [Reprinted in 1869. O.L.]

Laet, Johannes de.—Nieuwe Wereldt ofte Beschrijvinghe van West Indien... Leyden: 1625, xxiv. and 510 pp. B.M.

*Note.*—With index, engraved title-page, and maps. Chaps. iv.–xi. deal with Hispaniola from Herrera's, Oviedo's, and Acosta's accounts. The work was translated into Latin (Novus Orbis seu Descriptiones Indie Occidentalis, Lugd. Batav., 1633, fol., B.M.) and into French (L'Histoire du Nouveau Monde... Leyde, 1640, fol., B.M.). There are many editions in B.M. In the French and Latin translations the account of Hispaniola is condensed.

La Mardelle, G. P. F. de.—Éloge Funèbre du Comte d'Ennery et Réforme Judiciaire à Saint Domingue. Paris: (1789?) 4to, 154 pp. B.M.

*Note.*—With map and statistics of the colony. The Ref. Jud. begins at p. 49, and notes to the Ref. occupy pp. 97–154.

La Selve, Edgar.—Histoire de la Littérature Haïtienne depuis l’origine jusqu’à nos jours. Port-au-Prince: 1874.
   Note.—Quoted in following paper.
   Note.—A very interesting account of the island and its people.

   ——— Moyens de rentrer en possession de la colonie de Saint Domingue et d’y rétablir la tranquillité; détails circonstanciés des ressources qu’offrirà cette colonie. Paris, 1814. A.B.

   Note.—From Pritzel’s Thesaurus. K.G., L.S.

Lenox, James.—See Scillacio.

Le Pelletier de St. Remy.—See St. Remy.

Le Pers.—See Charlevoix, Margry.

Limonade, Comte de.—See Prevost.

Linage.—See Veitia Linage.

   Note.—On the title-page of the first volume the author calls himself S. Listant.


Loiret.—See Rousseau de Loiret.

Long, C. E.—In Add. MSS. 12408 in B.M.
   Note.—Fols. 27-42 Statistical and other accounts of Hispaniola, taken (?) from Raynal, Histoire Philosophique et Politique.

Lonsdale.—See Heneken.

Lopez.—See Gomara de Lopez.

Lorgues.—See Roselly de Lorgues.

L'Ouverture, Isaac.—See Metral.

[L'Ouverture, F. D. Toussaint.]—Buonaparte in the West Indies; or, the History of Toussaint Louverture, the African Hero. London: 1803, 8vo, 48 pp.

Note.—In three parts of 16 pp., separate pagination. This work was reprinted, with some alterations, in the Pamphleteer, vol. iv., No. 8, Nov. 1814, B.M., and dedicated to the Emperor of all the Russians.

—See Cousin d'Avalon, Dubroca, Elliot, Gragnon-Lacoste, Jordan, Lamartine, Metral, Perin, Rainsford, St. Remy, 24, 28.

Liitken.—See Reinhardt.


Macgregor, John.—The Progress of America, from the Discovery of Columbus to the year 1846. London: 1847, 2 vols. 8vo. B.M.

Note.—Vol. i. (pp. 1149-1213) deals with the history and statistics of Hispaniola.

McGrigor.—See Tristram.

Mackenzie, Ch., F.R.S., Consul-General.—Notes on Haiti, made during a residence in that Republic. London: 1830, 2 vols. 12mo. B.M.

Note.—With two plates, a map, and a fac-simile of Henry Christophe's signature. The author spent a year and a half in the island, and gives actual and historical accounts; his position gave him access to the important information which he publishes. Reviewed Monthly Review, London, cxxii. (xiv. s.) 1830. B.M.

Madiou, Thomas, fils.—Histoire d'Haiti. Port-au-Prince: 1847, 3 vols, 4to. B.M.

Note.—From date of discovery of island in 1492 to 1807. Apparently very complete. Third vol. wanting at B.M.

Major, R. H.—Select Letters of Christopher Columbus, with other original Documents, relating to his Four Voyages to the New World. 2nd ed. Hakluyt Society, London, 1870: cxiii. and 254 pp. B.M.

Note.—With index, fac-similes of Herrera's map and key, Juan de la Cosa's map and coloured portrait of Columbus as St. Christopher. These letters, in Spanish and English, include the account of the discovery of Española and the Admiral's acts there, Dr. Chancas's history of the second voyage, and bibliography of Columbus's letters. (1st ed. 1847. B.M.)

Malenfant, Colonel.—Des Colonies, et particulièrement de celle de Saint-Domingue; Mémoire historique et politique... Paris: 1814, 8vo, xii. and 337 pp. B.M.

Note.—A short account of the civil war, and proposals for settling the country peaceably.

Malo, Charles.—Histoire de l'île de Saint Domingue depuis sa découverte jusqu'à l'année 1818. Paris: 1819, 8vo. A.I., B.T.


Note.—Reviewed North American Review, Boston, xxviii. 1829, pp. 150-165. B.M. Compare these two of Malo with 28 and 43.
Malouet, V. P., Baron.—Collection de Mémoires... sur l'Administration des Colonies... Paris: An X [1802], 5 vols. 8vo. B.M.

Note.—Vol. iv. deals with St. Domingo. It is divided into three parts. Part I. is descriptive of the island, its people, &c.; Part II. relates to the commerce; and Part III. deals with the administration, justice, police, finances, &c.

—— See Raynal, Vastey.

Mardelle.—See La Mardelle.


Note.—The author gives details from Le Pers's MSS. concerning the first settlement of the French at St. Domingo, and transcribes Governor Ducasse's letter, which gives particulars concerning the island in 1692.

Maris.—Souvenirs d'Amérique. Relations d'un voyage au Texas et en Haïti. Brussels: 1863, 8vo. O.L.

Marliès.—See Lacroix de Marliès.


Martyr, Peter.—See Anglerius.


Note.—The Lepidoptera described all come from Hayti, having been forwarded by M. Jaeger. This paper is reprinted with two plates (X. and XI.), Nouv. Mem. Soc. Imp. d. Nat. Moscou, iii. 1834, pp. 115–133. R.S. The author promises to publish further information on the subject, but does not appear to have done so.

Menonville.—See Thiery de Menonville.

Merchant of London, A.—A State of the Trade carried on with the French on the Island of Hispaniola by the Merchants of North America, under colour of flags of truce, occasioned by some captures of the said flags lately made by His Majesty's Ships under the command of Admiral Cotes. London: 1760, 8vo.

Note.—Quoted in Watt's Bib. Brit., B.M.


Moletius, Jos.—Geographia Cl. Ptolemaei Alexandrini... Venetia: 1562, 4to. B.M.

Note.—Contains a new map (No. 64) with one page description of Hispaniola. The map is titled Isola Spagnola Nova.

Monmonier.—See Chastenet-Puysegur.

Monte y Tejada, Antonio del.—Historia de Santo Domingo desde su descubrimiento hasta nuestras dias. Habana: 1853, 8vo, 600 pp. B.M., F.O.

Note.—Apparantly only one vol. published. With portraits of C. and B. Columbus, numerous charts of the coast, and Munoz' map of Hayti with the aboriginal divisions; also a curious lithograph representing a battle between the Spaniards and Indians, and one representing the prison (and its neighbourhood) of C. Columbus. Whence these drawings are copied is not stated.

Montpinay.—See Guillermin de Montpinay.

Moore.—See Heneken, Heniker.

Moreau de Saint-Méry, M. L. E.—Loix et Constitutions des Colonies Françaises de l’Amérique sous le Vent; suivies, 1° D’un Tableau raisonné... 2° d’Observations générales sur le Climat... et les Mœurs des Habitans de la partie Française de Saint Domingue... etc. Paris: 1784–85, 5 vols. 4to. B.M.

Note.—List of Governors, Chronological Tables and index to every volume (from 1550 to 1779). In consequence of the outbreak of the French Revolution the author did not publish the account of the island of S. Domingo until 1797, in Philadelphia.


Note.—These volumes form the sequel to St. Méry’s Loix et Constitutions des Col. Françaises. With map by Sonis, and separate indexes. A second edition (Paris: 1875–76, 3 vols. 8vo, B.M.), with Notice sur M. de St. Méry by L. Guérin, without any index, but with atlas.

—— Note.—In the Archives of the Ministère de la Marine (Paris) are 75 vols. in folio of M. de St. Méry’s manuscripts for a history of St. Domingo. A.B.

—— See also Ponce et Phelipeau.

Mota, Manuel de R., President.—Dios, Patria y Libertad. Republica Dominicana... Ley sobre aranceles de importacion y exportacion. Santo Domingo: 1855, 4to, 48 pp. B.M.

Note.—No title-page. The Tariff.


—See Dubroca.

Mulligan, John.—See Scillacio.

Muñoz, Juan Bautista.—Historia del Nuevo-Mundo. Madrid: 1793, 4to, lvii. and 364 pp. B.M.

Note.—With portrait of Columbus, map of America, including Española with aboriginal nomenclature. One vol. only published. The English translation, with portrait of Columbus and fac-simile map of Española by Muñoz, was published four years later, and entitled The History of the New World. London: 1797, 8vo, 552 pp. B.M. In the Introduction the author gives an account of, and tests the qualifications of, historians who preceded him.

N. N., Gent.—America: or, An Exact Description of the West Indies; more especially of those Provinces which are under the Dominion of the King of Spain. London: 1655, 8vo, 486 pp. B.M.

Note.—Pp. 475–479 deal with Hispangiola.

Nau, Émile.—Histoire des caciques d’Haïti. Port-au-Prince: 1855, 8vo. A.B.

Note.—With an appendix on the early geography, the aboriginal language, and the native flora by Eugène Nau (A.B.), and reviewed Bull. de la Soc. de Geog., Paris, 5th ser. iv. 1862, p. 335. R.G.S.


Navarette.—See Fernandez de Navarette.

Newport.—See Hakluyt.


Note.—With engraved title-page and ten plates. Chapter vii. and plates 9 and 10 deal with the works of the ancient inhabitants. Deals also with the government, statistics, &c.

Nieto.—See Dorvo-Soulastre.

Niles, H.

Note.—In Niles’ Weekly Register, Baltimore, xiii. and xiv. 1817–1818, xix.–xxii. 1820–1822, xxiv.–xxix. 1823–1826 will be found numerous historical and statistical items relating to Hayti.


Note.—This account gives an insight into the customs of the country.


Note.—According to Rich, the MSS. were those of M. Bourgeois, M. N.’s uncle.

Oexmelin.—See Exquemelin.
Ogeron.—See Du Tertre.

Ogilby, John.—America: being the latest and most Accurate Description of the New World.... London: 1671, fol., 674 pp.

Note.—In Chap. iii. there is a short account of Columbus's voyages to Hispaniola, and in Chap. xiii. a description of the island, with double-page view of the city of St. Domingo, and an engraving representing the aborigines.

Ouverture.—See L’Ouverture.

Oviedo.—See Fernandez de Oviedo y Valdez.


Note.—With 90 coloured plates. The insects are not described in geographical order, but are classified, hence the S. Dominguan specimens are to be sought for throughout the work.

Pane.—See Churchill.


Note.—Pp. 87-101 deal with St. Domingo, and pp. 155-168 with the account of the island given by Theret (which see below). With index.


Note.—Pp. 314-315 contain Sl. 375, 3052-3054, Add. 22,681-22,685. One copy of Casas' Brevissima Relacion de la Destrucion de las Indias and seven copies of Casas' Historia de las Indias.


353, Eg. 322, f. 52. On church matters.

358, Eg. 520, f. 133. On the cession of a part of Hispaniola to France.

362, Add. 13,794, f. 125 on the depopulation of the island, by Dr. P. A. de Mendoza.

363, Add. 13,794, f. 131

371, Add. 13,796, f. 8

382, Add. 13,777, ff. 501, 505

389, Add. 13,992, ff. 498-508. Map of the Island of Santo Domingo, preceded (ff. 409-508) by a printed tract with the following title: Relacion sumaria del estado presente en que se halla la Isla Española, etc., por D. Andres Nunez de Torra (1653 ?), fol. 10 pp.

Hid. La Isla de Santo Domingo, Puertos, Ríos y Ensenadas de la Banda del Norte y Sur y de la Cuesta.

408, Eg. 517. This volume contains 20 documents relating to the island.


455, Add. 17,553, f. 358. Commercial.


Pelterie.—See Talbot de Pelterie.


Perrières.—See Poissonnier des Perrières.

Petition.—See Cerisier, Prévost, St. Remy.


Note.—Compiled from Gabb and Schomburgk.


—See also Hjalmarson and Pfeiffer, and also Weinland.

Phelipeau.—See Ponce et Phelipeau.

Philippi, Ferd. Carl, Dr.—Geschichte des Freistaats von St. Domingo (Hayti). Dresden: 1826-27, 3 vols. 8vo. B.M.

Note.—Part XI. of the Allgem. Historische Taschenbibliothek.

Pinkerton, John.—A General Collection of the best and most interesting Voyages and Travels in all parts of the World. London: 1812-14, 17 vols. 4to. B.M.

Note.—With index. Vol. xii., pp. 1-155 contain life of C. Columbus, by his son; pp. 310-312 describe Cromwell’s expedition against St. Domingo; pp. 572 and 611 Sir R. Greenvile’s visit to Hispaniola.

Placide-Justin.—See Barskett.

Plumier, Chaas.—Description des Plantes de l’Amérique avec leurs Figures. Paris: 1693, fol., pp. 84. B.M., L.S.

Note.—With 106 plates. Relates chiefly to Santo Domingo and Hayti. Grisebach says it is unreliable.

Poey, Andres.—A Chronological Table, comprising 400 Cyclonic Hurricanes which have occurred in the West Indies and in the North Atlantic within 362 years, from 1493 to 1855; with a Bibliographical List of 450 Authors, Books, &c., and Periodicals, where some interesting accounts may be found, especially on the West and East Indian Hurricanes. Jour. Roy. Geog. Soc., London, xxv. 1855, pp. 290-328.


Note.—Contains reference to the antiquities of S. Domingo, illustrated, from other authors.


Note.—Consists of 31 plates of 28 views, 14 maps and plans, and 2 designs of sugar-works. Some of these plans appear to have been published separately in 1785, &c.


Note.—Political missions from the U. States.
BIBLIOGRAPHY AND CARTOGRAPHY OF HISPANIOLA.

  Note.—Vol. iii. has a title which reads Traité ou Abrégé des Plantes Usuelles de S. Domingue.

Pradine.—See L'instant Pradine.

Pradt.—See De Pradt.

Prat.—See Lamartine de Prat.

Prax, (French Vice-Consul at Hayti).
  Note.—In a communication to the Society he states that the word Haïti should be written Ahiti, which is composed of three roots—a, flower, hi, great, ti, country. Hence Ahiti signifies flower of great countries. Bull. de la Soc. de Géog. Paris, 4th ser. ix. 1855, p. 202. R.G.S.


Pulling, Alex.—The Law Reports. Index to . . . London Gazette, from 1 Jan. 1830 to 31 Dec. 1883. London: 1885, 8vo, xlii. and 210 pp. B.M.

Purchas, Samuel.—Purchas, his Pilgrimage. Or Relations of the World, and the Religions observed in all Ages and Places discovered, from the Creation unto this Present. 2nd ed. enlarged. London: 1614, fol., 953 pp. B.M.
  Note.—With index. Pp. 905-10 and 913 describe the aborigines of Hispaniola.

Puységur.—See Chastenet-Puységur.

Quesnel, Leo.—See Augustine.

Rainsford, Marcus, Capt.—A Memoir of Transactions that took place in St. Domingo in the spring of 1799; affording an idea of the present state of that country, the real character of its black governor, Toussaint L'Ouverture, and the safety of our West India Islands from attack or revolt. London: 1802, 8vo, 31 pp. B.M.
  ——— St. Domingo; or an historical, political, and military Sketch of the Black Republic, with a view of the life and character of Toussaint L'Ouverture, and the effects of his newly-established dominion in that part of the world. 2nd ed. London: 1802, map, 8vo, 63 pp. B.M.
  ——— An Historical Account of the Black Empire of Hayti: comprehending a view of the principal transactions in the revolution of St. Domingo; with its antient and modern state. London: 1805, 4to, 477 pp. B.M.
  Note.—With map, plan of Cap-François, 8 plates, a facsimile letter of Toussaint L'Ouverture, and an index. The appendix, p. 365 to end, consists of reprints of documents referred to. The author's remarks on his predecessors in history (Intro., p. xiii.) are worth noting. Reviewed, Edinburgh Review, viii. 1806, pp. 52-64, B.M.; and Eclectic Review, ii. 1806, pp. 405-414, B.M.
BIBLIOGRAPHY AND CARTOGRAPHY OF HISPANIOLA.

Ramon Pane.—See Churchill.


Note.—Compare with 69 below.


—— Essai sur l'Administration de St. Domingue. [Paris?] 1785, 8vo, xvi. and 255 pp. B.M.

Note.—This is evidently an abridgment of Malouet's work, which see.


Note.—Pp. 997–999 deal with Hayti.

Regnault, E. G. S. O.—Histoire des Antilles....


Note.—These tables include the Reptilia and Batrachia of Hayti.


Quoted in Barbier’s Dic. des Ouvrages Anonymes, Paris, 1879. B.M.

Ricord.—See Rique.


Note.—Describes the customs of the country. The author speaks of the botanist Ricord as having given good and exact accounts of this island.


Note.—Contains a description of the author’s travels and particulars of his zoological and botanical collections for the Imperial Museum in Vienna. With atlas containing views of the Palace of Sans-Souci, of Cap-François, and of the Champ de Mars. Reviewed, Foreign Quarterly Review, xx. 1838, pp. 73–97. B.M.


Note.—With index. Pp. 135–320 of vol. i. deal with Hispaniola.
Robin, C. C.—Voyage dans l'Intérieur de la Louisianne ... de St. Domingue. 
Paris: 1807, 3 vols. 8vo. B.M.
Note.—Pp. 257-298 of vol. i. deal with St. Domingo.

Rochambeau.—See Hassal.

Roggeveen, Arent.—Het Eerste Deel van het Brandende Veen, verglijchende 
geheel West Indien. ... Amsteldam: fol. [1675?] 62 pp. B.M.
Note.—Pp. 37-47 deal with Hispaniola. With four maps and numerous 
elevations. An English translation published at same date and place, B.M. 
This work is a "Sailing Directions."

Roselly de Lorgues, Count.—Christophe Colomb. Histoire de sa vie et de ses 
voyages. ... Paris: 1856, 2 vols. 8vo. B.M.
Note.—Contains Del Rincon's portrait of Columbus, a steel engraving of 
C.'s three caravels and C.'s arms (coloured). Several editions and translations.

——— Histoire Posthume de Christophe Colomb.
Note.—Quoted by J. F. Riaño in Athenaeum, No. 3036, p. 26, 1886.

Rosiers, Comte de.—L'Entrée du Roi en sa Capitale, Opera Vaudeville. Sans 
Souci: 1818, 8vo, 43 pp.
Note.—Reviewed, North American Review, Boston, xii. 1821, pp. 113-134. 
B.M.

——— Hayti Reconnaissante en réponse à un écrit imprimé à Londres intitulée 
L'Europe Châtée, et l'Afrique Vengée. ... Sans Souci: 1819, 8vo, 24 pp. B.M.

1887, 34 pp.

Rouzeau de Loiret, A.—De la République de Haïti, ile Saint Domingue, con-
sidérée sous ses différents rapports, ses forces, ses moyens physiques et moraux et 
le caractère national de ses habitants. Observations faites sur les lieux par 

London, xxv. 1869, pp. 256-258.

Ryder, Thomas.—Account of Antiquities from St. Domingo. Archeologis, 
xiii. London, 1800, pp. 206-207. B.M.
Note.—With plate showing small figures taken from a cave.

Sainsbury.—See Calendar of State Papers.

B.M., F.O.
Note.—Apparently only the first volume published, dating from 1789 to 
1792.

Saint Croix, an American [sic].—Life in Hayti. The Knickerbocker, New 
York, xviii. 1841, pp. 300-306, 489-494; xix. 1842, pp. 34-40, 246-253, 313-
321, 452-461, 540-547; and xx. 1842, pp. 153-163, 209-216. B.M.

St. John, Spencer, K.C.M.G.—Hayti, or the Black Republic. London, 1884, 
8vo, xvi. and 343 pp. B.M.
Note.—With map. Very good description of the country and the people, 
with historical notes and accounts of the Vaudoux (snake) worship, cannibalism, 
and literature.

St. Méry.—See Moreau de Saint Méry.


Note.—Reprinted from Revue des Deux Mondes.

St. Remy, Jos.—Vie de Toussaint L’Ouverture. Paris: 1850, 8vo, 408 pp. B.M.

Note.—The author had access to the archives of the (Paris) Ministry of Marine and Colonies and also to those of the Ministry for War. With portrait and autograph of L’Ouverture.


Note.—Portrait of A. Petion in 1st vol. Vols. iii.–v. wanting in B.M. According to A.B the author died before completing the work.

——— See also Boisrond-Tonnerre et St. Remy.

Saint Sauveur.—See Grasset de Saint Sauveur.


Note.—With two coloured plates.


Note.—With accounts of habits of some of the birds.

Sanchez-Valverde, Ant.—Idea del valor de la Isla Española, y utilidades que de ella puede sacar su monarquia. Madrid: 1785, 4to, xx. and 212 pp. B.M.

Note.—A statistical account, with coloured map, of the island.


Sanders, Prince.—By Authority. Haytian Papers. A Collection of the very interesting Proclamations and other official documents; together with some account of the rise, progress, and present state of the Kingdom of Hayti. With a preface by Prince Sanders, Esq., Agent for the Haytian Government. London: 1816, 8vo, 227 pp. B.M.

——— A Memoir presented to the American Convention for promoting the Abolition of Slavery . . . Containing Some Remarks upon the Civil Dissensions of the hitherto afflicted People of Hayti, as the Inhabitants of that Island may be connected with Plans for Emigration . . . Philadelphia: 1818, 8vo, 19 pp. B.M.

Note.—With plates. It includes several species found near Jacmel, Hayti.

Schefer.—See Parmentier and also Thevet.


See also Auguste.


Visit to the Valley of Constanza, in the Cibao Mountains of the Island of St. Domingo, and to an Indian Burial-ground in its Vicinity. The Athenæum, 1852, pp. 797–799.


Note.—This paper was republished at Santo Domingo in 1853, entitled Reseña de los Principales Puertos y Puntos de Anclaje de la Costa de la Republica Dominicana. 4to, 36 pp. A.D.


Note.—With map. Historical, geographical, geological, and other notes.

The Leadstone Mountain at Santo Domingo. The Athenæum, 1853, pp. 739–740.


Note.—Gives accounts of the drawings and terra-cotta figures found in the Pommier Caves and of a granitic ring about 700 feet in diameter at San Juan de Miguana. With two plates. Same as letter above to Prince Albert.


Note.—The hurricane described occurred on 26th August, 1855.


Note.—This is an account of the second voyage of Columbus by one of his companions, G. Coma. Privately printed. Edited by James Lenox. It contains
introduction and notice of life of the author of the letter; the letter in Latin and in English, and notes to the translation; a translation of Dr. Chanc'a letter of the same voyage, taken from Major's Select Letters of C. Columbus; and a Bibliography of the contemporaneous accounts of the voyages of Columbus, illustrated with facsimile woodcuts.


*Note.*—A twelvemonth's stay described by an immigrant; evidently written with a view to induce Americans to immigrate to the island.


*Note.*—In this account the author refers to an old parchment possessed by the Archbishop of St. Domingo concerning the trial of some aborigines accused of invoking spirits by the aid of a liquid distilled from a plant called Zamiaca; other customs of the Indians are also said to be given in this parchment.

**Sismondi.**—See Vastey.

**Smyth, W. H.**—See Benzoni.

**Southey, Thos., Commander R.N.**—Chronological History of the West Indies. London: 1827, 3 vols. 8vo. B.M.

*Note.*—Comes down to 1816.

**Soulastré.**—See Dorvo-Soulastré.

**Soulouque.**—See Brittanicus, D'Alaux, Dhormoys, Guérin, Trollope.

**Sowerby.**—See Heniker.

**Speer, Jos. Smith, Capt.**—The West India Pilot. London: 1771, fol. 67 pp. B.M.

*Note.*—Contains several charts of Hispaniola ports with sailing directions.

**Stevens.**—See Herrera, Veitia Linage.


*Note.*—In defence of the negroes (Rich).

**Streeter.**—See Kolb.


*Note.*—Consists of a description of the country and a full account of its present state, &c.


*Note.*—A short account of the island and of its products.

**Swartz, Olaf, M.D.**—Nova Genera et Species Plantarum seu Prodromus descriptionum Vegetabilium, maximum partem incognitorum, que sub itinere in Indian Occidentalem Annis 1783-1787 digessit.... Holmia, Upsalia, et Aboe: 1788, 8vo, 158 pp. L.S., B.M.

*Note.*—The plants described were collected in Cuba, Jamaica, and Hispaniola. With plates in fol.

Tejeda.—See Monte y Tejada.

Tejera, E.—Los Restos de Colon en Santo Domingo. Santo Domingo : 1878, 8vo, 70 pp. B.M.

Note.—A second edition with different title, published in 1879, 8vo, 111 pp. F.O. An account of the supposed discovery in 1877.

Tertre.—See Du Tertre.

Theureau, Louis.—Haïti et ses emprunts. Paris : 1875, 8vo, 29 pp. B.M.

Thevet, André.—Ile de Haïty ou Espagnole.

Note.—Published in pp. 155–168 of Le Discours de la Navigation de I. et R. Parmentier (Paris, 1883, B.M.), which see above. M. Ch. Shefer thinks (p. xxvii.) that Thevet got his information from Parmentier. The MS. of Thevet is in the Bibliothèque Nat. at Paris.

Thiéry de Menonville.—Traité de la Culture du Nopal et de l'éducation de la Cochinelle, Dans les Colonies Françaises de l'Amérique... Cap-Français [and Paris and Bordeaux]: 1787, 2 parts, 8vo. B.M.

Note.—With a view to the introduction of the cactus and cochineal into St. Domingo.

Thompson.—See Alcedo.

Tomnerre.—See Boisrond-Tomnerre.

Tordesillas.—See Herrera Tordesillas.

Toussaint L'Ouverture.—See L'Ouverture, T.

Travello, Marquis.—See Fernandez de Oviedo y Valdez.


Note.—The collection was made by Mr. C. M'Grigor.

Trollope, Anthony.—The West Indies and the Spanish Main. London: 1859, 8vo, 394 pp. B.M.

Note.—Chap. viii. (pp. 113–118) contains an account of Soulouque's flight to Jamaica.

Tussac, P. R. de.—Flore des Antilles... Paris: 1808, 4 vols. fol.

Note.—Vol. i. only at B.M. On pp. 7–46 of the introduction the author, a colonist of Saint Domingue, describes the horrors of the revolution.

Twiss, Sir Travers.—Christopher Columbus : a Monograph on His True Burial Place. London: 1879, 8vo, 22 pp. F.O., B.M.

Note.—Reprinted from Nautical Magazine.

Twitt.—See Hakluyt.


Note.—On some dragon flies collected in Hayti.


Note.—This Commission examined the country with a view to annexation. The geographical, social, agricultural, geological, and other features are examined fairly fully, and besides the mass of political information there are also numerous notes on almost everything of practical interest. A collection of the flora obtained is to be found at Kew, but no account appears to have been published.

*Note.*—Pp. 103-176 deal with Hayti; this portion is reviewed and extracts translated in *Das Ausland*, Augsburg, 1862, pp. 230-232.

Valdez.—See Fernandez de Oviedo y Valdez.

Valverde.—See Sanchez Valverde.


Varnhagen, Francisco Adol. de.—*La Verdadera Guanahani de Colon.* Santiago: 1864, 8vo, xiv., x., and 120 pp. B.M., R.G.S.

*Note.*—Las Casas' abbreviation of Columbus's personal narrative. An abbreviated translation of the above appeared in Vienna, 1869: *Das Wahre Guanahani des Columbus*, 8vo, 30 pp. R.G.S.


—— Réflexions politiques Sur Quelques Ouvrages et Journaux Francais, Concernant Hayti. Sans-Souci: 1817, 8vo, 207 pp. B.M.

*Note.*—Annexed are some proclamations of Dessalines, King Henry, and others. Reviewed, North American Review, xii. Boston, 1821, pp. 112-134. B.M.

—— Essai sur les Causes de la Révolution et des Guerres Civiles d'Hayti, Faisant suite aux Réflexions Politiques Sur Quelques Ouvrages et Journaux Francais, Concernant Hayti. Sans-Souci: 1819, 8vo, 403 pp. B.M.


*Note.*—The Appendix contains reprints of numerous State Papers.

—— Le Système Colonial Dévoilé. Le voila donc ce secret plein d'horreur: Le Système Colonial, c'est la Domination des Blancs, c'est le Massacre ou l'Esclavage des Noirs. Cap-Henry: 1814, 8vo, 97 pp. B.M.

—— Notes à M. le Baron de V. P. Malouet . . . en réfutation du 4ème volume de son ouvrage, intitulé: Collection de Mémoires sur les Colonies, et particulièrement sur Saint-Domingue, etc. Publié en l'An X: Cap-Henry: 1814, 8vo, 24 pp. B.M.

—— Political Remarks on some French Works and Newspapers, concerning Hayti . . . At Sans-Souci, from the King's Printing Office, 1817, the 14th of Independence. The Pamphleteer, London, xiii. 1818, 1819, pp. 165-239. B.M., S.S.

—— Réflexions sur une lettre de Mazères, ex-colon français, adressée à M. J. C.L. Sismonde de Sismondi, Sur les Noirs et les Blancs, la Civilisation de l'Afrique, le Royaume d'Hayti, etc. Cap-Henry: 1816, 8vo, 112 pp. B.M.

Vega, Fr. Manuel de la.—*Historia del Descubrimiento de la America Septentrional por Cristobal Colon.* Mexico: 1826, 4to, 237 pp. B.M.
Veitia Linage, Jos. de.—The Spanish Rule of Trade in the West Indies....
London : 1702, 8vo, 199 pp. B.M.
Note.—With index. Pp. 263–264 deal with Hispaniola. Translated by

Venault de Charmilly, Colonel.—Lettre à M. Bryan Edwards, Membre du
Parlement d’Angleterre, et de la Société Royale de Londres, Colon Propriétaire à
la Jamaïque, en réfutation de son ouvrage, intitulé Vues Historiques sur la Colonie
Française de Saint-Domingue, etc., etc., publié en Mars dernier. London : 1797,
4to, 234 pp. B.M.
Note.—An English translation of same date, 4to. B.M.

Vieillot, L. P.—Histoire Naturelle des Oiseaux de l’Amérique Septentrionale.
Paris : 1807, 2 vols. fol. Z.S., B.M.
Note.—The author spent some time at Hayti and includes the birds found
there in this work.


Vuillemin, A.—Carte de l’île de Haïti, dressée sur ordre ... pour l’enseignement de
la jeunesse haïtienne. Paris : 1862. P.M.

W., F. & C., G. W.—Christophe, late Emperor of Hayti. Blackwood’s Edinburgh
Magazine, Edinburgh, x. 1821, pp. 545–562. B.M.

Wallace, A. R.—The Geographical Distribution of Animals. London : 1876,
2 vols. B.M.
Note.—In vol. ii. pp. 60–80, the West Indian Islands, or Antillean Sub-
Region (as part of the Neotropical Region), are described, the Haytian
Mammalia and Aves being enumerated.

Wallez, M.—Précis historique des négociations entre la France et Saint Domingue ;
suivi de pièces justificatives et d’une notice biographique sur le général Boyer,

Walsh, Robert M.—My Mission to San Domingo. Lippincott’s Magazine,

Walton, Wm., Jun.—Present State of the Spanish Colonies; including a particu-
lar report of Hispaniola, or the Spanish Part of Santo Domingo; ... by ... 
Secretary to the Expedition which captured the city of Santo Domingo from the
French, and Resident British Agent there. London : 1810, 2 vols. 8vo. B.M.
Note.—Vol. i. is almost wholly devoted to an account of the island, its
aborigines, &c. With portrait of Ferdinand VII. of Spain and plan of route of
British army, including one of the city of S. Domingo. A 2nd ed. appeared in
1812 with altered title-page. Reviewed, Edinburgh Review, xvii. 1811,
pp. 372–381, B.M., and Nouv. Annal. des Voyages, Paris, xxiii. 1814,
pp. 373–386, B.M.

Walton, William.—Report on the Mines known in the Eastern Division of Hayti,
and the facilities of working them. London : 1825, 8vo, 47 pp. B.M.

Wante.—See Dalmas.

Note.—Notes on the sea-shore and on the Northern Sea of Hayti.

—— Die Hausthiere Haiti’s. Der Zool. Garten, Berlin, i. 1860, pp. 8–12. R.S.
Weinland, D. F., Dr.—Diagnosen einiger neuen westindischen Landschnecken. Malakozoologische Blätter, Cassel, ix. 1862, pp. 86-97 and 194-199. L.S.

Note.—The snails described come chiefly from Hayti. On pp. 199-202 Dr. L. Pfeiffer makes some remarks on the above, entitled: “Bemerkungen zu den beschriebenen Arten.”


Note.—Describes the cruelties of the Spaniards, of the slave-owners, &c.

How Haiti was settled. Old and New, Boston, iii. 1871, pp. 672-683.

Willis, N. Parker.—A Health Trip to the Tropics. London: 1854, 12mo, 418 pp. B.M.

Note.—Pp. 251-258 give a pleasant short account of the people of Hayti.

Wimpffen, F. A. S., Baron de.—A Voyage to Saint Domingo, In the years 1788, 1789, and 1790. Translated from the original manuscript, which has never been published, by J. Wright. London: 1797, 8vo, 371 pp. B.M.


Note.—This original was published a few months after the appearance of the English translation. Separate index to each volume.

Wytfliet, Corn.—Descriptiones Ptolemaice Augmentum sive Occidentis Notitia Brevi commentario illustrata... Lovanii: 1597, 4to, 192 pp. B.M.

Note.—Pp. 145-150 deal with Hispaniola. With map.

Young.—See Edwards.

III. ANONYMOUS PUBLICATIONS.

1. Relation verdadeira, en que seda quente del horrible Huracán que sobrevino à la Isla, y Puerto de Santo Domingo de los Españoles el dia quinze de Agosto de 1680... Madrid: fol., 4 pp. B.M.

Note.—No title-page. No date. With list of ships destroyed.

2. Lettres Patentes Pour l’Établissement de la Compagnie Royale de Saint-Domingue. Paris: 1698, 4to, 8 pp. B.M.

Note.—No title-page.


Note.—No title-page.


Note.—No title-page.

7. Real Compañía de Comercio para las Islas de Santo Domingo, Puerto Rico y la Margarita, que se ha dignado S.M. conceder con diez registros para Honduras, y provincias de Guatemala al comercio de la ciudad de Barcelona, y su establecimiento en la misma.... Madrid: 1755, 8vo, 33 pp. Rich.

8. Compagnia Real de Comercio para las Islas de Sto. Domingo, Puerto-rico y Margarita. 1756, 12mo.
   Note.—Quoted by Robertson in the Catalogue of Spanish books and manuscripts prefixed to his History of America.

10. Relation d’une conspiration tramée par les Nègres, dans l’Isle de S. Domingue; défense que fait le Jésuite Confesseur, aux Nègres qu’on suplicie, de révéler leurs fauteurs et complices. 1758? 8 pp. B.M.
   Note.—No title-page; no locality.

   Note.—pp. 43–56 deal with Hispaniola.

12. The Present State of the West Indies: containing an accurate description of what parts are possessed by the several Powers of Europe.... with a complete map. London: 1778, 4to, 95 pp. B.M.


   Note.—Les Colonies Françaises here mean St. Domingo.

15. Du Commerce des Colonies, ses principes et ses lois. La Paix est le temps de régler et d’agrandir le Commerce. [Paris?] 1785, 8vo, 63 pp. B.M.
   Note.—The commerce treated of relates to St. Domingo.


   Note.—No title-page.

   Note.—With maps of Hayti and of the Province Antonina.

   Note.—Pp. 117–126 refer to St. Domingue and Port-au-Prince.

20. Almanach de Saint-Domingue, Pour l’année bissextile 1792; contenant un Recueil des arrêtés de l’assemblée coloniale de la partie française de Sainte-Domingue, santé au Cap, et de différentes pièces intéressantes. [1791?] 12mo, 80 and 96 pp. B.M.
   Note.—The Recueil is separately paginated.
Note.—No title-page. A periodical.

22. A Particular Account of the Commencement and Progress of the Insurrection of the Negroes in St. Domingo ... made to the National Assembly ... by the Deputies from the General Assembly of the French part of St. Domingo. [1st ed., 36 pp. 2nd ed., with notes and appendix, 40 pp.] London : 1792, 8vo. B.M.

23. An Inquiry into the Causes of the Insurrection of the Negroes in the island of St. Domingo.—To which are added Observations of M. Garran-Coulon on the same subject, read ... before the National Assembly. [One ed., 40 pp.; another, 32 pp.] London : 1792, 8vo. B.M.  
Note.—See also Garran.

Note.—Compare with Cousin D'Avallon.

25. The Opportunity; or Reasons for an Immediate Alliance with St. Domingo. By the author of the Crisis of the Sugar Colonies. London : 1804, 8vo, 156 pp. B.M.  
Note.—The Appendix, pp. 148–156, contains two proclamations by Dessalinex.

26. A book of 140 pp. 8vo printed at the Government press at Port-au-Prince from 1814 to 1818, containing various decrees, proclamations, &c. The pagination is continuous. No title. The copy at B.M. is bound up with Baron Vastey's "Essai."

Note.—These are the instructions of Malouet to the French generals, which fell into the hands of the King Henry. No title-page.

28. History of the Island of St. Domingo from its first discovery by Columbus to the Present Period. London : 1818, 8vo, xiv. and 446 pp. B.M.  
Note.—In the appendix are contained statistical tables, a letter from T. Louverture, abstract of Royal Almanac for 1814, manifestoes, proclama-  

Note.—Reviewed, Quarterly Review, xxi. 1819, pp. 430–460. B.M.

30. Débarquement de la Flotte Française à St. Domingue; faisant suite aux révolu-  


   c. Gazette Royale d'Haïti.
d. Des Almanachs Royales d'Hayti. 8vo.

e. Des Ordonnances, Déclarations, Proclamations, etc., du Roi d'Hayti.

f. Relation de la Fête de S.M. la Reine d'Hayti avec un Coup d'oeil Politique sur

Note.—Reviewed, North American Review, Boston, xii. 1821, pp. 113–
134. B.M.

33. The King of Hayti. London Magazine, viii. 1823, pp. 517, 529. B.M.

Note.—Translation of a purely German story, with no reference at all

to Hayti.


Note.—Reviewed, Edinburgh Review, xli. 1825, pp. 489–497. B.M.

36. Correspondence relative to the Emigration to Hayti of the Free People of Colour
in the United States. Together with the instructions sent out by President

Note.—Reviewed, United States Literary Gazette, Boston, i. 1825,
pp. 146–147. B.M.

37. Code Civil d'Haïti. Publié par un Citoyen de la République. [Paris], 1826,
8vo, 352 pp. B.M.

38. Les Six Codes d'Haïti, suivi d'une table raisonnée des matières. Port-au-
Prince: 1828, 12mo, 738 pp. B.M.

Note.—Printed at Angers (France); contains C. Civil, C. de Procédure
Civil, C. de Commerce, C. d'Instruction Criminelle, C. Pénal et C. Rural.

39. Relacion de la fiesta del Aniversario de la Independencia d'Haïti celebrada el
1. de Enero de 1834, afio 31. Santo-Domingo: 1834, 4to, 4 pp. B.M.

Note.—No title-page and no pagination.

40. Examen raisonné de la Proposition faite aux Anciens Colons de Sainte-
Domingue, relativement aux quatre cinquièmes de l'indemnité qui leur a été
allouée, lesquels s'élevent à cent vingt millions. Paris: 1836, 8vo, 15 pp. B.M.

41. Il Furioso nell' isola di S. Domingo, Melodramma in due atti. The music by
Donizetti. As represented at the Opera Buffa, Theatre Royal Lyceum,
Saturday, 17th Dec., 1836. London: 1836, 12mo, 85 pp. B.M.

Note.—The libretto in Italian and English.

42. Rapports faits par les Commandans d'Arrondissement... Sur la Culture. Port-
auprince: 1838, 8vo, 99 pp. F.O.

Note.—A statistical survey.

43. Histoire de Saint Domingue, République d'Haïti, depuis sa découverte jusqu'à

Note.—O. L. does not mention this; perhaps the date should be 1824
See Malo and 28.

44. Recueil des Pièces Officielles relatives A l'instruction préliminaire suivi contre les
personnes impliquées dans l'horrible pillage qui eut lieu au Cap Hâïtien après
le tremblement de terre du 7 mai dernier. Port-au-Prince: 1842, 4to, 64 pp.
F.O.

45. Le Manifeste, 1er Mai 1842–Avril 23, 1844. Port Républicain (Port-au-Prince).


46. Actos legislativos del Congres Constitucional y decretas del Presidente de la
Republica Dominicana en 1846. Santo Domingo: [1846] 4to. B.M.

Note.—Manuscript title-page; only vol. ii. in B.M. A collection of Acts,
Decrees, &c., issued in 1846, with separate paginations.
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47. Leyes Dominicanas. 3a Session de la Primera Legislatura. Santo Domingo: 1847, 4to. B.M.
   Note.—Acts, Decrees, &c., all with separate pagination. One vol. only in B.M.

   Note.—No title-page. An account of the country (in 1842-1848?).

   Note.—Statistical.


53. Punica Fides! or, A short statement of the Facts connected with the recent "Breach" by the Dominican Government of the Second Article of the Commercial Treaty, Exchanged between England and the Dominican Republic in 1850. St. Domingo [printed at Turk's Island]: 1852, 12mo, 16 pp. B.M.

54. Sinodo Diocesano celebrado por su señora ilustrísima El Sr. Dr. D. Tomas de Portes é Infante, Digníssimo Arzobispo de Santo Domingo y Primado de las Indias, en los días 12, 14 y 17 de Mayo de 1851. Santo-Domingo: 1851, 4to, 58 pp. B.M.

55. "Dios, Patria y Libertad." La Republica Dominicana y el Emperador Souloque. Santo Domingo: 1851, 8vo, 11 pp. B.M.
   Note.—No title-page. An answer to an article in the Revue des deux Mondes for 1st May, 1851.

   Note.—From Bentley's Miscellany.

57. Dios, Patria y Libertad. Alerta! Dominicanos. Santiago [de los Caballeros]: 1852, 8vo, 22 pp. B.M.
   Note.—In defence of Sir R. H. Schomburgk, the English Consul at St. Domingo, and Colonel Henneken, with regard to their conduct in the contest between the Republic of St. Domingo and the Empire of Hayti.

58. Rumored Occupation of San Domingo by the Emperor of France. United States Review (Democratic Review), New York, 1853, i. pp. 173-186. B.M.

   Note.—A short historical, geographical, and statistical account extracted chiefly from Brown and MacGregor, which see.

61. Constitucion Politica de la Republica Dominicana. Santo Domingo: 1854, 4to, 49 pp. B.M.
63. De la Gerontocratie en Haiti. Paris: 1860, 8vo. B.M.
64. Remarks on Hayti as a Place of Settlement for Afric-Americans. Philadelphia: 1860, 8vo. A.L.
   Note.—Contains portrait of General Geffrard and map of island in 1861. The geographical notice covers pp. 31-33, and the historical notice pp. 43-44. First edition, 1859. W.K.
   Note.—A short history.
68. Santo Domingo. The Knickerbocker, New York, lxi. 1863, pp. 252-260. B.M.
   Note.—A little sketch of the Spanish part of the island.
   Note.—Compare this with Ramsay above.
70. Kupferbergwerke in Santo Domingo. Ausland, Augsburg, 1867, p. 600. B.G.S.
73. The St. Domingo Bargain. The Nation, New York, x. 1870, p. 63. B.M.
74. The St. Domingo Row. The Nation, New York, xi. 1870, p. 432. B.M.
75. What will the San Domingo Commission do? The Nation, New York, xii. 1871, pp. 68-9. B.M.
76. The New San Domingo Scheme. The Nation, New York, xvi. 1873, pp. 52-3. B.M.
   Note.—Both issued by the Council of Foreign Bondholders.
81. Jamaica, Hayti, Cuba, the Bahamas, &c. London: 1880, 8vo. [W.K. sic.]
82. Official Copy. The Admiralty List of Lights in the West India Islands and Adjacent Coasts, 1880. London: 1880, 8vo, 27 pp. B.M.
83. Hayti Court Guide. 12mo. U.S.I.
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86. Relazione de Terribili Terremonti accaduti ultimamente nell’ Isola di S. Domingo.... In Pesaro: 1752, 4to, 4 pp. B.M.
88. West Indies Directory. Part II. Haiti or San Domingo and Jamaica. London: 1870, 8vo, 87 pp. B.M.

Note.—Pp. 1–55 give the sailing directions.

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IV. PARLIAMENTARY PUBLICATIONS.

Code Rural of the Island of Hayti. 1826–27 [393].
Communications received at the Foreign Office relative to the State of Hayti. 1829 [18].
Papers relating to the Shipping and Imports and Exports, with their Value 1837–38 [137].
Imports and Exports of Hayti. 1840 [in 527].
Saint Domingo: Account of the Crops of St. Domingo in 1791 and 1826. 1840 [in 527].
Convention between Her Majesty and the Republic of Hayti, for the Suppression of the Slave Trade. 1841 [290].
Hayti, Republic of: [Bill] For carrying into effect a Treaty between Her Majesty and the Republic of Hayti for the more effectual Suppression of the Slave Trade. 1842 [281].
Commercial Tariffs and Regulations, Resources and Trade, &c., of the several States of Europe and America, together with the Commercial Treaties between England and Foreign Countries; Part XX. Hayti and the Foreign West Indies, by John Maegregor. 1847 [798].
Santo Domingo: Correspondence relative to the annexation of the eastern part of St. Domingo to the dominions of her Catholic Majesty. 1861 [2883].
Hayti: Treaty between Her Majesty and the President of the Republic of Hayti for the mutual surrender of fugitive criminals, signed at Port-au-Prince, 7th Dec., 1874. 1876 [c. 1385].
San Domingo: Decree annulling the agreement of 28th December, 1872, by which the Peninsula and Bay of Samana were leased to an American Company. 1874 [c. 933].
Note.—The reader is also referred to the Consular and Commercial Reports published by the Government.
V. MAPS, CHARTS AND PLANS.

I. IN CHRONOLOGICAL ORDER.

Note.—Map No. XVI. “Mappemonde de Jean de la Cosa, pilote de Christophe Colomb, fin du XVe siècle.” A coloured facsimile of Cosa’s Map of the West Indies, dated 1500, and probably the first ever published of the Island of Hispaniola.

See also Irving, Major, Navarette, and for aboriginal subdivisions, Monte y Tejada and Muñoz.

Isola Española. E.V.
L’Isola Spagnola [or H. Venice? 1560?]. B.M. Note.—By Berteli.
Isola Spagnola nova. 1562. See Moletius.
Discrittone dell’ Isola Spagnola, da P. Forlani. 1564. B.M.
L’Isola Spagnola ... F. Berteli exc. Venecia. 1566. B.M.
Map. 1597. See Wytfliet.
Map of Island. 1615. See Herrera-Tordesillas, Major.
Map of Island. 1630. See Laet.
Isla Española by Anduz Nunez de Torra. 1658. See Pascual de Gayangos.
Charts. 1675. See Roggeveen.
Charts. 1689. See English Pilot.
La Spagnola descritta dal P. Cosmografo Coronelli e dedicata All’ Illustriss. Sig. Giustinianio Lorenzoy Cons. 1700. B.M.

A Chart of the Island of Hispaniola [or H. By J. Thornton? London: 1704?]. B.M.

Isle de St. Domingue et débouquements circonvoisins. Frezier. 1717. E.V.
Carte de l’Isle de Saint Domingue [or H.] Dressée en 1722 ... sur les mémoires de M. Frezier ... par G. de l’Isle. Amsterdam: 1722. B.M.

Map of Island. 1722. See Labat.
L’Isle de St. Domingue ou Espagnola, par N. de Fer. Paris: 1723. B.M.
Insulae Americae, nempe; Cuba, Hispaniola ... Stoel des Oorlogs in America, etc. [1730?] B.M.
Maps and Plans, by Bourguignon d’Anville. 1731. See Charlevoix.
Isle de St. Domingue ou Hispaniola. 1750. B.M.
Ciuitas S. Dominici sita in Hispaniola Indica Angliae magnitudine sere aequalis, ipsa vrbs eleganter ab Hispanis extracta, et omnib’ circum vicinis Ins: jura dat. ... E.V. No date, circa 1750.
Carte réédite de l’Isle de St. Domingue et de ses Débouquements. ... A Paris chez Bellin. 1750. E.V.

A Map of the Island of Hispaniola or St. Domingo. Drawn ... by T. Kitchin. [London: 1760? B.M.
Chart of Cap François and Map of Island. 1760. See Jefferys.
Map of Island and Plan of Sto. Domingo City. 1762. See Jefferys.
Carte de l’Isle de St. Domingue. ... Par le S. Bellin. [Paris] 1764. E.V.
Charts of Harbours, &c., of St. Domingo. 1773. See Bellin.
Plan de la Baye et Rade du Cap Français dessiné par M. de Foligne. [Paris?] 1781. E.V.

88 BIBLIOGRAPHY AND CARTOGRAPHY OF HISPANIOLA.
Carta náutica que comprende los desembarcos al Mar del Norte viniendo de la Jamaica y de la Isla de Santo Domingo. 1782. B.M.

Carta plana de la Isla de Santo Domingo, llamada tambien Española. Por Don J. Lopez. 2 sh. Madrid: 1784. B.M. See also Sanchez.


Plano de la plaza y ciudad de Santo Domingo, capital de la isla española, por D. Tomas Lopez. Madrid: 1785. E.V.

L'Anse à Chouchou dans l'isle de St. Domingue: La Baye Moustique: Le Port Paix: Mouillage de Jean Rabel ... etc. 1785. E.V.

Kaart over Reeden ved Cap-François. Stucket O. N. Flint. Kiobb.: 1785. E.V.

Carte réduite de l'Isle de St. Domingue ... Par M. Le C™ de Chastenet-Puisègur Paris: 1787. B.M.

Carte réduite des Débouquements de St. Domingue. Levée, dressée et publiée ... par M. de Chastenet-Puisègur. Paris: 1787. B.M. (See also C.-P. in Bibliography.)

Maps and Plans. 1791. See Ponce and Phelipeau.

Chart [of H.] with a Plan of the Island of Jamaica, and the Plans of the Principal Harbours and Anchoring Places about the Island, surveyed ... in part of the year 1789, 1790, 1791, and part of 1792, by J. Leard. 2 sh. (With) sailing directions. London: 1792, 8vo. B.M.

Vue de l'incendie de la ville du Cap Français. Arrivé le 21 Juniu 1793 Vieux style ... par J. L. Bouquet et gravé par J. B. Chapay. Paris. E.V.

Bahia y ciudad de Bayaba o puerto del Delfin en la isla de Santo Domingo. Por don Tomas Lopez y su hijo D. Juan ... Conforme al plano de Mr. Bellin. Madrid: 1794. E.V.

Island of St. Domingo or Hispaniola. W. Faden, London: 1794. B.M.

Isle of St. Domingo or Hispaniola. By W. Faden. London: 1796. B.M.

Map of island. 1796. See Moreau de St. Mery.

Part of the north side of Hispaniola with a description and plan of the rock on which H.M.S. Torbay struck ... Jan. 9th. 1783, ... This survey taken Jan. 6 1788 ... by Thos Backhouse. ... Published 12 July 1798. London. E.V.

Carte générale de la partie française de l'isle de St. Domingue, assujettie aux observations astronomiques de Messieurs de Puységur, de Borda et de Verdun ... par Major Pechon ... 1798. Published 2 Sep. 1799 by Rob. Wilkinson, London. E.V.

Carte de l'Isle de St. Domingue avec les Routes, par P. L. Griwtonn. Paris: 1801. B.M.

Carta esférica que comprende los desembarcos al Norte de la Isla de Santo Domingo y la parte oriental del Canal Viejo de Bahama. Madrid: 1802. B.M.

Carte particulière de l'Île de Saint Domingue, dressée d'après divers plans manuscrits communiqués par le Comte Sorrel ... [Paris] An XI (1802). E.V.

Carte de St. Domingue dressée d'après la carte hydrographique de Chastenet-Puységur ... Phelipeau ... Danieli Lescallier ... en 1784 ... par J. B. Poirson en Nivose de l'an XI [1802]. Gravées par Tardieu l'aîné.

Charte von der Insel San Domingo oder Hispaniola ... von F. Goetze. Weimar: 1802. E.V.

Carte politique de St. Domingue, par MM. Leyritz, Levassor et Bourjolly. Paris: 1803. B.M.

A Map of the Island of St. Domingo. J. Stockdale [London]: 1806. B.M.

Steel's new Chart of the Islands of St. Domingo and Jamaica; with part of Porto


Plan of St. Domingo City. 1810. See Walton.

Plan of Seat of War at St. Domingo City. 1810. See Guillermín.

Maps by Tardieu, 1817 et seq. See Dumas.


Portulan of the America Septentrional Puerto del Guarico. Mexico: 1825, obl. fol. B.M.

Note.—Madrid, 1809. In part 6 are 16 charts of ports, &c., of Hispaniola.

Statistique de Saint-Domingue, République d’Haiti, Ile de St. Domingue ou d’Haiti.

Par A. M. Perrot. L. D. Duverger [Paris]: 1825. B.M.


Note.—According to E.V. this accompanies Placide Justin’s work, which see.

Admiralty charts published in 1828 from French MS.: Plan of Bay of Aux Cayes.

Macenville Bay, Bay of Flamand, Gonaives Bay, Bay of Port Dauphin, Bay of Cayenmes and Baradaires, Bay of St. Mark, Bays of St. Louis and Meste, Acquin Bay, Lacul Harbour and St. Nicolas.

Map of Hayti. 1830. See Mackenzie.


Hispaniola or Saint Domingo. Drawn by F. Lucas, jun. [Baltimore? 1835?] B.M.

Another edition entitled Hayti or Saint Domingo. Baltimore: [1840?] B.M.


Map of Island. 1846. See St. Remy.

Monillage à l’Entrée de la Baie de Samana ... levé en 1846 par Mr. Mouchez. [Paris?] 1849. E.V.


Entrance of Gulf of Samana. From various authorities. ... [Admiralty Chart.] London: 1854. B.M.


Carte Particulière de l’Isle de Saint Domingue, dressée après divers Plans manuscrits communiqués par M. de Sorrel. [Paris, 1850?] B.M.

Charts of coast of Saint Domingo. 1858. See Monte y Tejada.

Peninsula and Bay of Samana. 1858. See Schomburgk.

Carta Esférica de una parte de la Isla de Sto. Domingo, con los Desemboques al N. de la misma, construida ... por El Sr. D. F. de Lersundi. Madrid: 1856. B.M.

Map of Island. 1860. See Courtney.

Carte des Grandes Antilles. Cuba, Haiti, etc. 1861. B.M.

Map of Island. 1862. See Fabens.

Map of Hayti. 1862. See Vuillemin.
Carta de la bahía de Samana. Direction de Hidrografía No. 423. Madrid: 1862. P.M.
Carte des Débouquements de Saint Domingue et des Passages à l'Est de Cuba. [Paris] 1865. B.M.
Mapa de la Isla de Santo Domingo. Según las autentíssimas autoridades y las ... personales observaciones hechas por el Señor R. H. Schomburgk. (Plan de la Ciudad de Santo Domingo y de suyos contornos). 3 sh. Paris: [1865?] B.M.
Haïti, or San Domingo (Entrance of Samana Gulf. Cape Haïti Harbour, formerly Cape Guaraico of the Spaniards). C. Wilson, London: 1869. B.M.
West Indies.—Haïti or St. Domingo, Cayes, Flamand, St. Louis, and Meste Bays. From French Government Surveys to 1872, with additions from a survey by Capt. R. Owen, ... 1885. [Admiralty chart.] London: 1879. B.M.
Map of Island. 1873. See Hazard.
Map of Island. 1873. See Gabb.
Map of Island. 1874. See Petermann.
Index to Charts and Plans published by the Hydrographic Office of the Admiralty. London: 1875, fol. B.M.

Note.—Map 0 contains the index to Hispaniola charts.
West-Indien. Hayti. Puerta Plata. 1:10,000. Deutsche Seekarten, No. 34. Berlin: 1875. P.M.
Haïti, North Coast. Port Plata. 1:10,156. [Admiralty Chart.] London: 1875. (No. 472.)
Mapa de la Isla de Santo Domingo, por W. M. Gabb. New York and Santo Domingo: 1876. B.M.
Map of Island. 1880. See Champlin.
Map of Hayti. 1881. See La Selve.
Santo Domingo, Samana Bay. 1: 60,000. (No. 917.) Washington, Hydrographical Office: 1884. P.M.

II. CHARTS IN USE AT PRESENT; CORRECTED UP TO DATE AT THE HYDROGRAPHER'S DEPARTMENT, ADMIRALTY OFFICE.

Scale.

m = 6°0 San Domingo harbour. H.M.S. Hound, 1849; corr. 1883.
m = 3°0 Jacmel harbour. Capt. Mackellar, 1817; corr. 1876.
m = 1°4 Aquin bay. French MS.; corr. 1875.
m = 1°0 Cayes, Flamand, St. Louis and Meste bays. French Surveys to 1872; corr. 1879.
m = 2°7 Navassa island. Capt. Owen, 1803; corr. 1882.
m = {12°4} \{3°6\} Jeremie bay. Miragoane harbour. Staff-Com. Kidde, 1873.
m = 0°5 Cayemites and Baradaires bays. French MS.; corr. 1876.
m = 1°5 Port au Prince. Com. Owen, 1830; corr. 1880.
A Map of the Island of Hispaniola; drawn about 1650, to accompany an account of the island, by D. Andres Munoz de Torre: 11 in. by 61 in.

"La Ysla Española." A general map drawn without a scale. 4 ft. 8 in. by 2 ft. 2 in.

"Plan du Cap du Môle St. Nicolas," in the island St. Domingo; drawn on a scale of 180 toises to an inch: 2 ft. 6 in. by 1 ft. 10 in., with an outline on the same scale and size.

An outline Chart of part of the north coast of the Island of St. Domingo, between Cape Samine and Porto Plato, shewing the situation of some wrecks on the Silver Keys: 1 ft. 6 in. by 1 ft. 1 in.

"Carte de la Plaine du Nord de l'Isle St. Domingue, depuis le Limbe, jusques au Fort Dauphin;" drawn by — Rabié, on a scale of 570 toises to an inch: 5 ft. 10 in. by 2 ft. 2 in.

A Plan of Cape Francois, in the island of St. Domingo; drawn on a scale of 2 leagues to an inch: 1 ft. 4 in. by 10 in.

A colored Plan of "La Baya d'Ocño en la coté du sud de l'Isle de St. Domingue," with the soundings; drawn about 1740, on a scale of 3 in. to a French league: 1 ft. 6 in. by 11 in.

"Plano de la bahia de Ocoa, situado en la banda del sur de la ysla Española," with soundings; drawn about 1770, on a scale of $\frac{1}{3}$ in. to a maritime mile: 1 ft. 10 in. by 1 ft. 6 in.

Chart of a part of the south coast of St. Domingo or Hispaniola, between Cape Tiburon and Cape Altavella, Port Louis being in the centre; drawn by Capt. Elliott in 1701, on a scale of $\frac{3}{4}$ English leagues to an inch: 2 ft. by 1 ft. 3 in.

An exact plan and profile of Port St. Louis, on the south side of the Island of Hispaniola, as it was when taken by Rear-Admiral Knowles, 8th March, 1747-8; surveyed upon the spot by Archd. Bontein, Engineer;" drawn on a scale of 10 yards to an inch; with a profile on a scale of 15 feet to an inch: 3 ft. 5 in. by 1 ft. 7 in.

An exact plan of Port St. Louis, on the island of Hispaniola, as it was when taken by Admiral Knowles, March ye 8th, 1747-8;" drawn on a scale of $\frac{4}{5}$ fathoms to an inch: 3 ft. 5 in. by 1 ft. 8 in.

A colored plan of the platforme Bay in the Island of Hispaniola; drawn in 1762, on
a scale of 5\(\frac{1}{2}\) inches to a mile; signed by Wm. Harman and Abrm. Blundell: 1 ft. 8 in. by 1 ft.
An exact survey of the Harbour of Port St. Louis, on the South Side of the island of Hispaniola, in America; by Archd. Bontein, Engineer, March 1747-8;” drawn on a scale of 300 yards to an inch: 1 ft. 10 in. by 1 ft. 7 in.; with a view taken at 3 miles distance: 1 ft. 7 in. by 44 in.

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Note.—The Numbers, if any, after the names and dates, refer to the Anonymous Publications.

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EXPLORATIONS
IN
ZANZIBAR DOMINIONS.

By Lieut. Chas. Stewart Smith, r.n., H.M. Vice-Consul, Massowah.

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EXPLORATIONS

IN

ZANZIBAR DOMINIONS.

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1. BETWEEN KILWA KIVINJI AND THE ROVUMA.

Map, p. 126.

In the year 1883 the export of slaves from the Zanzibar dominions was very nearly stopped, and for some years such sea slave-trade as was yet carried on had been of the nature of petty smuggling. But, although the export of slaves was diminishing, there was reason to believe that in spite of the municipal law, slaves were still being brought from the interior to the coast, where they were bought and used by the coast people, both Arabs and Swahilis. The slave-trade having thus apparently entered a new phase, it became the duty of the Government to consider whether the depot ship London should be replaced by some other vessel or whether a less costly, but under the new circumstances a more efficient, system should be adopted. For the London was a wooden line-of-battle ship, now absolutely rotten, which, lying for ten years in Zanzibar Harbour, had by means of her boats operated against the sea slave-trade. It was finally resolved to pay off the London and to break her up, at the same time placing Vice-Consuls at different ports on the coast, whose chief duty it should be to give information about the slave-trade, to encourage as far as possible the development of commerce, and to assist the native authorities with advice.

Having acquired Swahili, the universal language of the coast, during two years' service in the London, I was made a Vice-Consul under Sir John Kirk, by whom I was stationed, in May 1884, at Kilwa Kivinji.

It was from this port, with the objects I have just named, that I made the journeys on foot described below. The map showing the district from Kilwa to Lindi is made from topographical notes, which are placed together after the general account.

The first glance at this map will show that it differs materially (notably in the course assigned to the Rovuma) from the corresponding
portion of that of East Equatorial Africa, recently issued by the Royal Geographical Society: it may therefore be useful to sketch the methods on which I have worked.

The map is constructed on Mercator’s projection, and on the same scale as that of the Geographical Society, from which I have taken the coast-line. In it a note of interrogation expresses doubt as to a name or a position, and what is not from my own observation is shown in dotted lines.

The latitudes I have always preferred to determine by meridian altitudes of a pair of stars, one being north, the other south of the zenith, a method by which error from natural causes is eliminated, whilst those of arithmetic are betrayed; but I have often used single meridian altitudes, and once or twice double altitudes. The latitudes thus determined, and the distances marched, with occasionally the bearings of hills, are the data from which the longitudes are deduced by protraction. Though certain observations have been entirely rejected, I have never altered what I wrote down at the time, and where an impossible case has presented itself, I have called attention to the fact in the itinerary. During the round of about 450 miles an error of about 10' in longitude manifested itself. As it is now impossible to determine the erroneous sections, and as on my return journey to the coast I was sometimes footsore, sometimes feverish, sometimes both, and was carried much of the way, I have assumed what is highly probable, namely, that the error developed itself then, and I have distributed it over several positions. This theory is confirmed by the fact that the longitude of my extreme point, Kungwanga’s village (wrongly spelt in the Royal Geographical Society’s map as Kunganga’s) as given by lunars, agrees very closely with that obtained by dead reckoning. The heights are deduced from observations of a small aneroid barometer with no attached thermometer, and must be considered as only approximate. For identification of the various kinds of rock, I collected a number of specimens, whose labels unfortunately became detached, and I have to confine myself to naming their general nature.

The object of my first expedition was Mpuemu, a halting-place on the Ndonde road, which I had been given to understand was then much frequented by Yao caravans; but as it leads through the district occupied by the Wagwangwara, I am now convinced that such is not the case; and that it is only traversed by such few persons as may come down from the Wagwangwara, by parties from the Ndonde country coming to the coast with indiarubber, and with perhaps a few slaves, or in good seasons with grain, to trade for cloth and salt, and occasionally by native hunters; in the neighbourhood of Mpuemu these find numerous hartebeest and wildebeest, whose flesh they jerk and sell in the towns. In spite of the extreme dryness of the season, which, the natives said,
had driven most of the game to a sheet of water said to exist to the northward, there was still plenty to be seen and of many sorts.

In my second journey it was my intention to pass along the southern of the two roads leading to the Wagwangwara country, and after reaching Lukumbi, a hill marked in the Geographical Society's map as being in lat. 9° 50' S. and long. 37° 46' E., to move down to Lindi by way of Masasi.

On arrival in the neighbourhood of Lukumbi, I found that the direct road to Masasi was non-existent, and was therefore compelled to use a little-frequented path which led down to the banks of the Rovuma. Having crossed this at the village of Kungwang’a, our road was along the south side of the river nearly as far as its confluence with the Lujenda. We then followed the north bank till nearly south of Mtola’s village, where there is a station of the Universities’ Mission. Here we halted a few days to give sore feet a chance of healing, and then made our way to Lindi by way of Mtua.

Travelling was occasionally difficult on account of the scarcity of water, and we had once or twice to march more than 26 miles from one watering-place to another, only to exchange a slimy pool for a muddy pit. The season had been extraordinarily dry, and besides leaving no water in many of the rivers and wells which in ordinary years are not dried, the drought had in parts caused distress by the failure of the food supply. But there was no such suffering as was felt further north, and the scarcity seemed not to have extended more than 30 to 40 miles from the coast—indeed, to the southward of Newala the harvest was extraordinarily good. The Mtua district, where the people were selling their children for food, seemed to be in the worst state. At Lindi I was surprised to find the price of millet 50 per cent. greater than at Kilwa, and double that at Zanzibar. Until the smallness of the resources of the people and the difficulties of transport have been considered, the sharpness of the boundary between want and plenty is amazing.

In the belt of country extending from the immediate neighbourhood of Kilwa to Kungwang’a, a distance of 250 miles, and for some days’ march along the Ndonde road, there are now absolutely no inhabitants. But the frequently recurring heaps of potsherds by the side of the path mark where medicine was made to keep evil spirits from the turning to a village; a mud wall now nearly level with the ground, a stone slightly hollowed for the grinding of millet, the furrows in the ground where sweet potatoes had been cultivated, or as I once saw, a circle of fine young trees grown from striplings planted to form a stockade; all indicate the former positions of houses; and the frequency of these remains show that the country through which I passed was till recently fairly populated.

The abandonment of this large district was caused by the dread of

* At Lindi, in the end of October, 1884, millet cost about 60 rupees a quarter.
the Wagwangwara, who, under a chief known among the Swahilis as Chuma (Iron), came almost to the coast in a great raid made about eighteen years ago. It is not possible that they should personally have wasted this great stretch of country, but the fear of them would have sufficed to cause a general, and probably a hurried, migration to safer parts from the places they did not actually harry. This process is today to be noticed on the Upper Rovuma, where the attack on Masasi recently made by the Wagwangwara is now causing the people to withdraw from the north bank, which they still cultivate, to the south side of the river and to its numerous eyots and islands.

I have been told by natives that the behaviour of the members of the Universities’ Mission on the occasion of the foray on Masasi in 1883 has favourably impressed the Wagwangwara, and that they are now well disposed towards Europeans.

The Wagwangwara, who occupy the district to the north and west of Lukumbi, are a great obstacle to the development of the trade of Kilwa with the interior. They have the will, and their position gives them the power, to rob and scatter any caravan passing by the Lukumbi road. Travellers are thus generally led to seek other routes, which I will shortly describe.

From Nyassa to the part of the coast called Mgao, there are two chief roads now in use, of which the one crosses the Lujenda and passes to the southward; the other strikes the Rovuma at Kungwangwa’s, and either crosses it, and leads to Kilwa, reversing my track; or it crosses the river lower, thus avoiding the Mhoessi, a difficult river in time of flood, and passes by way of Masasi to Kilwa or to Lindi; or it comes to the coast by way of Newala. Near to the coast is a network of cross communications; these are of great service to the slave dealers in enabling them to bring their wares to whichever spot seems, from the reports of those sent in advance, to be the most favourable.

There seems to have been a considerable movement of slaves to the coast in the months of July, August, and September in 1884. Bishop Smythies told me—I write from memory—that he had met in the district from Newala to the westward four caravans, of which one had 200 slaves in forks. Mtola, the chief of one of the Newala villages, enumerated several caravans which had lately passed on their way to the coast; one or two he had not allowed to pass through his village, fearing lest they should bring the small-pox. How many during this period may have come down the Lujenda road I have no means of knowing, but it should not be forgotten that as few caravans leave the interior during seed-time or harvest, or when the rivers are in flood, this large supply does not continue through the year.

I myself only met a part of one caravan on its way to the coast; it was then about 30 miles from Kilwa. It had only ten to fifteen slaves, and these were driven round out of my sight. The greater part of the
caravan had, we were told, gone to Lindi. We also learnt that a caravan, a few days ahead of this one, had been robbed and dispersed in the neighbourhood of Lukumbi.

The day after this party had passed we found a Yao woman, who had escaped from it, and had hidden herself in an almost dry watercourse. She had been three days without food, and how her rags hung on was a problem not to be solved by the casual observer. She had not been with us half an hour before a porter asked me her hand in marriage. I returned a diplomatic answer, intending to leave her with our missionaries at Newala. She was apparently happy with us, but after three days her fear and mistrust made her run away once more. I spent the greater part of the next day in hunting for her, but then gave up the search, for I think it may be reckoned an impossibility to find a person in the bush who wishes to hide; but I was not sorry to have my hand forced by the failure of the water supply. There can be little doubt that this poor creature would shortly fall a prey to lion or leopard, or would die of hunger, for Nakiu, where she deserted our party, is 50 miles from any house. I do not know her history; I had intended to question her when she had become at ease in her new surroundings, and used to the sight of a white man.

A second fugitive, whom we found on the road between Kiangara and Nahilala, was an Ndonde woman, who said she had come from a hamlet near Kilwa, where she had been in slavery nearly six months, and was now trying to return to her own country, carrying as money a bag of salt. Her scheme was probably to go from village to village, but it was very unlikely that she would ever reach her home, for, even supposing her to have reached the first of these villages, she would have been seized as a prize by the first man who met her. I put her in the special charge of one of my porters, but she only remained with us ten days, and disappeared on our arrival at Kungwanga's. Whether she hid herself, or whether she was spirited away and hidden by the villagers, I cannot say, and I could not do more for her recovery than to search in the fields, and to ask the chief to help me to find her.

It is, I believe, a new development of the caravan system that the Yao, finding they can themselves transact their business on the coast, dispense with middlemen, and now travel to and fro in large bodies of their own tribe. Indeed, from the time I left Kilwa until I neared Lindi, I saw no Arabs.

The occupation of a piece of land near Mtola's village by the Universities' Mission with their colony of freed slaves, is a result of the raid on Masasi made by the Wagwangwara, two years ago. For they say that, in case of a second attack, a refuge might be found amongst the hills; this is doubtless true if the party were content to disperse, but I should think a retreat en masse across the Rovuma would be wiser.
The work of the station consists in teaching the Yao villagers, and in attending to the needs of the colony. It is fortunate in having an intelligent chief for a neighbour and landlord, and it is well placed as regards water and soil. Masasi, though not entirely abandoned, seems to have sunk into secondary importance. At Abdallah Pesa's is a small station with one lay member of the Mission.

As far as could be seen in our march to the coast, neither the india-rubber creeper nor the copal tree are to be found inland of Newala, but further investigation is certainly needed in this matter.

My arrival at Lindi ended my explorations in this part of the Zanzibar dominions; and I feel that I ought not to leave the subject without saying a few words for my porters. I am aware that it is the fashion to speak of their weaknesses as crimes, and of their virtues with a sort of goodnatured surprise, and for this very reason I feel it my duty to put my experience on record.

There was no difficulty in engaging porters at five dollars per mensem, the food to be supplied by me; but, had my house not been built with a central court, I should never have succeeded in collecting them for the start. At the last moment each one would remember some urgent business, or some friend of whom leave must be taken. However, my rule was strict; once in the house no leave of absence, and at last the men were collected, and we filed out of the town. Out of fifty men engaged I think there were but three absenteees, and only one whom we did not get the next day. On the fifth day after camping, when about 25 miles from Manyunyu—the last village we passed on our way from Kilwa—a battle began between myself and the porters. They all came to me, and said that their wages were insufficient; in short, they wanted an increase, or they would return to Kilwa. I refused, and we went to sleep. Each party was determined to have his own way. The next morning I asked the men whether they repudiated their engagement. On their saying that they did, I brought matters to a crisis by having all the food and all the arms collected and piled in a heap. Shortly afterwards one of the porters got up, and said he was going back to Kilwa. I called him to me; my servants spread-eagled him on the heap of millet-bags, and the cook gave him fifty blows with a stick. During the course of the day the mutiny subsided, and I gave out the arms again and continued the issue of provisions.

My severity on this occasion, to which I very seldom had even to allude, was entirely justified. The only punishments I ever found necessary after this were of two descriptions. For quarrelling, the punishment was for one of the two to come and sit close to myself till his temper was cooled, which was generally very soon, for a negro hates to be made ridiculous. Offenders in other ways were ordered to carry the tent—slightly the heaviest burden—until some one else earned the punishment. These punishments sufficed, and before we had
gone very far I was entirely satisfied with the state of discipline of my

caravan.

My own dealings with my men were governed by four rules, which
never seemed to fail in making them do my wishes. I give them, and
I defy anybody else to make better ones:—

I. When possible, let the men have two meals a day.

II. Let the burdens be light rather than heavy.

III. There is nothing so persuasive as chaff.

IV. Rest on Sundays.

The porters generally sleep in the open air round the fires, but in
bad weather, or when there is any fear of strangers, a sakasa or camp
is constructed. A circle, five or six feet high, is marked out by stakes,
against which are piled branches and grass so as to give a good defence;
lean-to huts, or rather booths, are then easily made on the inside with
the same materials. It is always wise to burn the grass in the
immediate neighbourhood of the camp. Not only does this prevent its
being damaged by bush fires, but it discourages the visits of travelling
ants. But when sleeping in a village it is the duty of the chief* to
put huts at the disposal of the travellers. For this service, a present
of a couple of rupees' worth of cloth is expected.

The close relations between myself and my porters gave me opportuni-
ties of studying the superstitious bent of the native mind. This I
should describe as being almost entirely a tendency to the fear of evil
spirits, especially among the less instructed Mahommedans. On October 4,
1884, there took place a total eclipse of the moon, which I had not
neglected to predict, although careful not to take to myself the credit due
to the Astronomer Royal. It was a clear night, and the moon was high
in the heavens. When the eclipse began, one man stood out, and putting
his thumbs in his ears and his hands to the side of his head, he called
the faithful to prayers, as does a Muezzin, and conducted Divine Service,
in which many joined. The cook, on the other hand, collected a party of
the more superstitious and danced before them by the fire with song
and chorus.

COOK.—"There is no God but God! The moon is hidden! There is
no God but God!"

CHORUS.—"There is no God but God!"

COOK.—"There is no God but God!" &c.

It was once necessary to send a man down a well, and I said a light
must first be lowered to the bottom. The cook explained to the
bystanders that I thought there were devils in the well, and, turning to
me, assured me that there were none. However, whether or no there
were devils in that particular place, wells and waste places are thought
favourite lurking-places for devils. Baobab trees are especially to be

* The Swahili name for the head-man of a village is "Sultani;" and the prince,
whom Europeans call the Sultan, is Seyyidi.
feared, and there are devils under water. It was an article of faith with my servants that there was one in a small house I had to occupy on my first arrival at Kilwa. When I was told of it, I said "Yes, I was one night in bed in that house. Hearing a noise I turned, and saw on the table, drinking from my tumbler of milk, a cat. I threw a slipper, and it was off." "Ah, yes," said the man, "they take all sorts of shapes." After this story, it will not appear strange, that one day finding a load without a porter, the guide, instead of looking for the man who was shirking, propounded, in good faith I think, the theory that this was a sign of a blessing on the journey.

My porters were, to a certain point, very particular what they ate. One day, being by myself, a very young antelope (wildebeest?) ran up to me. I touched it, and then it passed clear of me. I tried to catch it, but could not, and so, being badly off for food, I was obliged to shoot it. I carried it back towards the camp. Some of my men rushed up and, muttering the invocation, cut its throat. The poor little thing had been dead half an hour; however, no one was indelicate enough to call attention to the fact. One, indeed, remarked that it was a near thing. Had it been forced on their notice that the beast was already dead, I do not know what would have happened.

It may be interesting to remark that as long as I was able to march I enjoyed excellent health; I could walk any distance in the sun, and I could even stalk game in the middle of the forenoon without a hat. But when my boots became worn, my toes got chafed, and I had to be carried in a small folding-chair slung to a pole with strips of hide; then I began to suffer from fever. As far as my actual transport was concerned, however, I found that the men were well able to carry me by hourly relays. My men enjoyed, as a rule, good health, but on our way to the coast many suffered from sore feet.

**ITINERARY.**

*Note.—Unless otherwise specified, all bearings given in points are true, all given in degrees are magnetic, and all distances on the march are reckoned from the last sleeping-place.*

**Journey to Mpuemu.**

*August 4th, 1884.*—Left Kilwa, crossed the hill Singino at the back of the town, and camped at Mzizima, about 4 miles south-west of Kilwa. At a level of about 40 feet above the present high-water mark is found an ancient beach. This is also to be observed in all valleys open to the lower ground.

*August 5th.*—Undulating country, in parts stony, with sometimes deep watercourses and sometimes rounded valleys with good soil in the lower parts. The combined action of drought and bush fires has given a very dreary look to the district. No water supply except at the
villages. Six miles west and south to Jengera village, 12 miles west and south to Kigerege village (200 feet). We were assigned a house and slept in its courtyard, which is built by splitting and weaving bamboos for protection against lions, which in wet weather seem to prefer the neighbourhood of the coast. The natives complain that what they grow in their fields is rooted up and destroyed by wild swine, of which there are a great quantity.

August 6th.—The same dismal landscape. Cultivation to be found in the valleys where the soil has accumulated. Most of the trees* belong to the leguminous order, and, as we get further from the town, bamboo groves become more frequent. Five miles to Kisongomani (100 feet), the estate of a Yao named Mahommad Kiponda, entirely the result of his own energy, he having cleared and broken up the land.

August 7th.—10 miles to Mnazi Mmoja. Camped on a slight eminence (300 feet) on which is a village with its coco-nut trees, which are not to be found further from the coast. It is, I hear, a favourite place for slaves to be halted, until the arrangements for their disposal nearer the town shall have been completed; this is confirmed by the numerous sleeping enclosures built of boughs and grass. A certain amount of game, chiefly gazelles, to be seen.

August 8th.—A plain without water. Towards the end of the march the land begins to undulate. It is open, with little jungle except in the watercourses, which are often thickly overgrown. Except where there has been fire it is covered with coarse sweetly-scented grass, which forms the food of the herds of hartebeest and wildebeest of which there are plenty to be seen, although I am told many have been driven by the drought to a large sheet of water, said to exist some distance to the north-west. Wild pig are also very plentiful. 10 miles to Mpuem. Encamped by some people on a slight rise, where the site of the former village is marked by some mango trees. Lat. 8° 56' S., height 250 feet.

August 13th.—10 miles to Mnazi Mmoja. Estimated bearing, Manyunyu, 162° 30', 5 miles; Mpuemu, 282°. 21 miles to Kigerege. Lat. a Pavonis, 8° 49' S.

August 14th.—13 miles to Kilwa Kivinji.

Journey to the Rovuma.


Sept. 2nd.—A succession of low hills which the rain has gradually bared, and left rocky and stony. There is little cultivation except in the large valleys where the soil has accumulated; the smaller valleys are simple watercourses. 5 miles, Nyundu Mbili, 7°. 6 miles, Runyu village, back bearing of Mzizima, 63°.

* Mostly mimosa.
Sept. 3rd.—Country as yesterday. 5½ miles to Manoro. 19½ miles to Manyunyu, a hamlet, to the westward of which are no more habitations before Ndonde, or, by the way I followed, before the Rovuma. Water obtained with difficulty. The distance above given is probably over reckoned. Lat. mer. alt. Achernar, 8° 59' S.

Sept. 5th.—Low rolling hills, undulating country, sandy soil, dry watercourses; a fair amount of game to be seen. 5 miles; road to Mnazi Moja branches off. 7½ miles; Mainokwe (200 feet), water obtained with trouble. 10½ miles; dry bed of Kitandawala. 15½ miles; dry bed of Kiboko river, no water. Camped. Lat. double alt. Vega and Antares 9° 10' S.

Sept. 6th.—10½ miles to dry bed of Mavuji river. 12½ miles to dry bed of Msinji river. A total of 17 miles from Mainokwe. Water got by digging in the bed of the river. The dung and footmarks of elephant, rhinoceros and buffalo, besides of many kinds of antelopes, to be seen. Lions were heard whining during the night. Lat. mer alt. Vega, 9° 19' S. (450 feet).

Sept. 7th.—About a mile and a half from the camp, a small hill, Mtumwa (750 feet). On it are three peaks formed of solid masses of metamorphic rock. Strata dip 40° towards the sea, and strike north and south from its top.

<table>
<thead>
<tr>
<th>Miles</th>
<th>Zinga (?) a round hill</th>
<th>Camp</th>
<th>Woody knoll</th>
<th>Hills (B), highest</th>
<th>Hills (A), highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 to 40</td>
<td>14</td>
<td>17 to 21</td>
<td>13 to 15</td>
<td>25 to 20</td>
<td>35 to 40</td>
</tr>
</tbody>
</table>

Estimated by my guide:

| Mainokwe       | 323 5                     | 47 30 |
| Kilwa          | 313 36                    | 63 30 |
| Kiswere        | 260 30                    | 113 0 |
| Lindi          | 261 30                    | 144 30 |

The neighbourhood is a rolling country, with frequent outcrops of metamorphic rock, striking generally between north-west and north by east. There is no jungle except in the watercourses, and the trees, mostly leguminous, are at this time grey, scrubby, and generally leafless.

Sept. 8th.—8½ miles to Manjawila; no water. 10½ miles, bivouacked; no water. From Manjawila is a cross path to Lindi.

Sept. 9th.—20½ miles from Msinji river to dry bed of Mabwero river. 23½ miles to dry bed of Maawa river. 26 miles to Naku river (750 feet). All these streams are small even when flowing. At the latter, water
was found in a pool, good, but rather slimy. Pandanus begins to be common. Some isolated Borassus palms. At Naku we found five people, men and women, who had built booths in the watercourse. They were bringing bhang from the Wagwangwara country. Lat. mer. alt. Achernar, 9° 35' S.

Sept. 10th.—Ascended the hill marked A, bearing 71° from the camp, and distant about seven miles. The way to it is over undulating country with leafless trees. The hill is about 1700 feet high, of metamorphic rock, and one of a small range running north-west and south-east. Strata dip south-west 38°.

No water was to be found, but a species of cissus is common, in the vessels of whose stem is stored a quantity of water which runs out when the stem is cut in lengths. The fluid seemed slightly mucilaginous, but it is almost tasteless, and satisfies thirst capitally.

From the summit :

<table>
<thead>
<tr>
<th>High land from S.E. by E. to S. by E.</th>
<th>105 to 106</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>A distant treble peak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hill, 14 miles</td>
<td>90</td>
<td>0</td>
</tr>
<tr>
<td>Hill connected with preceding, 16 miles</td>
<td>75</td>
<td>0</td>
</tr>
<tr>
<td>Double peak of Nandango</td>
<td>239</td>
<td>0</td>
</tr>
<tr>
<td>Mto</td>
<td>246 20</td>
<td></td>
</tr>
<tr>
<td>Distant hill</td>
<td>270 20</td>
<td></td>
</tr>
<tr>
<td>Knoll just visible</td>
<td>335 0</td>
<td></td>
</tr>
<tr>
<td>Distant hill (G ?)</td>
<td>200 50</td>
<td></td>
</tr>
</tbody>
</table>

In the evening, 3½ miles from Naku to Baleez (93°), short supply of water in a hole in a dry watercourse. Lat. mer. alt. a Pav. and a Cyg., 9° 39' 18' S.

Sept. 11th.—Before leaving Baleez I shot an "mhusi," something between a cat and a leopard. 3½ miles to Nanyiza, estimated bearing of Baleez 75°. Water in pits, small in quantity, questionable in quality.

Sept. 12th.—Dried up country, as before described. 8½ miles; our course is 235° 30'. 9¾ miles; hillock of quartz. 17 miles; a cross path running from Lindi to Jegel in Mahenge. 19 miles; Likarawe river; water in wells in river bed. On the way we smoked a civet cat out of a hollow tree. The sport was exciting, as we expected to find a leopard. Lat. mer. alt. a Cyg. and a Pav. 9° 50'. The latter was possibly a trifle past the meridian.

Sept. 13th.—1 mile, strata of metamorphic rock cropping up, striking N.N.E. 2½ miles, Kiperele river; a little water in muddy pools. Some fine forest trees with undergrowth, both of which have been hitherto lacking, are now to be seen. 16½ miles to Kiangara (920 feet).

Sept. 14th.—Through high grass and thick bamboo clumps to Matoo, a very steep hill, 7 miles, bearing 17°. It is a triple peak (1800 feet), chiefly composed of quartz, which sometimes verges on crystal. Strata strike E.N.E., and dip 45° to 50° S.S.E. From it a wide view over a
hot, baking, waterless plain, with leafless grey trees. The absence of all
habitation was very depressing.

On the summit my compass had to be taken to pieces. It may not
be out of place to remark on the little rough usage that a vulcanite
prismatic compass can stand.

From the summit:—

<table>
<thead>
<tr>
<th>Distance</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nandanga, 5 miles</td>
<td>150</td>
</tr>
<tr>
<td>from camp</td>
<td>97</td>
</tr>
<tr>
<td>Small hill</td>
<td>144</td>
</tr>
<tr>
<td>Big distant hill</td>
<td>143</td>
</tr>
<tr>
<td>Hill K</td>
<td>144 to 150</td>
</tr>
<tr>
<td>Rock with trees</td>
<td>112</td>
</tr>
<tr>
<td>Distant pointed peak (G?)</td>
<td>112</td>
</tr>
<tr>
<td>Its mate</td>
<td>121</td>
</tr>
<tr>
<td>Distant peak</td>
<td>152</td>
</tr>
<tr>
<td>Hill about 11 miles</td>
<td>96</td>
</tr>
<tr>
<td>Not very defined peak about 30 miles—perhaps G</td>
<td>95</td>
</tr>
<tr>
<td>Peaks connected with Matoo, distant 1½ miles</td>
<td>70 and 255</td>
</tr>
</tbody>
</table>

Lat. camp at Kiangara, by mer. alt. a Pav., 5° 57' S.

Sept. 15th.—To river Lihuma (1000 feet), five miles. In its bed a
few pools of water, as evil looking as an English duck-pond. 15 miles
to Nahilala river, water in wells in river-bed. Lat. mer. alts. a Pav. and
a Cyg., 10° 6' S.

Sept. 16th.—Four miles to Nasoro. Here the roads to the Rovuma
and to the Wagwangwara country, which is now distant only a few
days' march, divide. Following that to the southward; one mile from
the turning, Marekanoni; water in a swampy depression. 11 miles
from turning to Umbe Kuru river.

The Umbe Kuru, whose sandy bed is 200 feet across, is shrunk
to about four feet across, and a few inches in depth. Near it are the
marks of many animals, especially of elephant and buffalo.

In the round valleys without watercourses, over which we passed
to-day, I should expect to find good soil. They are said to be flooded
during rain. The trees are gathered on the sides of the rising ground,
the basins being bare of them; but where there are none, is often good
pasture. Lat. a Cyg., 10° 18' S.

Sept. 17th.—Road very bad, much overgrown, apparently little
used. 5½ miles to a well; country park-like; marks of elephants. 11½
miles; Hill Kitanda, distant 20 miles, bore 214° 30'. 12½ miles to a
well. Lat. a Cyg., 10° 24' S. (1200 feet).

Sept. 18th.—W.S.W. 3 miles, S.W. 3 miles; then to Kitanda
3 miles, a total of 14 miles. Camped by the side of a large pool
covering possibly half-a-dozen acres, with the summit of Kitanda bearing
east by north about 2 miles. The pool was overgrown with water-
plants and reeds, and evidently covers a much larger space in wet
weather. In the neighbourhood were plenty of wildebeest, hartebeest,
and on the rocks guinea-fowl, and orange-coloured antelopes, with horns recurved, like those of the chamois.

Kitanda, whose height is about 2800 feet, one of a system of hills covering a large expanse, seems to have as a framework a succession of parallel ridges of metamorphic rock with precipitous sides and hemicylindrical tops running north and south, steep towards the north, and often precipitous towards the south. The space between these ridges is partly filled with the soil that has been eroded from the rock, and through the soil are worn steep and deep watercourses. The upper parts of the ridges are bare of soil and show the rock. There are enormous boulders weighing 60 or 80 tons, which have been split in two by the growth of tree roots in the little crevices. Although Kitanda is no giant, the scenery is very fine; crags of a similar character, of the most quaint and curious shapes, cropping up everywhere in the neighbourhood. Except for these outbreaks of rock, the surrounding country is very level, with only slight rolling inequalities.

From summit:

<table>
<thead>
<tr>
<th>Location</th>
<th>Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lukumbi</td>
<td>346</td>
</tr>
<tr>
<td>Ndango</td>
<td>185</td>
</tr>
<tr>
<td>Distant hill</td>
<td>234</td>
</tr>
<tr>
<td>Range of small hills, 13 miles</td>
<td>246</td>
</tr>
<tr>
<td>Malulu (?)</td>
<td>103</td>
</tr>
<tr>
<td>Left of a range of distant hills, said to be Majeja</td>
<td>149</td>
</tr>
<tr>
<td>Our road</td>
<td>230</td>
</tr>
</tbody>
</table>

To the northward of Kitanda are apparently only small crags. Lat. of the camp by mer. alt. a Pav. 10° 34' S. (1300 feet).

Sept. 20th.—7½ miles; Kitanda bore 67°. 11½ miles; river Lumesule, a stream running about east by south. 15½ miles; a large open valley east. Rolling country with metamorphic rock cropping up in long bold reefs striking north and south. 17¾ miles; high peak, 257°. 18½ miles; camped by a pool in a dry watercourse.

Sept. 21st.—Road running in a more southerly direction than yesterday. 2½ miles; high hill 181°. Watercourse with pools. 18½ miles to Mhoessi, a fine river with a bed 115 yards across. It is now running in three or four small brooks that find their way along the sand. In time of rain caravans are often kept for a month on one side or the other. Lat. mer. alts. a Pav. and a Cyg. 11° 2' S.

Sept. 22nd.—Country generally level, watercourses stony. 2 miles; Ligoma river, a small stream, but with plenty of water. 5 miles; D, a round hill, whose summit is of bare rock, about 1½ mile west of the path. 6½ miles; crags each side of the road. From the summit of the easternmost,
9½ miles; a mass of granite to the east of the path, striking east and west. 10 miles; open valley, with a swamp in which water was to be found. Camped a little off the road. Some hartebeest and a rhinoceros were seen; the latter was not killed. Lat. mer. alt. a Pav. and a Cyg. 11° 10' 12" S. (1100 feet).

Sept. 23rd.—7 miles; small river; standing pools. 9 miles; Msenjere river (1100 feet), a small stream, about 12 to 15 feet across, but with plenty of water, and rushing over stones and under shady trees in the pleasantest manner. The surrounding country looks as though it were made for game, yet there is hardly anything to be seen.

Sept. 24th.—Bearing of D, 21° 20'. 4 miles, outcrop of metamorphic rock with quartz, strike 125°, forming a triple peak about 100 to 150 feet above the plain. From the summit:

<table>
<thead>
<tr>
<th></th>
<th>Kitanda</th>
<th>E</th>
<th>D</th>
<th>Rock by which we slept on 22nd</th>
<th>H</th>
<th>Ndango</th>
<th>In far distance a peak</th>
<th>Our path</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>37</td>
<td>0</td>
<td></td>
<td>38</td>
<td>0</td>
<td>78</td>
<td>177</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>0</td>
<td></td>
<td>82</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>26</td>
<td>0</td>
<td></td>
<td>83</td>
<td>30</td>
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</tbody>
</table>

12 miles to a dry river; water obtained by digging. Road gradually inclining to the left. 19 miles; camped by pool. Lat. mer. alt. a Pav. and a Cygni, 11° 32' 13" S. (1150 feet).

Sept. 25th.—As we approach the Rovuma the country gets more cut up with watercourses. After 4 miles, the first cultivation we have seen for 250 miles begins; a very good red soil. The houses, however, are deserted for the other side of the Rovuma. After 5½ miles, the bank of the Rovuma. We crossed to the village of a Yao named Kungwanga; it is built on one of the islands which here constantly divide and subdivide the stream.

Food is easily obtained, there having been no drought, but it is as dear as at Kilwa, probably because of the large number of caravans that pass through. Much labour seems spent on the cultivation of the islands, which yield a good return in millet, Indian corn, rice, and tobacco.

The houses are round, built of wattle-and-daub, the roof a framework of bamboo thatched with grass.

Small canoes are used with expertness by both sexes and all ages, but not for long journeys.

Lat. of Kungwanga’s by mer. alts. a Pav. and a Cyg., 11° 37' S.

Longitudes by sun lunars, set of three

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td>30</td>
</tr>
</tbody>
</table>

Mean result

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td>50</td>
</tr>
</tbody>
</table>
The Rovuma stream is here about 1070 feet above sea-level.

Sept. 26th.—Crossed the Rovuma to the southward, passing over a ridge of rock which, with the water low, forms a good crossing, but in full flood probably makes an awkward rapid. Well cultivated country, with scattered houses. 1 mile to Kanyunda's. At Kanyunda's, the grave of a chief, sheltered by a small shed, inside of which were offerings of food and tobacco, charms, cloth streamers, &c. 6 miles to eastward; camped at Kanyunda's sister's. Lat. mer. alt. a Pav. and a Cyg., 11° 30' 30" S.

Sept. 27th.—Road running E.N.E. 7 miles; distant round hill, 66° 20'. 10 miles; camped by river side at Kurora's. The river is full of eyots and sandbanks, which make it exceedingly pretty in spite of the fact that they spoil it for navigation. A number of my party troubled with colic, probably due to drinking Rovuma water. Lat. a Pav. and a Cyg., 11° 32' 44" S.

I took a set of sun lunars, which turned out very worthless. They came to 38° 15' E., 38° 3' E., and 37° 38' E.; mean 37° 59' E.

Sept. 29th.—E.N.E. 1¾ miles; made our camp in the plot of a man named Muindu, an Mgwangwara, who had left his tribe and settled here. He grew cassava, millet, maize, and tobacco, for the latter of which the antelopes have a great liking. Little game to be seen, but quantities of guinea-fowl. H or Malonge group, 43° 30'.

Sept. 30th.—6 miles; watercourse from south-east, dry, about 100 yards across. 6¼ miles; Naiwonga, 73° 30'. 8 miles; struck the river, which had bent away from us. It is now 200 yards across and very shallow. High round hill (one of the Malonge group), 6 miles, 42° 10½ miles; Naiwonga, 100°. 11¾ miles; Ndango, 13½ miles.

A large rocky island (Mpingawandu?) here divides the Rovuma in two parts; that passing the south-east side goes over a succession of rapids. The path now leads through a gorge with strata of metamorphic rock cropping out of the hill-sides, with lava or basalt (?) interposed. Then over a plain, out of which swell masses of rock, each 90 or 100 feet high and 500 yards thick, running for two or three miles without a break.

12½ miles; round hill (perhaps D), 25 to 30 miles, 327° 30'. 14 miles a stream bed, with water in wells. Through a valley, with large round boulder-shaped crags 800 to 900 feet high on the left; on the right smaller masses. These are named Malonge, I believe. 18½ miles; camped by the bed of a stream; water found in a well.

Oct. 1st.—A very variable course. After 5¾ miles; Majeja (?) 78°. 7 miles; passed the junction of the Mhoessi river. Crags in all directions. They seem simply to be the highest points of ridges of protruding strata.

Crossed the Rovuma, whose bed is now half a mile wide, with the water running in a few shallow channels.
Malonge Hills, 10 miles, 268° 30'. Lat. a Pav. and a Cyg., 11° 15' 42" S.

Oct. 2nd.—A plain with sandy soil, low stunted trees, and thorny shrubs, with little undergrowth. 4½ miles; crags the other side of the Rovuma, apparently striking north-east and south-west, about 2½ miles in length. 7 miles; Majega, 25° 20'.

Crossed the Lumesule, whose water has disappeared before reaching its confluence with the Rovuma. Water was, however, obtainable in holes in the sand.

From the bed of this river:—H, a round hill, 18 miles, 336½°. The Lumesule flows to the westward of it.

The path now divides, the one fork running along the Rovuma to Newala, and then going to Lindi. The other goes to Lindi by way of Masasi, sending off a branch to Kilwa after passing Majega. On this road to Kilwa water is a difficulty.

16 miles; camp in a small village (Kitanda's?). We had passed one or two small villages which had been abandoned in favour of the opposite bank of the Rovuma. Lat. a Cygni, 11° 13' S. Malonge Hills, 281°.

Oct. 3rd.—Country broken by watercourses, but better soil and more cultivated than yesterday. Outerops of metamorphic rock striking north and south. 12 miles to river Lukwika, whose dry bed is 100 yards wide. It is said to rise in Majega. Very level country, with grass and finer trees, undergrowth chiefly of Pandanus, but not at all close. I know no country more monotonous than this, where the foliage does not come close to the ground; the traveller seems to be always at the centre of a circle, his range of vision is about half a mile, and his horizon moves with him.

By the Lukwika is a village, Mgoni. A road to Masasi branches off from here; it is often impassable on account of want of water. 13 miles, camped by river side (550 feet). Lat. a Pav. and a Cyg., 11° 22' 25" S.

Oct. 4th.—Four miles, village Mbarapi, at the junction of the Lujenda and Rovuma. A cut across a bend in the Rovuma takes us over rather stony country much cut up by watercourses. 12½ miles; camped about 500 yards from the Rovuma, which is here about 800 yards across, very shallow and full of shoals. A considerable number of water-buck and small antelopes. Guinea-fowl in great numbers. Camp; lat. mer. alts. a Cyg. and a Pav., 11° 21' 45" S.

Longitudes by lunar:—

<table>
<thead>
<tr>
<th></th>
<th>38 40 E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aldebaran</td>
<td>(38 1&quot;) (best)</td>
</tr>
<tr>
<td></td>
<td>38 16&quot;</td>
</tr>
<tr>
<td>Mean</td>
<td>38 19&quot;</td>
</tr>
<tr>
<td></td>
<td>38 5&quot;</td>
</tr>
<tr>
<td>Femalhaut</td>
<td>38 21&quot;</td>
</tr>
<tr>
<td></td>
<td>38 39&quot; (best)</td>
</tr>
<tr>
<td>Mean</td>
<td>38 22&quot;</td>
</tr>
</tbody>
</table>
EXPLORATIONS IN ZANZIBAR DOMINIONS.

The mean of the two that I marked at the time as being the best is 38° 20'. The mean of all is 38° 40', but the results differ too much amongst themselves to be of value.

Oct. 6th.—Following the course of the river. After 3½ miles on the opposite side of the river a range of low hills named Malumba (?) They seem to follow its bank for some distance. Eight miles north-east; 5½ miles east to south-east; two miles north-east—total 15·5 miles. A tolerably uniform plain with belts of jungle and with occasional water-courses, which are generally thickly overgrown.

Camped by the side of the river bed; this is a sandy plain half-a-mile wide, in which the stream is almost lost. Lat. a Cyg., 11° 15' S. (400 feet).

Oct. 7th.—Level open country. Characteristic foliage of the baobabs, now in flower, and pandanus. Buffalo tracks in numbers. Seven miles E.N.E. crossed the dry bed of the Mpangawara, said to rise near Ilulu, and to pass to the west of Massasi. We rested under some large trees, which look like casuarina. They are called Mtumba, and have the pleasing habit of suddenly, with no warning, shedding large boughs. It is necessary to stand from under with great rapidity.

Country more undulating; outcrops of granite and quartz but without great regularity. 16½ miles; camped by the river, about 15 feet above the level of the water.

The river in taking a sharp curve, makes a section of its bank on this, the concave side, showing about five feet of red earth above loose sand. If this arrangement is invariable in the neighbourhood, the alternation of sand and soil is easily explained, that is to say, by the thinness, thickness, or absence of the latter. Lat. a Cyg., 11° 10' S. (350 feet).

Oct. 8th.—Eight miles to Marekano. Here the road begins to ascend, and leaving the Rovuma, takes a north-east course. Marekano is shown by its many sleeping-inclosures to be a favourite camping-place.

To the south and east the Mavia hills, about 25 miles distant.

In the afternoon, 10½ miles N.E. to E.N.E., over undulating country, with watercourses. But little game visible. Camped by a watercourse near a village in the Newala district. The last four miles are cultivated or being cleared, and there are villages.

The people say that a great number of caravans with slaves passed very recently.

Oct. 9th.—7½ miles, through villages with cleared and cultivated land to Mtola's. The Universities' Mission have built their houses on a spur running out from the higher hills lying to the northward; on each side of this spur there is a stream where water is always to be got. The settlement has some fifty houses occupied by the colony of freed slaves, also a church and school. The mission house is, I think, in
lat. 10° 56' S., but I was not well and the sights were not very satisfactory.

Oct. 13th.—From the mission: Distant Hill 25 miles, 195°; Marekano (eastward) 219°. 6½ miles in a northerly direction, at first ascending, then on a plateau. Camped at Naliogo's. I was given the bearing of Newala as S.S.E. (compass).

Oct. 14th.—Level country, good soil with red earth, partly covered with forest, the rest being cleared or already under cultivation, but there is no water. All that is consumed by the few inhabitants has to be carried, sometimes as much as a three or four hours' march. Twelve miles northerly to the Kitangara river, which is now a succession of pools in a long valley; in the rainy season the stream begins to run and enters the sea at Sudi in Mago. Then four miles east and one mile north to the banks of the river further on.

Camped by the river side, perhaps 25 feet above the level of the water. Height of camp 1100 feet.

The sides of the valley of the river and those of its feeders are gradual in ascent and rounded, thus giving the idea that it is not a swift stream.

Oct. 15th.—East five miles to Simba's, a small village. The path now skirts with many windings the south side of a plateau, or of some hills, and pretty glimpses of the lower country and of the Rovuma are occasionally gained.

After four miles the path becomes level and straighter. Nine miles north-easterly from Simba's; camped. Lat. mer. alts. a Cyg. and a Pav., 10° 32' S. (1800) feet.

Oct. 16th.—The path over the plateau is level, but bends very much. The soil is sandy; it is covered with patches of thicket, and with fine forest trees with glades of fresh green grass between. To-day and yesterday we saw the indiarubber creeper, though not frequently. 13 miles north-easterly; some hills near Lindi bore 60°. Then an abrupt and very steep descent of about 300 feet leading to a gradual and well cultivated slope of red earth, four miles of which brings us to Liwelowele village (700 feet) on the Mporno, a small bubbling stream with clear water, rising near Masasi. Then half a mile to north-east; crossed the Ukerezi, which, by making a sharp bend, meets the path again 1½ miles further on, where we camped. Lat. mer. alt. a Cyg., 10° 18' S. (700 feet). From Simba's to the Mtupo is a distance of 26 miles, mostly over a plateau with neither water nor game. There is another road, on which water is easily obtained, from Newala to Lindi to the southward, passing by way of Machamba's.

Oct. 17th.—Hilly, with a few streams, but generally dried up; soil sandy. 15½ miles to Abdallah Pes's in the Mtua district, where is a small branch station of the Universities' Mission. Lat. mer. alt. a Cyg., 10° 13' S.
Oct. 18th.—As yesterday. Six miles E.N.E. Four miles north to Kolangi, the village of Amri bin Abdallah. Two miles E.N.E. to the head of Lindi creek, where we took boat and dropped about five miles down the river to the establishment of an Arab named Salim, whose house is built on a small eminence rising from among the mangrove trees.

Oct. 19th.—By river seven miles to Lindi.

Oct. 20th.—I shipped my party in a dhow and forwarded them to Kilwa, where they arrived the next evening.

2. Exploration in the Shimba Country.

Map, p. 126.

In the beginning of the year 1885 I was moved by Sir John Kirk to Mombasa. Though unable, for many reasons, to go far from that town, I yet examined thoroughly the part of the Shimba country which I have roughly contoured; the materials for mapping the district further south are from a single journey to Magila, which I took in October 1885. The coast line is from the Admiralty Chart. The journey was made in very rainy weather, so that I was unable to lay down the Usambara hills, as I wished; astronomical observations were often prevented; rivers were difficult to pass; and lastly, the work was hindered by my own fever and rheumatism.

When engaging my men I found labour cheaper than at Kilwa. At Mombasa I was able to engage men at a daily wage of fifteen pice, with an allowance for food of eight pice, giving a total of something over 85 for the month of 30 days.

The Shimba district, lying about 12 miles to the southward of Mombasa, is approached through low undulating country, consisting of uncultivated land or of coco-nut plantations, either already deserted or gradually relapsing into jungle.

In the only important village between Shimba and Mombasa a market is held every fourth (fifth?) day, when the people living in the neighbourhood bring their wares to barter with the people of the town. That the market should be held at such an interval shows a curious independence of the week as a division of time.

The Shimba country is the district reaching from Mtai and Bombe on the north to Mwele and the River Mkurumzi on the south. The hills of which it mostly consists are of metamorphic rock, running N.N.W., some of the ridges being as much as 1200 feet above the sea-level. The air on them is delicious, and the nights are quite cool and pleasant.

Shimba is inhabited by Wadigo, and by a few Wakamba who migrated from their own country in 1884 in order to avoid a famine, which, though scarcely felt at the time by the Wadigo, has not failed
to bring in its train bad small-pox, and to cause heavy mortality. Of the 100 inhabitants of Magojoni eight people died in six weeks, for no better treatment awaits the sick than to be driven out of the village into the woods, where, living upon an allowance of gruel, they must remain until cured. The native doctors endeavour to defend villages from the small-pox by hanging charms made of wings of birds, bones, wisps of grass, to sticks stuck in the ground at cross-ways, whilst a selection of herbs suspended over the door of a hut is supposed to guarantee the health of the household. The latter plan is just now in disrepute, for a certain doctor, after securing the house of a widow from misfortune, fell ill himself. The people of Shamba, though near to Mombasa, are so unsophisticated, that sugar, mirrors, and matches move their wonder—the very fowls refuse bread-crumbs—and they do not seem prejudiced in favour of Mahommedanism. Savages are always loth to speak of their belief, and all that I could discover of their religion is that the men retire at intervals into the forest to drink palm spirit, and perhaps to practice some form of devil-worship. As in godliness, so also do they fail in personal cleanliness, clothes are washed rarely, the body never; and, since they have no ideas of business, asking often exorbitant prices for their own wares, whilst they want coast goods at below the cost price, they are not always easy to deal with. They are, further, very lazy, but they neither quarrel nor pilfer, and there are hardly any slaves amongst them, slave kidnapping being almost unknown. They are no cowards, and with their neatly constructed bows and poisoned arrows are equal to most of their foes.

Tobacco is used as snuff, for smoking, and for chewing by both sexes and all ages.

Some of the women show considerable skill in making, without the aid of any wheel, rough unglazed pottery, symmetry being gained by the eye alone. A pot is made from a conical piece of clay; whilst the thin end becomes the base, the thick end is pulled and manipulated till the required shape is gained. They do not understand the use of a spout.

Both sexes wear brass and iron bangles on arms and ankles, and round the neck great lengths of very finely worked iron chain; also large distenders as ornaments in the lobes of their ears, but neither rings nor studs for nose or lip are fashionable. It is customary to pull out both eyelashes and eyebrows, and boys are circumcised at a very early age. The women wear bands of cloth stitched with beads round each leg just below the knees, and are said to have round the loins the universal string of white beads. Their dress is formed by longitudinally folding a long piece of cloth over a string, which is then tied round the waist. The piece, being long, forms puckers and folds, and by making the inner fold deeper than the outer, there appears a very sufficient garment not unlike a kilt. Although the people are personally very dirty, their
villages are kept exceedingly clean; all dirt is carried outside except that from the cattle, which, driven in every evening, are not allowed to go out till the sun is well up, lest they should be seized by wandering Masai. The huts are rectangular in plan, low, and are built of stakes, which support a framework for a roof consisting of grass used as thatch. The eaves reach on each side to the ground, and there are no walls except at the ends of the hut. The maize is stored in trees within the enclosure, each corn-cob being tied separately to a string and left hanging till wanted.

The Shimba country easily grows all the usual products, that is to say, tobacco, maize, millet, rice, castor-oil plant, coco-nuts, bananas, mangoes, cassava, and ground nuts; and excellent indiarubber may be obtained from the *Landolphia Kirkii* and *Landolphia Persiana*, both of which are common, but even in time of famine little is collected.

From a certain common aloe may be obtained fibre, which would command a good price, especially if more carefully extracted than by the native method of splitting the leaf into long strips, which are then drawn singly by the right hand between two sticks, pressed together, at one end by the left hand and at the other by the toes of the left foot, thus crushing and removing the tissue, leaving the fibre in the hand.* Samples of this aloe fibre and of Shimba indiarubber were sent home for the report of an expert. This is given below. Had the sap of the *Landolphia* been gradually made into balls, as is usual, the samples would have been drier, but leaving it in a cup to solidify, as I did, insured its cleanliness.

Copal is found in some parts, and there is a certain amount of orchilla weed on the forest trees. I should not leave this subject without mentioning the great numbers and variety of orchids in the woods about Vuga.

Shimba is admirably suited for cattle, and a few years ago was both thickly populated and well stocked. But the cattle-lifting raids of the fierce Masai, who spare the lives of none that they meet, and the scarcely less harmful and constantly recurring insurrections of Mbaruk bin Raschid El-Kahlani, with their attendant robberies and murders,

* Extract from a letter from Messrs. Gray, Dawes, and Co., to Messrs. Smith and Mackenzie, of Zanzibar, dated January 6th, 1886:—* "We have received the small box of samples advised by you some time ago, and have put the rubber sample before our London brokers. They class it as very similar to Madagascar, good, clear, and worth about 1s. 10d. per lb. We have procured from our brokers samples of Madagascar rubber, worth about 1s. 11d. to 2s. per lb. We send them to you, with a small portion of good Para rubber, worth about 2s. 7d. to 2s. 8d. per lb. All of these you will notice are very much drier than the sample you sent, but, with this exception, we see very little difference between your sample and the Madagascar kind. The fibre our brokers report as aloe, strong, good colour, very clear, rather short in the fibre, value 23d. to 26d. per ton. They further advise us that it very closely resembles Manilla hemp, more than any fibre they have yet seen, the latter being worth to-day 30d. per ton."
have almost cleared it of live stock, and have forced the people, much reduced in numbers, to live in villages stockaded with the trunks of young trees and boughs and surrounded by a thick jungle. The entrance is double, so that after passing the outer gate there is a cul-de-sac if the inner gate is shut.

South of the Zigi river live the Wabondei, between whom and their neighbours the Wadigo are constant squabbles, kidnapping of slaves, and reprisals; and a little belt of unoccupied country divides them.

Except in the immediate neighbourhood of the Usambara hills the Bondei country is low and uninteresting. The inhabitants differ little from the Wadigo; there is, however, among them a very curious custom, a sort of initiation of boys into adult life. I did not see it, but owe the description of it to Mr. Geldart, of the Universities’ Mission. Those destined to be initiated are collected, not always at the same place, and at uncertain intervals; they are made to take off their clothes, and to wear instead a sort of drapery of unplaited grass. They are sent to live in the forest, and are subjected to all sorts of trials of their nerve and courage. Strange noises, as of lions or leopards, are accompanied by the sudden appearance of images of beasts and birds. The candidates are sent by night to lonely and dangerous places; they are put into confinement, as a practical lesson of what may be the result of theft or of adultery. There are hunts after imaginary wild animals, which finish with triumphant dances, and a grand dance winds up the course, which from first to last takes about a month.

In the Bondei country there are three principal stations belonging to the Universities’ Mission, that is to say, Magila, Umba, and Mkuzi; and there are about seven Europeans, some of them laymen, at work amongst the Bondei people. There are now about 170 baptised Christians, 30 of whom were brought from Zanzibar, and there are several catechumens. At Magila, which is the head-quarters, a large stone church is nearly finished, and the thickly populated neighbourhood gives endless scope for work to the missionaries, who not only have gained the friendship of the natives, but live in perfect peace amongst them.

Although Magila has no cattle, there is the possibility of an attack from the Masai, a large body of whom passed in October 1885 within a day’s march of the Mission.

The approaches to Tanga are over undulating hills and through great stretches of grass land, excellently suited for the pasturage of cattle, of which there were great numbers, until quite recently carried off by a Masai raid. Tanga has about 100 British subjects; about fifteen of these are Banians, the remainder Bohras with their wives and children.

From Tanga I went by dhow to Mombasa, and through lack of time
I was unable to examine, as I had wished, the port of Mwoa, and other bays in its neighbourhood.

In conclusion, I should remark that the country through which I passed is nearly destitute of game.

**ITINERARY.**

From the town of Mombasa across the island to Kilindini is about 2½ miles in an easterly direction. The arm of the sea is then crossed by a ferry, and Mtongwe, on the mainland, is reached, the village being about a mile from the landing-place. At Mtongwe is to be seen a coco-nut tree with two heads; when the tree was about 30 feet high the first head is said to have died, after which were put forth two heads, thus making a forked tree, each head being about 15 feet from the point of junction.

Mtongwe to Magojoni, a distance of 11½ miles in a south-westerly direction—country undulating; the road goes first through deserted and neglected coco-nut plantations, then over uncultivated ground, and lastly, past Digo and Kamba villages, each in its defensive stockade. Much of the country would give excellent grazing, and there is but little bush.

Bearings from Mwango-wa-Loloni:—Flag-staff in fort, 78° 40'; centre of Coroa, 37°; Rabbai hills, 350°; path (direction of) 223°.

The position of Magojoni is fixed by plane table observations; I also found its latitude by mer. alt. of Vega to be 4° 12½' south.

From Magojoni to Vuga is about four miles, and the position of Vuga is found from plane table, and a mer. alt. of Vega gives its latitude as 4° 11½ south. Vuga lies pleasantly in a hollow.

Shimba Gulini is five miles from Vuga; its latitude by mer. alt. of Fomalhaut is 4° 9' south; but this result should be received with caution, for at the time of the star's passage there was a war dance near my seat, which caused much trembling of the mercury in the horizon.

From the hill Rironi is gained an excellent view to the northward and to the westward, the country in the latter direction appearing quite flat, and I was enabled to take very good bearings of Kasigao and Kilibas. These, when intersected by bearings taken from Jombo village, give the following positions:—Kilibas 3° 59' south, 39° 1' east; Kasigao 3° 50½' south, 38° 45' east.

At Golini I was told that the villages which formerly existed to the south and west had been destroyed by the Masai, the only remaining one being Pande, about 10 miles away.

South-east of Magojoni are clustered a number of small villages, Mdogo-wa-Mayayi, Dzombo, and Mvumoni, the latter being but a mile distant from it.
Two miles from Magojoni is a curious depression named Nyari, within which there is said by the natives to be an engulfed village.

Three miles from Magojoni is Tiwi, a small village, and east of Tiwi is a small lake.

From Magojoni to Mwabila is about 11 miles, over very confused small hills and through very thick undergrowth, and, in November, very high grass. This difficulty is avoided in January or February, when the grass has been burnt and the country is clear.

Mwabila is a fair sized village, from which I took the following bearings:—Jombo, 244° (true); Usambara hills, 247½°; height above sea-level by boiling-point thermometer, 430 feet; variation by alt. azim., 8° 44' W.

Six miles S.S.W. of Mwabila is crossed the Mkurumji river, a small stream 25 feet wide.

When due west of Gasi, the road takes a westerly direction, and 12 miles from Mwabila is the Ramisi, a deep narrow river, perhaps 20 feet across; it is doubtless difficult to cross in time of flood. This was marched in two stages, the second being most trying. It included 1½ hours through grass 10 feet high, wet and steaming, with a hot sun, the path going up and down small hills and over little streams.

Fifteen miles from Mwabila is Jombo village; its latitude by mer. alt. of a Gruis is 3° 26' S., and its height above sea-level by boiling-point thermometer is 244 feet. Jombo hill is fixed by its bearing from this village and from Mwabila; its height as given by the Royal Geographical Society's map seems correct.

Seven miles south-west of Jombo is Vichakawifu, a small village. On leaving Vichakawifu we made a great round, probably to avoid marshy ground, and then crossed the Njovu, a shallow stream, easily forded, and, after 6 miles, the Mwena, a large deep stream, bridged by a felled tree. After another half mile we found ourselves at Chole. From Chole to Kobe is about 2 miles, and from Kobe to the Umba river is about 3 miles; just across the river is Umba Jilile.

From Umba Jilile to Chueni is 4 miles, from Chueni to Fidzoni about 3 miles.

From Fidzoni, which is said to be the end of a long ridge reaching into the Usambara country, the following bearings were taken; Tii, north end, 79°; south end, 56° 16'; Jombo, 16° 16'; Mwele, 23° to 31°.

The neighbourhood is very low and thickly studded with villages.

From Fidzoni to Hundu is 4 miles, and from Hundu to Kwa Ngwaru is 4 miles. In the part of the Digo country south of this, there was much slave kidnapping during the famine. The river Ndoyo, half a mile from Kwa Ngwaru, was in flood, owing to the great amount of rain, and it was crossed by means of a tree felled so as to bridge its deepest part. Where we crossed it the channel was interrupted by many small islands, but its total breadth is probably as a rule 30 yards.
NGUWE, whose latitude by a Gris is 4° 49' S., and height above the sea level 100 feet, is less than 6 miles from the Ndoyo river.

About this point the metamorphic rocks, which have hitherto prevailed, cease, and the rocks to the southward, except near the Usambara hills and at Magila, where a hard stone-like ironstone is found, are of shale or slate.

From Ngewe to the river Kombé is 1½ miles, to Mazola 3 miles, to Bagamoyo 5 miles, to Majema 10 miles, to Maziwi * 14 miles. From Maziwi to Mwa Kuluwu is 6 miles, and to Vindo 9 miles.

A mile from Vindo is the Zigi, a fine stream about 100 yards wide, but very swift and full of rapids.

From Vindo to Membwera, 4 miles; from Membwera to Mabungu's, 6 miles (these two measurements taken whilst suffering from fever); from Mabungu's to Magila is 5 miles.

Magila is 628 feet above the sea-level; whilst I was there the weather was too bad to get a good observation for latitude. The variation of the compass is 113° W.

From Magila it is 3 miles to a ford over the Mkurumuzi, here, when not swollen, about 25 yards across.

From Magila 10 miles to Umba, a small off-station of the Universities' Mission, with a school for the children of the neighbouring villages. It is about 600 feet above the sea-level, and its latitude by a seemingly good mer. alt. of Achernar is 5° 7' S., but certain bearings of the Usambara hills place it further south.

From Umba to Tanga is about 20 miles, over undulating country, which gets clearer as the coast is approached, and offers excellent pasturage for cattle.

* During the night spent at Maziwi a thief came into my tent. In these parts, where the law is weak, a thief may be dealt with at the captor's discretion, that is, either killed on the spot or sold for a slave. I expected therefore that the thief would be armed; and having neither light nor weapon, I considered it more discreet to slip out of bed and call for help than to throw myself on him. I did so, but he escaped. This was the only time I encountered a thief.
A BIBLIOGRAPHY OF ALGERIA.

By Lieut.-Colonel Sir R. L. Playfair.

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BIBLIOGRAPHY OF ALGERIA,

FROM THE

EXPEDITION OF CHARLES V. IN 1541 TO 1887.

BY

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"HANDBOOK (MURRAY'S) TO THE MEDITERRANEAN," ETC.
A BIBLIOGRAPHY OF ALGERIA,
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EXPEDITION OF CHARLES V. IN 1541 TO 1887.

By Lieut.-Col. Sir R. Lambert Playfair, K.C.M.G., etc.

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This work mentions the Tombeau de la Chretienne, near Cherchel, the tomb of the Mauritanian kings, "monumentum commune regiae gentis," the only ancient edifice in Algeria specifically mentioned by a classical author.


11. 1550. Il vero e ultimo avviso della prisa d'Africa.


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15. —— Nicholas Nicholay.

The author was Valet de Chambre and Geographer in Ordinary to King Charles IX. The English version is a translation of part of No. 14.


The author was an Arab of Granada, named El-Hassan, who visited a great part of Africa. He was taken by Corsairs, and baptised by Leo X. His original work was in Arabic, but it has been translated into Latin and into nearly all the modern languages of Europe. The English version bears the title: A Particular Treatise of all the Mainie lands and Isles described by John Leo, with map. London: 1600, 4to. A French translation, by Jean Temporal, was published at Lyon, 1556, folio; and an Italian version is given in Ramusio, vol. i.

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Much interesting matter regarding Algiers and Oran.
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Marmol was a native of Granada, served in the expedition of Charles V. against Algiers, was taken prisoner, and travelled during seven years and eight months over a great part of North Africa. A French translation was published by d'Ablancourt at Paris in 1667, 3 vol. 4to, pp. 532, 578, 634.

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27. 1577. Isidori Hispalensis Originum.—See Appendix to Shaw, No. 247.


29. 1582. Pauli Orosii adversus Paganos Historia.—See Appendix to Shaw.


32. 1591. Tratado para confirmar los pobres cautivos de Berberia en la verdadera y antigua fe. 8vo.

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35. 1599. Hakluyt, Rev. Richard.—The Principal Navigations, Voyages, Traffiques, and Discoveries of the English Nation made by sea or overland, to the remote and furthest distant quarters of the earth, at any time within the compass of these 1600 yeres, &c. London : folio, 2 vol. pp. 620, 312+204. B.A.
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The following have reference to Algiers:


translation in English. Sir Thomas was a Knight of Rhodes, and the intimate
friend of Sir Henry Knevet, Ambassador from Henry VIII. to Charles V.
These, together with Henry Knolles and Henry Isham, accompanied the
Emperor on his expedition to Algiers.

Ambassador to the Porte, written probably by John Tipton, first English Consul
at Algiers; both appointed by the Levant Company. Dated 10th Feb., 1583.

39. Page 174. A passport granted to Thomas Singleton, Englishman, by Assan
Agha, "King" of Algier. 1583.

40. Page 175. A letter written in Spanish by Sir Edward Osborne, Lord Mayor
of London, to the King of Alger, 20th July, 1584, in the behalf of certain
English captives there detained, with an English translation followed by Notes
concerning the Trade of Alger.

41. Page 177. A Letter from the English Ambassador to M. Edward Burton,
his Emissary (subsequently Ambassador), dated 24th June, 1584.—Mention is
herein made of Tipton.

42. Page 177. The Commandement of the Grand Signior, obtained by Her
Majesties Ambassador, M. Will. Hareborne, for the quiet passing of her subjects
to and fro his dominions, sent in 1584 to the Viceroy of Algier, Tunis and
Tripolis in Barbary.

bassador with the Grand Signior, to M. Tipton, appointing him Consul of the
English in Algier, Tunis and Tripolis of Barbarie, dated 30th March, 1585.
—Tipton had already held this position in an unofficial manner for some time.

44. Page 179. A Catalogue (in Latin) or Register of the English ships, goods
and persons wrongfully taken by the galleys of Alger, with the names of the
English captives, delivered to Hassan Bassa the Beglerbeg of Alger.

45. Page 180. A letter of M. Will. Hareborne to Assan Aga, Eunuch and
Treasurer with Hassan Bassa, King of Alger; which Hassan Aga was sonne to
Francis Rowley, Merchant of Bristol, and was taken in an English ship called
the Swallow, 28th June, 1586.

46. Page 181. Correspondance regarding the restitution of the shippe called
the Jesus and the English captives detained in Tripolie in Barbarie and for
certain other prisoners in Argier. 1584.

47. Page 282. The Second Voyage of M. Laurence Aldersey to the cities of
Alexandria and Cayro in Aegypt, Anno 1586.—In this occurs a notice of John
Tipton.

48. Part ii. vol. ii. p. 114. The Letters Patent or priviledges granted by Her
Majestie to certaine noble men and merchants of London for a trade to Barbarie
in the yeere 1585.

A new edition, with additions, were published in 1809 and following year.

49. 1602. Conestaggio, Jeronimo.—Relazione dell’ apparecchio per sorprendere
Algieri. Venizia: 4to, pp. 18.—See No. 4206.

50. 1603. Knolles, Richard, scholar of Lincoln’s College.—The General History
of the Turkes, from the first beginning of that nation to the rising of the Othoman
Famille, with all the notable expeditions of the Christian Princes against them, &c.
London: folio, pp. 1152.
From page 716–24 is an account of the expedition against Algiers by Charles V.

The history is followed by "a brief discourse of the greatness of the Turkish Empire," which gives the titles of "the Beglerbegs and their Sanzackes and Timariots." "The Beglerbeg of . . . Cesair (in auntient time called Julia Cesaria), but now commonly Algiers, where the Beglerbeg still residing, commandeth over all that kingdom wherein are fortie thousand Timariots."


54. 1607. Cort end varachtlich verbael van de gedenkweerdige geschiednis in Barbaryen. 4to.


This was also published in French in 1608, under the title: ‘Discours des voyages et de la prise de la ville et forteresse de Bona en Barbarie par les garels de la religion de St. Etienne en 1607, sous le commandement de Silvio Picolomini et de Chev. de Gadagne sieur de Beauregard.’ Lyon: 8vo.

56. 1608. Notitia utraque dignitatum cum orientis, tum occidentis, ultra Arcadii Honoriique tempora.—See Appendix to Shaw, No. 247.


60. 1612. Fray Diego de Haedo.—Topographia e Historia General de Argel. Valladolid: folio, double cols.

A French translation by Dr. Monnerau and M. Berbrugger was published in the 'Revue Africaine,' 1870, p. 364 et seq. The author was a Benedictine monk, Abbé of Fromesta, and dedicated his work to his relative the Archbishop of Palermo. It contains an account of the martyrdom of Jeronimo.

Another work by the same author is the 'Epitome de los Reyes de Argel,' which contains nearly all the information we possess regarding the events of the 16th century, and is of the utmost importance to students of Algerian history. A translation of it was published by M. de Grammont in the Rev. Afr., xxiv. p. 37 et seq. Haedo was taken prisoner by the Algerines in 1578, and released in 1581.


62. 1614. Davies, William.—A true relation of the travauls and most miserable captivity of . . ., Barber Surgeon of London, under the Duke of Livorno, wherein
is truly set down the manner of his taking, &c. London: 4to, notpaged, about 40, B.3.2.

The author left England 28th January, 1597. In chap. ii. he describes "Argeir," and in chap. iii. "Tunyu," on leaving which place his vessel, the Francis of Saltash, was taken by galleys of the Duke of Leghorn, by whom he was kept in slavery eight years and ten months.

63. 1614. Lithgow, William.—A most delectable and true discourse of an admired and painful peregrination from Scotland to the most famous kingdoms in Europe, Asia and Affricke, &c. London: 4to, without pagination.

Other editions were published at London, 1616, 1632, 4to, 1688, 8vo; at Edinburgh, 1770, 8vo; London, 1814, 8vo.

In the 8th Part is a description of "The Marine Provinces 'twixt Tunies and Algier, and of their territories—An English Pyrte Captain Waird—Of the towns of Tremizen and of Algier and of their territories."

63a. 1615. Cervantes, Miguel de.—Comedia famosa de los Baños de Argel. Madrid: 8vo.—See No. 252.


Several other editions exist, published at Paris, Rouen, and Lüneburg, the last in 1668. An English translation was published at London in 1696.

65. 1618. Relazione d'una famosa vittoria contra i piu nobili et valorosi xequs et aduari di mori. Valenza: 4to.


An English version is given in Purchas, vol. ii.: 'Relations of the Christianitie of Africa, and especially of Barbary and Algier.' The author was himself a captive at Algiers 1619-1620. The Latin edition has the following title: 'Diarium rerum Argelæ gestarum ab anno 1619 sine speculum miserie servorum Turcorum.' Colonia: 8vo, 1623.

Grammey describes Algiers as 'Hell's epitome—Miseries' ocean—Christian's Whirlpool—Torture's Centre—Hell upon Earth—Whip of the Christian World,' &c.

68. 1620. Mala, Pietro.—Relazione della presa fatta ai Turchi dalle galere di Francia in Barberia. 8vo.

69. 1620. La Victoire obtenue par M. le Général des Galères de France sur les plus redoutables corsaires du Turc, ensemble ce qui s'est passé de mémorable de son voyage en Barbarie. Paris: 8vo.


70. 1621. Algier Voyage, in a journall or briefe reporting of all occurrences hapening in the fleet of ships sent out by the King, His most excellent Majestie as well against the Pirates of Algiers as others, the whole body of the fleet consisting of 18 sayle, &c., by one that went along in the voyage. London.—See also Purchas, No. 85.

71. 1621. Relation of the 'Jacob.'—See Purchas, No. 86.
72. 1621. Rawlins, John.—See Purchas, No. 87.
73. 1622. Gramaye, Jean Bap.—Africare Illustrata Lib. X. in quibus Barbaria gentesque ejus ut olim et nunc describuntur. Tornaci Nerviorum (Doornik): 4to. —See also No. 67.
    This is a mere plagiarism of Marmol and Leo.—See also Purchas.
74. 1622. Carta de un Capitan de Oran el Capitan D. Gregorio de la Cueva. Without place or author: folio.
75. 1622. Relacion verdadera de la Victoria que ha tenido el Senor D. Juan Manrique de Cardenas, hermano del Senor duque de Maqueda en las fuerzas de Oran contra Moros y Alorbes por el mes de Agosto. Without name of place or author: folio.
76. 1622. Carta que escrivio Geronimo de Yturria desde Oran a D. Anastasio Germonio, obispo de Tarantasia. Without place: folio.
79. 1624. Victoria que tuvo el excellentissimo duque de Maqueda, general en sa flota de Oran con los Moros de Beni-Aghu y todos sus aduaraes y los esclavos y prescas que en esta venturosa victoria alcanzaron este presente año en 13 de Octubre 1624. Madrid: folio.
80. 1624. Victoire obtenue sur les corsaires, d’Alger avec la prise de trois gallions et un grand navire Hollandois, par le sérénissime prince Philibert de Savoie le 24 Juin 1624. Lyon: 8vo, jouxta la copie imprimée à Rome et Gênes.
81. 1624. Famosa y admirable relacion de la gran Victoria que el Senor Marques de Santa-Cruz a tenido contra las galeras de Viserta y Argel, &c. Sevilla: folio.
    The following are the articles connected with Algiers:—
83. Page 749 (2nd vol.). Observations of Africa taken out of John Leo his 9 Bookes. Translated by Master Pary, and the most remarkable things hither transcribed.
84. Page 874 (2nd vol.). The description of the citty of Alger written by Nicholas Nicholay, and how it came into the possession of Barbarossa.
85. Page 881 (2nd vol.). A large Voyage in a Journall or briefe Reportary of all occurrences, hapning in the Fleet of Ships sent out by the King, His Most Excellent Majestie, as well against the Pirats of Algiers as others; the whole body of the Fleet, consisting of 18 Sayle. Six of H. M. Ships, 10 Merchant Ships, 2 Pinnaces, under the Command of Sir Robert Mansel Knight, Vice-Admirall of England, and Admirall of that fleet, and a Counsell of Warre appointed by His Majestie. Written by one employed in that voyage, formerly published, and heree contracted.
86. Page 887 (2nd vol.). The Relation of the Jacob, of 120 tunnes, which was about the end of October 1621 taken by the Turkish Pirats of Argier, and within 9 days after four English youths did valiantly overcome thirteenth of the said Turkes, and brought the Ship to St. Lucas in Spaine, where they sold nine of the Turkes for galley slaves, with mention of some other like English adventures.


90. 1626. Purchas, Samuel.—His Pilgrimage, or relation of the world and the religions observed in all ages and places, &c. London: 9 books, in 1 vol. folio, pp. 1047.

Chapter viii. of the 6th book treats of ‘that part of Barbarie now called the Kingdom of Tunis and Tripoli.’ With map. Chapter ix. of the ‘Kingdome of Tremisen, Algier, and other places anciently called Mauritania Caesariensia.’ Chapter xiii. of ‘Biledulgerid and Sarra, otherwise called Numidia and Lybia.’

91. 1626. Discours véritable de la grande et notable victoire obtenue par les gallères christiennes contre cinq vaisseaux et un grand gallon conduits par un insignie Pirate d’Alger, Grec de nation, renegat et magicien de profession, nommé Asan Calafat, en laquelle furent délivrés plusieurs christiens esclaves entre les quels estat trois R.P. religieux, capucins envoyés par obédience au voyage de la Terre Sainte pour la satisfaction d’un vœu de la Sérénissime infante et Archiduchesse des Pays-bas. 8vo.


93a. 1628. Eigilsen, Olaf.—Kort Beratning om de Tyrkiske Saeroveres (af Argier) ufi Island, 1626; af islandske oversaat paa dansk. Copenhagen: 8vo.

94. 1628. Byam, Henry.—A return from Argier. A sermon preached at Muirhead at the re-admission of a relapsed Christian into our Church. London: 4to.


98. 1631. Antonio de St. José.—Relacion milagrosa del rescate que se hizo en Argel. Valencia: 4to.

99. 1632. Relacion Verdadera de la gran Victoria que el Sr. D. Antonio de Zúñiga y de la Cuena Marques de Flores de Ávila del Consejo de Guerra de su Majestad, su Governador y Capitan General de Oran, Reinos de Tremecen y Túnez, Tuvo con los Moros Veranajes distantes de Oran veinte y quatro legua a los 7 de Octobre de 1632. Reprinted in Coleccion de Libros Españoles Raros et Curiosos. Madrid: 1881, tomo 15.

100. 1634. Leo Africanus.—Turcici Imperii status accedit... de regno Algeriano atque Tunetano commentarius. Lugduni Batavorum: 8vo.


103. 1637. Fitz-Geffery, Charles.—Compassion towards captives, our brethren and countrymen who are in miserable bondage in Barbarie. Urged and pressed in 3 sermons, preached in Plymouth in October 1636. Oxford: sm. 4to.


The author was for nearly half a century a Trinitarian father, engaged in the release of captives. His work is most interesting from an English point of view, as he gives an account of the Irish captives taken at the sack of Baltimore by the Algerines.—See also Charles Smith's 'History of Cork,' vol. i. p. 278.

105. 1638. Mansour, Jacob-al-Madjaheel-al, of the Almohadín dynasty which reigned over Africa and Spain. He wrote a work which was translated into French under the title of 'Vie de Jacob Almançor roy d'Arabie.' An English translation was published by Ashley in 1627, and a Spanish one at Saragossa in 1603.

106. 1635. Relacion verdadera de la presa que las galeras de Venecia han alcançado de las de Ture y Argel. Madrid: 4to.

107. 1639. Relacion Verdadera en que se da cuenta muy por estenso del modo que tienen de vinir assi Moros como Judíos de la ciudad de Argel. Madrid: folio.

108. 1640. Knight, Francis.—Relation of seaven yeares slaverie under the Turkes of Argiere, suffered by an English captive merchant. Whereunto is added a second booke containing a description of Argiere, with its original manner of government, increase and present flourishing state. London: 4to.—See also Osborne's Voyages, vol. ii. p. 481, and Churchill's Collection, supplement.

It contains an interesting account of the Koulonghli insurrection, and of the mission of M. de Sanson in 1635.

109. 1642. Robinson, Henry.—Libertas or Reliefé to the English captives in Algiers and the great Turk, briefly discursing how such as are in captivity may be soonest set at liberty, others preserved, and the great Turk reduced to receive and to keep peace to the great benefit of Trade. London: sm. 4to, pp. 12.


111. 1644. Redemption fait à Alger par les P.P. de la Mercy. Bordeaux: 12mo.


113. 1645. Égreville, Le R. P. Edmond.—La vive foi et le récit fidèle de ce qui s'est passé dans le voyage de la rédemption des captifs français fait à Alger par les pères de l'ordre de Notre-Dame de la Mercy. Paris: 8vo.


116. 1647. Casson, Edmund.—A relation of the whole proceedings concerning the redemption of the captives in Argier and Tunis; ... together with a list of the captives' names redeemed, and the prices they cost there in the market. Published by special authority. London: 4to.

The list contains the names of 242 persons redeemed from slavery.


119. 1648. Le F. D. C.—Les Triomphes de la Charité du P. Lucien Hérault, ou relation de ce qui s'est passé dans la sortie des captifs de la Ville d'Alger, qui y avaient été arrestés après sa mort, ensemble leur arrivée et les réceptions qui leur ont été faites dans celles de France où ils ont passé. Paris.

120. 1550. Rynacker, Dr.—De Reyse naar Afrika, Tunis, Algiers, &c., gedaan in den jare 1625, onder't beleydt van Dr. R—— als ambassadeur van Hare Hoog Mog. tot lossinge van de Christen-Slaven derwaarts gedeputeert. Haarlem: 4to, met grav.

121. 1652. Lithgow, W.—Landreyze door Europa, Asia ende Africa. Amsterdam: 4to. Translated from the English, see ante, No. 63.


This translation is exceedingly rare. No copy exists in the British Museum or the Advocates' Library in Edinburgh; there is one at the Bodleian. In the second book, 'De Bello Vandalico,' is a notice of the celebrated inscription said to have existed near Tangier, "We flee from the robber Joshua, the son of Nun."

A French translation, entitled 'Procope de la Guerre contre les Vandals,' was published in Paris in 1670. For the original text see *Corpus Scriptorum Historiae Byzantinae,* Bonne, 1838.


127. 1654. Tabula Peutingeriana, ex edit. G. Harini, Amst.—See Appendix to Shaw, No. 247. Also 'La Table de Peutinger d’après l’original conservé à Vienne, par Ernest Desjardins.' Paris : 1869.


Sir Thomas Mansel, in a letter to the Duke of Buckingham, recommending Sir Thomas Button, tells of his "having gone to Algier, firing the pyrate ships within the Moale, and joyning with Sir Richard Hawkins in towing off one of the prizes becalmed within musket-shot of the Moale."


Of all the countries he describes he says, “Le royaume à Alger est aujour-d’hui le plus fameux, ou plustot le plus insame qu’il ait sur la coste de Barbarie.”

130. 1657. A Book of the Continuation of Foreign Passages. That is .... from General Blake’s Fleet. “The Turks in Algiers do consent to deliver all the English slaves, and desire a firm peace,” London : 4to, pp. 61.

This pamphlet contains many interesting documents, amongst others an account of General Blake’s “battering Tunnis” and “the submission of the Turks in Argiers.”


The author was a slave at Algiers from 1640 to 1642. In the latter year he published an account of his captivity in Spanish, which was translated into Latin and again into French, as above. Many other editions have appeared in various European countries, one in English, 1666.


134. 1660. Relation de Voyage que le R. P. Heron, supérieur Ministre du convent de la Saint-Trinité de Chateaubriant en Bretagne, a fait en la Ville d’Alger, Coute de Barbarie, d’où il a tiré 57 captifs de la main des Turcs, et remis en liberté. Paris : 8vo.


136. 1661. A Copy of the Captive’s Petition. The humble petition of divers persons who have suffered .... most miserable bondage in Algier, and other places, under the Turks. London : s. sh. folio in British Museum.

137. 1661. Relacion del Viaje que hizo la escuadra que embió el rey de Ynglaterra á la ciudad de Argel. Madrid : folio.

139. 1661. Relacion Verdadera dando quenta del viaje de 16 navíos de guerra que embió el rey de Inglaterra a la ciudad de Argel y el suceso que tuvieron. Madrid: folio.

140. 1662. Ruyter, M. Az. de.—Journel van den manhaftan tocht op de roovers van Barbayren geschreven. Amsterdam: 4to.

141. 1663. Abul-Pharajius, G.—Historia compendiosa dynastiarum (orientalium), auctore Georgio Abul-Pharajio, historiam complectens universalem a mundo condito, usque ad tempora auctoris ... arabice edita et latine versa ab Ed. Pocokio, cum supplemento latine conscripto. Oxoniae: 2 vol. 4to.

142. 1663. R. P. Heron de Villefosse.—Le Miroir de la charité chrétienne, ou relation du voyage que les religieux de l'ordre de N. D. de la Mercy de France ont faite l'année dernière en la ville d'Alger d'où ils ont ramené environ une centaine de chrétiens esclaves. Aix: 12mo.

143. 1664. Instructie van de Staten Generaal vor J. B. van Mortaigne, Consul-General op de Custe van Barbaryen ende G. de Vianen fiscaal over's lantsvloote naar Alger ende Tunis: 4to.

144. 1664. La prise de Djjidjeli. Relation à M. le duc de Mercœur, par l'écrivain de la barque du patron Charles Étienne de Marseille.

This curious document was lately found by the Marquis de Courcval in the Bibl. de l'Arsenal, MS. vol. 5426, Fonds Conrard, t. xvii.


Part of this work treats of Algiers under the Turkish domination. It was republished by M. Louis Fiesse, in the 'Revue Africaine,' vol. x. p. 91 et seq.


The Italian text was published at Venice in 1650: 4to.


150. 1670. A true relation of the victory and happy success of a squadron of H.M. Fleet in the Mediterranean against the Pyrates of Algiers. Taken as well out of a letter from Sir Thomas Allen, His Majesty's Admiral in those seas, and from Sir Wil. Godolphin, H.M. Envoye Extraordinary to the court of Spain,
as also from a relation made by Heer van Ghent, the Admiral of the Dutch fleet, who assisted in that action. Published by Authority.


153. 1670. Breve relacion de la general expulison de los Hebreos de la Juderia de la ciudad di Oran, por el Capitan D. Luis Joseph de Sotomayor y Valenzuela. folio.

154. 1670. Losado, Fr. Gabriel Gomez de.—Escuela de trabajos, en quatro libros dividida; primo, del cautiverio mas cruel y tyranno; segundo, noticia y gobierno de Argel; terçero, necessidad y conveniencia de la redencion de cautivos cristianos; quarto, el mejor cautivo rescatado. Madrid: 12mo.


155. 1670. The adventures of T. S., an English merchant taken prisoner by the Turkes at Argiers and carried into the inland countries of Africa; written by the author, and fitted for the public view by A. Roberts. London: 12mo.


158. 1671. Balthorpe, L.—The Streights Voyage, or St. David’s Poem; concerning an expedition to Algiers. London: 12mo.

This is a quaint account in doggerel verse of the expedition against Algiers in 1669, under the command of Sir Thomas Allen; the writer was on board the St. David, bearing the flag of Rear-Admiral Sir John Harman; Balthorpe had himself passed a year and a half in captivity.


162. 1672. Blome, R.—A description of the Island of Jamaica . . . with the State of Algiers, 12mo. Another edition, 8vo, 1678, with the following title:—A description of the Island of Jamaica . . . to which is added The Present State of Algiers in the Year 1678; also a list of the ships belonging to the port, with separate pagination, 1 to 17.


165. 1675. Okeley, William.—Ebenezer: or a small monument of great mercy, appearing in the miraculous deliverance of William Okeley, William Adams, John Anthony, John Jephis, and John Carpenter, from the miserable slavery of Algiers, with a further narrative of James Deane and others.

W. Okeley was steward or bailiff to the ancestors of Sir Danvers Osbourn at Chickson, in Bedfordshire. He and his companions escaped to Majorca in a canvas boat. This work was reproduced in Harris’s Collection of Travels (No. 210), vol. ii., appendix, p. 16, and in various other forms.


The author was of good Provençal family, and passed nine years in slavery at Algiers.

167. 1676. The present state of Tangier, in a letter signed P. G. to the Lord Chancellor of Ireland . . . . to which is added, The Present State of Algiers. London: 12mo.


169. 1678. Récit véritable de ce qui s’est passé dans le rachat de captifs qu’ont fait les religieux de N. D. de la Mercy, dans la ville d’Alger, en Barbarie, pendant les mois d’Avril et de Mai 1678. Paris: 4to.


171. 1680. Letter from the King of Morocco to Charles I. for the reducing of Sally, Aregiers, &c. London: folio.

172. 1680. The case of many hundreds of poor English Captives in Algier, together with some remedies to prevent their increase, humbly presented to both Houses of Parliament. London: folio.


175. 1682. Addison, L., D.D.—The present state of the Jews, wherein is contained an exact account of their customs, secular and religious, to which is annexed a summary discourse of the Misna, Talmud and Gemara. 3rd ed. London: 12mo, pp. 248. The 1st ed. was published 1675, Svo; the 2nd, 1676, 12mo.

The book is the result of the author’s “Conversation which for several years [he] held with the Jews in Barbary, who are the subjects of the following remarks.”

176. 1682. Treaty between Great Britain and Algiers, signed by Admiral Herbert and the Dey, 10th April.—See Hertslet’s Treaties, vol. i. p. 58.

177. 1684. The speech of Hadji Giafer Aga, Ambassador from the Divan of Algier to His Most Christian Majesty at Versailles (July 4th, 1684), together with the French King’s answer. London: s. sh. folio.

179. 1684. Articles de la Paix accordée au nom du Roi par le Chevalier de Tourville au Bacha, Dey, Divan et Milice d’Alger.
This is cited amongst the “Nouveauties” in the ‘Journal des Savans,’ 1684, p. 200.


184. 1686. St. Augustine, Les Confessions de ... Traduction nouvelle sur l’édition latine des Pères Bénédictins de la Congrégation de St. Maur. Paris.—See also No. 203.


185. 1686. Coppin, Jean.—Le Bouclier de l’Europe, ou la Guerre Sainte, contenant des avis ... qui peuvent servir de lumière aux Rois ... de la Chrétienté pour garantir leurs états des incursions des Turcs ... avec une relation de Voyages faits dans la Turquie, la Thebaide et la Barbarie. Lyon: 4to.

186. 1688. De la Croix, Le Sieur.—Relation universelle de l’Afrique, Ancienne et Moderne, ou l’on voit ce qu’il y a de remarquable, tant dans la terre ferme que dans les îles, avec ce que le Roi a fait de mémorable contre les corsaires de Barbarie, &c. Tomes 4. Lyon: 12mo.—See also Journal des Savans, 1689, p. 131. Also Nos. 188, 202.

The author was Pasha of Algiers in 1660, expelled by Mezzomorto in 1686, brought back by the French Ambassador in 1688, but he was not allowed to land. He then proceeded to Morocco, where he died shortly after the events recorded in this letter.


VOL. II.
183. 1689. **Extrait d’une lettre écrite d’Algier, le 24 Avril, 1689, on the terms of peace between France and Algiers.** Amsterdam: 4to.

194. 1690. **Sylvester, M. F. A.**—Fundacion historica de los espatiles que la religion de la Santa Trinidad, redempcion de cautivos tiene en la ciudad de Argel, con la descripcion de esta ciudad. Madrid: 4to.


196. 1693. **Brooks, Francis.**—Barbarian Cruelty, being a true history of the distressed condition of the Christian Captives under the tyranny of Mully Ishmail, Emperor of Morocco . . . likewise a particular account of his late wars with the Algerines. London: 12mo, pp. 118.

197. 1694. **Schauplatz barbarischer Slaverey, oder, von Algier, Tripoli, Tunis und Sale.** Hamburg: 8vo.

188. 1694. **Lagrange, Jos. de Chancel de.**—Adherbal, Roi de Numidie. A tragedy in 5 acts and in verse, Paris. Another edition, published at Amsterdam in 1702, 12mo. Subsequent editions have been published under the title of ‘Jugurtha.’


200. 1698. **Scylax.**—See App. to Shaw.


A work complete in its time. He mentions that the plain of the “Motygie” (Metidja) produces two or three crops of cereals every year!

203. 1700. **Sancti Aurelii Augustini Hipponensis Episcopi Operum.** Antverpiae: 2 vol. folio.—See also No. 184.

204. 1700. **Treaty between Great Britain and Algiers, signed by Capt. Munden, n.x., and Consul Cole, 17 Aug.**—See Hertslet’s Treaties, vol. i. p. 72. Also another signed by the same, 28 Oct., 1703.


206. 1703. **Busnot, Dominique.**—La Tradition de l’Eglise dans le soulagement ou le rachat des esclaves. Rouen: 18mo.


208. In book ii, is a “Consultation before the Lords of the Council in 1617 as to how the pirates of Argiers may be suppressed. The danger and uncertainty in surprising Argiers. The ill-managed enterprise upon Argiers in the reign of King James.”
209. Vol. vii. contains an account of the captivity of William Davis, with a description of Algiers, and of the seven years' slavery of Richard Knight there.

210. 1705. Harris, John, A.M.—Navigantium atque Itinerantium Bibliotheca, or a complete collection of voyages and travels, consisting of above four hundred of the most authentic writers; beginning with Hackluit, Purchas, &c., in English; Ramusio in Italian; Thevenot, &c., in French; De Bry and Grynaeus Novus Orbis in Latin; the Dutch East India Company in Dutch; and continued with others of note, &c., &c. London: 2 vol. folio, pp. 862, 928, and [App.] 66.

Book iii. chap. iv. contains John Le's Description of the Kingdom of Trenesem [Tlemcen], with additions from Marmol. In chap. xii., there is a Description of Algier . . . taken from Nicholas Nicolay. Chap. xiii. contains An Account of the English fleet sent against the Algerines under Sir R. Mansel (1620-21). Chap. xiv. contains A Relation of the taking and recovering of English ships; and in the appendix is the remarkable story of William Okeley and his companions, see No. 165.

211. 1712. Cervantes Saavedra, Miguel de.—The history of the renowned Don Quixote de la Mancha, translated from the original by several hands, and published by Peter Motteux. Adorned with sculptures. 3rd ed. London: 4 vol. 12mo, pp. 1322.

The "account of the author" says that "he had been many years a soldier, and five a captive."


214. 1713. Ruinart Thierry. Acta Primorum Martyrum sincera et selecta ex libris cum editis tum manuscriptis collecta, &c. Amsterdam: fol. Various other editions and translations have been published, the latest at Madrid, in Spanish, 1864.


The first charter of the Company was granted in 1581, and Mr. Hareborne was sent out as ambassador to Constantinople. He appointed Mr. John Tipton first Consul at Algiers.—See No. 38.


219. 1722. Sewel, Willem.—The history of the rise, increase, and progress of the Christian people called Quakers, intermixed with several remarkable occurr-

Pp. 392-7 narrate the capture by "a pyrate of Algiers," and recovery by the crew, of a Quaker ship. "G. Fox writ a book to the King of Algiers" to prove slavery unlawful by the Koran.


The author was Commissionnaire de la Marine for the King of Spain in Holland. His work was pirated in English by Morgan in 1728 and 1750, see Nos. 225 and 257, and it has been translated into several other languages.

It was also pirated in French, 'Etat Général et particulier du Royaume et de la ville d'Alger, et de son gouvernement, &c.' La Haye: 1750, 12mo.—See No. 255. A new edition of the original work was published in 1732 under the title: 'Etat d'esclavage des Chrétiens au Royaume d'Alger avec celui de son gouvernement, &c.' Amsterdam: 8vo, pp. 390. The author copies freely from Marmol. A Spanish edition was published at Barcelona in 1733, pp. 340, with maps and view of Algiers.


He was sent to settle the disputes which had arisen between the Governor and other officials at the Bastion de France, and was also named French Consul at Algiers, where he arrived in 1674.


224. 1737. Charles VI., Empereur.—Copies des Articles conclus au nom de sa Majesté Impériale . . . et de la Régence d'Alger . . . au sujet de la navigation, &c. 4to.


This is a mere translation of the work of Laugier de Tassy, see No. 220.


Books VI. and XX. give an account of the affairs of Africa—Fez, Morocco, Tremezen, and Tunis, and descent of the Turks on Africa, at Tripoli, in the 53rd year of that century [sixteenth]. Buacan, brother of the King of Fez, having made a descent with Portuguese help on Alhazemas, his ships were attacked by "Sala Rouz, Governor of Algiers, in the name of Soliman, Emperor of the Turks." Afterwards Buacan goes to Algiers, and Sala Rouz becomes his ally against Fez.


228. 1730. Villotte, le Père Jacques, Jesuit Missionary.—Voyage d'un Mis-

The writer finished his voyages by proceeding along the coast of Africa, from the Syrtis to Bone, whence he proceeded to Marseilles.

229. 1731. Godefrey, les P.P.—État des Royaumes de Barbarie, Tripoli, Tunis et Alger; contenant l’histoire politique et naturelle de ces pays—La manière dont les Tures y traitent les esclaves, comme on les rachète et diverses aventures curieuses—Avec la tradition de Église pour le rachat des captifs. Rouen: 12mo.


231. 1732. Roffelius, Ch.—Historisk och politisk Beskrifning. Stockholm: 4to.

This is a history of Algiers from 1516 to 1732.


With this is bound up, separate pagination 1–38, The Spanish Conquest, or a journal of their late expedition, from their first preparation to their embarkation, and from thence to the taking of Oran and the surrender of Mazalquivir.

232a. 1732. Relacion de lo acaecido en la navegacion de la Armada que se congregó en la Bahía de Alicante y de los gloriosos progresos del ejército del Rey en la conquista de restauracion de la plaza de Orán en Africa en los dias 29 y 30 de junio y 1 de julio de este año. s.l.: 4to, pp. 8.

An Italian version published at Florence in the same year.


236. 1733. Lambrecht, M.—Journal gehouden in ’s lands schip van oorloge Waastervliedt, Kapt. D. Roos, in de jaren van 1733 en 44.

Handschrift van 69 pp. folio, Zeer interessant dagboek eener reis naar Algiers, geschreven door den 2⁰e kommandant dier expeditie.

238. 1735. Antonini Augusti Itinerario.—See Appendix to Shaw, No. 247.


This contains a description of Algiers and its environs, with observations on the customs of the people and the government of the place.—See also Journal des Savans, 1735, p. 205.


243. 1737. Reftelius, Carl.—Historiska och politiskBeskrifning ofwer Riket och Staden Algier, &c. Stockholm: 2 pts. in 1 vol. 4to.

This embraces the history of Algiers from 1516 to 1732.

244. 1737. Rousseaux.—Aventures de Dona Inês de la Cisternas, qui d'esclave à Alger en devint la Souveraine. Utrecht: 12mo.


246. 1738. Pitts, Joseph, of Exon.—A faithful account of the Religion and Manners of the Mahometans, in which is a particular relation ... of Algier and the country adjacent, ... with an account of the author's being taken captive, the Turks' cruelty to him, and of his escape. London: 12mo, pp. 259.


Dr. Shaw was chaplain to the Consulate at Algiers. This is one of the most valuable works ever written on North Africa.—See 'Quarterly Review,' vol. xxix. p. 331.


Shaw's work was translated into French, and published at La Haye, 1743, 2 vol. 4to, carte et figures; and into German, and published at Leipzig, 1765, 4to.


Book v. contains the project of the Cardinal for the conquest of Oran, which he offered to do at his own cost. He obtained the chief command for himself and the second for Don Pedro Navarro. In the first expedition he was successful; in the second he was defeated. An earlier edition was published in 1704.


The originals are in the Bodleian Library. These contain many interesting documents connected with Algiers from Oliver Cromwell, Blake, and others.


At p. 155, vol. i., Los Baños de Argel. At p. 58, vol. ii., La Gran Sultana Doña Cathalina di Orviedo. The subject of these is Algerine slavery.

253. 1744. Sallust.—The works of Sallust, translated into English by T. Gordon. 4to.

Subsequent editions are too numerous to quote.


A mere piracy of the work of Laugier de Tassy.

256. 1750. The present State of Algeria. An epitome of the history of Algiers from the first settlement of the Moors in these parts after their expulsion
from Granada by the Spaniards to the time they rendered themselves independent of the Ottoman Porte. London: 8vo.

257. 1750. A compleat history of the Piratical States of Barbary, viz. Algiers, Tunis, Tripoly, and Morocco. Containing the origin, revolutions, and present state of those kingdoms, their forces, revenues, and policies and commerce. With a plan of Algiers and a map of Barbary, by a gentleman (Morgan) who resided there many years in a public character. 8vo.

This was translated into French by Boyer de Prebadiac in 1757. (No. 263.) The work is of little value; it is a mere translation of Langier de Tassy, who again copied from Marmol. Morgan was an indefatigable plagiarist.

258. 1750. Historical Memoir of Barbary, and its Maritime Power, as connected with the Plunder of the Seas; including a sketch of Algiers, Tripoli and Tunis, an account of the various attacks made upon them by the several States of Europe, considerations on their present means of defence, and the original treaties entered into with them by Charles II.

Another edition published at London in 1815.


In vol. i. p. 278, is an account of the sack of Baltimore, by Algerine pirates, on the 20th June, 1631, when all the inhabitants were carried off to slavery in Algiers.


Vol. ii. p. 615. On the 18th (Oct. 1703) Rear-Admiral Byng was sent with a squadron to Algiers to renew the peace.

261. 1751. Additional Article to Treaty between Great Britain and Algiers, signed by Commodore Keppel, Consul-General Stanyford, and the Dey, 3rd June, 1875.—See Hertslet’s Treaties, vol. i. p. 79.


266. 1760. Romance nuevo que refiere un caso sucedido à un sacerdote natural de Gibraltar que fué cautivo en Argel. Valencia: 4to.

267. 1762. Treaty between Great Britain and Algiers, signed by Archibald Cleveland, Ambassador to the Barbary States, and the Dey, 14th May 1762.—See Hertslet’s Treaties, vol. i. p. 80.
   This gives an account of the establishment of Consuls, of whom John Tipton of Algiers was one of the first ever appointed.


   A German translation by De Murr was published at Zurich in 1770.

271. 1765. Annual Register for this year, p. 60, mentions an outbreak of 4000 Christian slaves at Algiers.

272. 1769. A Narrative of Facts that happened in Barbary.

273. 1770. Lithgow, William.—Travels and Voyages through Europe, Asia, and Africa for nineteen years.
   Part vii. contains an account of his visit to Algiers and Tlemçen, whence he proceeded to Fez. Many editions; the 12th was published at Leith: 8vo, 1814, pp. 412, with portrait.—See Nos. 63, 121.


275. 1775. Relacion puntual de lo acaecido: con motivo de la expedicion dispuesta contra Argel en el año de 1775. Alicante: 4to, pp. 80, with map.
   A translation of this was published in the 45th number of the 'Revue Africaine.'

276. 1775. Mazarvedo.—Traduction Textuelle d'un Manuscrit de l'Amiral Mazarvedo sur l'expedition d'Alger en 1775. In the Public Library at Algiers.

277. 1775. Pellegrino, Guizotti.—Storia de Mori riguardante de loro religione, governo, politico e costumi. Fierenzi: 8vo.

278. 1777. Dalrymple, Major W.—Travels through Spain and Portugal in 1774, with an account of the Spanish Expedition (O'Reilly's) against Algiers in 1755.
   London: 4to.


   This gives a list of 318 captives redeemed.

281. 1787. Henin, Baron Et. F. d'.—Mémoire concernant le système de paix et de guerre que les puissances européennes pratiquent à l'égard des Régences barbaresques. Translated from the Italian, printed at Venice in 1787. 12mo.


An English translation, 2 vol. 12mo, was published in 1791, entitled ‘Voyage to Barbary, or Letters written from Numidia (1785–86) on the Religion, Customs, and Manners of the Moors and Bedouin Arabs, with an Essay on the Natural History of the Country.’

The author was a distinguished botanist, who travelled during a year in the vicinity of Bône, La Calle and Constantine.


285. 1790? Nueva relacion y copia de una carta que escribió un hijo a su padre, en que le dió a entender los tormentos que padecía en su cautiverio en la ciudad de Argel. In verse. Malaga: 4to.

286. 1790. Bruce, James.—Travels to discover the source of the Nile in 1768–1773. Edinburgh: maps and plates, 5 vol. 4to.

This contains a notice of his explorations in Algeria and Tunisia before starting for Sicily, Baalbec (pp. 590), Palmyra, and subsequently Egypt. A French translation published in Paris, translated by J. Castera in 1790–91.


290. 1794. A Short Account of Algiers, and of its several Wars . . . with a concise account of the origin of the rupture between Algiers and the United States. Philadelphia: 8vo, pp. 50.

Chap. v. explains U.S. interests as to Algiers: formerly its vessels were pretty safe from piratical attacks, because Dutch or Portuguese war vessels watched the Straits and kept the corsairs out of the Atlantic, but now "by the officious intervention of England" a "truce between Algiers and Portugal has been formed" which "has been done . . . that the corsairs . . . might interrupt the commerce of this country" [the U.S.].


291. 1797. The Algerian Captive, or the life and adventures of Doctor Updike Underhill, six years a prisoner among the Algerines. Walpole, New Hampshire: 2 vol. 12mo, 214 and 241. The first 200 pp. of the second vol. devoted to Algiers.

292. 1798. Sacy, Sylvestre de.—De quelques monnaies arabes, et des monnaies de Tunis, d'Alger et de Maroc. Article in the 'Magasin encyclopédique,' 1798, tome iii.

294. 1799. Leyden, Dr. John, and Hugh Murray.—Historical and philosophical sketch of the discoveries and settlements of the Europeans in Northern and Western Africa at the close of the 18th century. Edinburgh: 8vo, 2 vol.

Another edition, 2 vol. 8vo, was published in 1817, and a French version, by Cuvillier, appeared in Paris, 4 vol. 8vo, with Atlas, in 1821.


302. 1810. Pitts, Joseph, of Exon.—A faithful account of the Religion and Manners of the Mahometans... with an account of the author's being taken captive (at Algiers), the Turks' cruelty to him, and his escape. See Maundrell's Journey to Aleppo, &c. London: 8vo, p. 287. Also an article in the 'Dublin University Magazine,' vol. xxvii. p. 76 et seq.

Pitts was taken in 1678, became a Mohammedan, visited Mecca, and eventually escaped in a French ship from Smyrna to Leghorn.


304. 1813. Northcote, James, R.A.—Memoirs of Sir Joshua Reynolds, Knt., L.L.D., F.R.S., F.S.A., &c., late President of the Royal Academy, comprising original anecdotes of many distinguished persons his contemporaries, and a brief analysis of his discourses, to which are added varieties on art. London: 4to.

P. 21 mentions that R. "accompanied the Commodore [Keppel] in his visit [to the Dey of Algiers, and was] introduced to the Dey in the usual form," on the 20th July, 1749. He then left, and did not return with the Admiral on his subsequent visits to Algiers.

305. 1815. Rivoire, Le Chevalier Saint Hypolite de, under the pseudo-

306. 1815. Marvilloso Milagro que obró la magestad de Dios en la ciudad de Argel, por lo qual se convirtió un renegado que era casado con una Mara se bolvió Christiana. In verse. Valencia: 4to.

307. 1816. Treaty between Great Britain and Algiers, signed by Lord Exmouth and the Dey, dated 3rd April, 1816.—See Hertslet's Treaties, vol. i. p. 84. An additional article was signed on the 20th May, and a new Treaty on the 28th August of the same year, accompanied by a declaration of the Dey abolishing Christian slavery.

308. 1816. Hunt, Gilbert T.—The late War between the United States and Great Britain from June 1812 to February 1815, written in the ancient historical style: containing also a sketch of the late Algerine War, and the Treaty concluded with the Dey of Algiers. New York: 8vo, pp. 334.

Pp. 307 to 329 contain an account of the expedition in 1815, and the treaty made with the Dey. The whole work is a poor travesty of Biblical language, very partial to the U.S., and generally untrustworthy, the account of the Algerian expedition being a mere compilation, not that of an actor in it.

See also two articles in the Analectic Review, Philadelphia, vol. vii. pp. 105–113 and 113–131. The former gives a sketch of the Barbary States; the latter narrates Decatur's expedition against Algiers, Tunis and Tripoli, which proved successful where European fleets had failed.

309. 1816. Tocht van den Vice-Admiral van de Capellen in vereeniging met Lord Exmouth tot tuchtiging van Algiers in 1816.


310. 1816. Janson, W.—A View of the Present Condition of the States of Barbary; or an account of the Climate, Soil, Produce, Population, Manufactures, Naval and Military strength of Morocco, Fez, Algiers, Tripoli, and Tunis. Also a Description of their Mode of Warfare, interspersed with Anecdotes of their Cruel Treatment of Christian captives, illustrated by a new and correct hydrographical map, drawn by J. J. Asheton.


316. 1816. The Bombardment of Algiers and other poems. Edinburgh: 8vo, pp. 43.

"Oh! needless 'twere to tell how Exmouth shared Each threatening danger and each peril dared,
And that his vengeance was directed well
The Mole's bombarded ramparts long shall tell."


321. 1817. El Teatro Español o Colecion de dramas escogidos de Lope de Vega, Calderón de la Barca, Moreto, Roxas, Solís, Moratin y otros célebres escritores; precedida de una breve noticia de la escena española y de los autores que la han ilustrado. Londres: 8vo.

At p. 201, El Trato de Argel.


Extracts from the above translated into French were published in the Bibliothèque Universelle the same year.

Also an English translation: 'Narrative of a Residence in Algiers; comprising a geographical and historical account of the Regency; biographical sketches of the Dey and his Ministers; anecdotes of the late war; observations on the relations of the Barbary States with the Christian Powers, and the necessity and importance of their complete subjugation.' London, 1818: with notes and illustrations by Edw. Blaquier, 4to, pp. 467, plates and maps.—See No. 375. A French translation, by Henri de la Salle, was published at Paris in 1820, 8vo, pp. 623.

There is a review of this work in the Eclectic Review, vol. x., New Series, 1818, London.


Dr. Robertson was Principal of the University of Edinburgh and Historiographer to H.M. for Scotland. Pp. 49-58, vol. ii., give an account of the origin of Turkish domination in North Africa, and of the expedition of Charles against Tunis. At pp. 116-121 is narrated the Emperor's disastrous attempt against Algiers.


See also Fischer, Christian August, Kriegs- und Reisefahrten, &c.,

This is a description of the Panorama, painted by J. A. Barker, then exhibiting in Leicester Square.

A second edition appeared in 1819, and a fifth in 1830.
Dumont was an ignorant man. He was shipwrecked between Oran and Algiers. His story is full of errors, but most interesting.

A proposal to unite the débris of this order, and establish it in Africa.

330. 1819. Salamé, A.—A Narrative of the Expedition to Algiers under the command of the Right Hon. Viscount Exmouth. London: 8vo, pp. 239.
Mr. Salamé was Oriental interpreter to Lord Exmouth.—See also Quarterly Review, vol. xcix. p. 331, and Blackwood's Edin. Mag., vol. v. pp. 81-9. The official despatches regarding the battle of Algiers, with returns of the killed and wounded, are contained in the 'London Gazette,' pp. 1789-91 and 1869.


This contains a good view of Algiers.


"Come join me, British Landsmen, Dragoons and Grenadiers,
While I sing the Tars of England, and the battle of Algiers."

335. 1820. Conde, José Antonio.—Historia de la dominación de los Arabes en España. Madrid: 3 tom. 4to.


338. 1821. Hutton, Catherine.—The tour of Africa, containing a concise account of all the countries in that quarter of the globe hitherto visited by Europeans. London: 3 vol. 8vo.

Chap. vii. tells of the difference between the U.S. and Algiers in 1812.
U.S. declare war 1815. Decatur's squadron captures Algerine vessels; he negotiates and concludes a treaty, getting American prisoners released and compensation paid.


The 'Life' (by Lockhart) gives an account of his capture in 1575, whilst sailing from Italy to Spain, by "Moorish corsairs," who carried him to Algiers; his various attempts at escape; his ultimate release on ransom; and return in 1581 to Spain.

In the 'History,' part i. book iv. chapters xii., xiii., xiv., the Story of the Captive does not agree with that of Cervantes; but Cervantes' own experience furnished the knowledge of Algerine affairs and manners displayed in it.


351. 1826. Walokenaer, Baron Ch.—Collection de relations de voyages par mer et par terre en différentes parties de l'Afrique depuis 1400 jusqu'à nos jours. Paris: 1826-1831, 21 vol. 8vo.

This work, which was intended to comprise 60 vol., was never completed.

352. 1826. Raynal, l'Abbé Guill. Th.—Histoire philosophique et politique des Européens dans l'Afrique septentrionale. The author was first a Jesuit and subsequently a freethinker. This work was published after his death by M. Peuchet, to which was added Aperçu de l'état actuel de ces établissements. Paris: 2 vol. 8vo. Book v. refers to Algeria.

353. 1826. Shaler, William, American Consul-General at Algiers.—Sketches of Algiers, Political, Historical and Civil, containing an account of the geography, population, government, revenues, commerce, agriculture, arts, civil
institutions, tribes, manners, languages and recent political history of that country. Boston: 8vo, pp. 310.


357. ——— Also in 1831.—Notice d'un MS. Arabe de la Bibliothèque du Roi, contenant la description d'Arfique. Paris: 4to.


The author wrote about the 14th century.


Ibn Batuta left his native city, Tangier, about 1324, and spent two years in making his journey.


This work contains a bibliography of authors who have written on North Africa from the Arab conquest.


The author was medical officer of the "Colosse."
363. 1829. Insulte faite au vaisseau parlementaire "la Provence" par les Algerines le 3 Août 1829.


389. 1830. Rennell, Major James.—The Geographical system of Herodotus examined and explained, by a comparison with those of other ancient authors... with dissertations on... the ancient circumnavigation of Africa, &c. 2 vol. 8vo, portrait and maps.


This gives much interesting information regarding the establishment of Consuls.


371. —— Cenni statistici e geografici della Reggenza di Algeri. Milano: 8vo, pp. 74, with map.

Masqueray (‘Formation des Cités,’ 1886) says that it is impossible to trace whether he or Shaler copied from the other; but as the English edition of Shaler was written in 1826, there can be no possible doubt.


This seems to be a mere reproduction of the work of Laugier de Tassy, with some additions.


374c. 1830. Roger, Colin.—Vue du Royaume d’Alger... Suivie des diverses opérations de l’expédition. Agen: 12mo.

375. 1830. Blaquier, Edward.—Narrative of a residence in Algiers. London: 4to.—See also Pananti, No. 322.


Chaps. ii. and iii. relate to his travels in North Africa.


389. 1830. Expedition against Algiers.—Many interesting documents in MS. on this subject exist in the Public Library at Algiers.


Published by order of the Minister of War.


402. 1830. Histoire Résumée de la Guerre d'Alger, d'après plusieurs témoins oculaires. Suivie d'une notice sur le Dey, d'une biographie des principaux officiers de l'expédition, et autant que possible de tous les officiers, sous-officiers et soldats qui se sont le plus particulièrement distingués. Avec un portrait (not good) du Dey. Paris: 8vo, pp. 56.

403. 1830. Aperçu historique, statistique et topographique, sur l'état d'Alger, à l'usage de l'armée expéditionnaire d'Afrique. Published by order of the Minister of War. Paris: 12mo, pp. viii. and 216, 3 maps and 9 lithographs.

This work contains an account of the principal expeditions against North Africa by Spain, France and England from the end of the 15th century, and an account of the events which led to the French expedition, with a description of Algeria in general, and its resources. The atlas (12 plates, fol.) contains interesting maps, plans, and views of Algiers and its neighbourhood, as well as of La Calle.

404. 1830. Renaudot, attached to French Consulate at Algiers. — Alger: tableau du royaume et de la ville d'Alger, et de ses environs; état de son commerce; de ses forces de terre et de mer; description des moeurs et des usages des habitants au pays; précédés d'un introduction historique sur les différentes expéditions d'Alger, depuis Charles V. jusqu'à nos jours. Paris: 8vo, pp. 182, map and illustrations. Several editions, and a German translation, published at Stuttgart, with map and 6 lithographs.


407b. 1830. Barre. — Vocabulaire de la langue des Kabyles, habitants du Mont


411. 1830. Description de l’État d’Alger, de ses dépendances, de ses villes principales, de ses ports, &c. Agen: 12mo.


This gives an official account of the Capture of Algiers, and the Secret Treaty of Tilsit (9th July, 1807) giving Egypt and the Barbary States to France, and excluding from the Mediterranean all but French, Russian, Italian, and Spanish vessels.

425. 1830. La Sauzaie, Augier.—Mémoire sur la possibilité de mettre les établissements français de la côte septentrionale de l’Afrique en rapport avec ceux de la côte occidentale, en leur donnant pour point de raccord la ville centrale et commerciale de Tombouctou. Paris: 8vo.


Published under the pseudonym of Philarmos.


441. 1830. An entire new Christmas Play, entitled The Battle of Algiers [in one act and in verse]. Devonport: 12mo.


443. 1830. Expédition contre Blida et Medéah, Nov. 1830.


General Berthesène commanded the expeditionary force.

This work gave rise to the following replies:—‘Notes sur l’ouvrage du Général B.,’ par le General Baron Delort, Paris: 1834, 8vo, pp. 92; and ‘Deux Lettres à M. le Baron B.,’ par Le Chev. H. Louyrette, Paris: 1834, 8vo, pp. 12 and 32, 1 plate.—See 1834, Nos. 545, 548.


457. —— De la Régence d’Alger et des avantages que la possession de ce pays peut procurer à la France. Paris: 8vo, pp. 40.


The narrative of the first expedition is contained in the 58th number of the same work.


473. 1831. Lacuée, Baron de.—Opinion sur la colonisation d'Alger. Agen: 8vo.


475. —— Économie politique des Colonies, d'Alger, de sa possession, &c. Agen: 8vo, pp. 95.


479. 1831. Gynéphile.—Esquisses Africaines.
480. 1831. Merle, J. T., Secrétaire de Cte. de Bourmont.—Anecdotes historiques et politiques pour servir à l'histoire de la conquête d'Alger. Paris: 8vo, pp. 317; another edition, 1832, contains plans of Sidi Ferruch, Torre Chica, the advance on Algiers and the Kastah.

481. 1831. Lacroix, Dr.—Esquisse historique et médicale de l'expédition d'Alger, en 1830, par un officier de santé, attaché au quartier général de l'armée d'Afrique. Paris: 8vo, 4 plates of the viper, chameleon, turtle and locust.


485. 1832. Renoult.—Alger et sa colonisation, avec des considérations sur l'importance de ce pays. Paris: 8vo, pp. 64.


The author was only a month at Algiers, but he was in frequent communication with the Governor and the Intendant Civil, and saw a good deal of the disastrous disunion between these two functionaries.


492. 1832. Raynal, Paul Chaudru de.—De la domination française en Afrique, et des principales questions que fait naître l'occupation de ce pays. Paris: 8vo, pp. 154, with map.


494. 1832. Loiseleur-Deslongchamps, Jean Louis Auguste.—Rapport sur les cultures qu'il serait utile d'introduire ou de perfectionner dans la colonie d'Alger. 8vo, pp. 32. Publication of the Soc. de Hort. de Paris.

495. 1832. Rapport fait à la Société d'Horticulture au nom d'une commission... sur les cultures qui pourraient être utile à la colonie d'Alger. 8vo, pp. 32.

496. 1832? De la Culture du Tabac en Algérie. No date or place. pp. 48.


501. ———. Alger. Inserted in the Univers Pittoresque.


The writer, like so many others, bases the justice of French occupation of Algiers on their having abolished piracy and Christian slavery, ignoring the fact that this had been accomplished by Lord Exmouth in 1816.


Several other editions have been published, the last being Paris, 1868, 8vo, pp. 522. The writer observes “L‘Algérie ne peut être colonisée que si elle est évangélisée.”


An important work: vol. i. is dedicated to Nature; vol. ii. to Man; vol. iii. to Algiers, Oran, &c.—See also For. Quart. Rev., vol. xiii. p. 74 and xix. p. 1.


The author (whose name is not attached to his work) advocates the restoration of the country to the natives.


A well-written pamphlet, with much valuable information regarding the Kabyles.


The author proposes to attract population by making free ports on the model of Singapore, and greatly to increase the army.


527. 1833. Fouqueeron, J., Chirurgien.—Essai topographique et médical sur la Régence d'Alger. Paris: 8vo, pp. 108. Published by order of the Minister of War.


Sidi Hamdan had been the intimate friend of Hussein Dey, and was made Agha of the Arabs round about Algiers by the Duc de Revigo. He was sent on a mission, and is said to have acted most treacherously. General Clauzel removed him, when he is said to have written the work in question, but it is
more than doubtful whether there ever was an Arabic text.—See Nos. 545a, 545b.


The author severely criticises Baron Pichon, Intendant Civil, who refused to comply with the Duc de Rovigo’s suggestion that the writer should be created “Agent Colonial.”


This contains a résumé of all that was known regarding Algiers at the time.


In favour of the military system of Marshall Cauzel.

538. 1833. Laverdo, Lieut.-Général.—De la Régence d’Alger et des avantages que la possession de ce pays peut procurer à la France. Paris: 8vo, pp. 36.

From the Spectateur Militaire, 15th May.


In an appendix is a letter from Desfontaines the celebrated botanist, who had travelled all over Algeria in 1784-5, bearing witness to the fertility of the country.


The author commanded the French expeditionary force in 1830.


555a. 1834. Barruchin, Dr.—Lettre à MM. les membres de la Chambre des Pairs . . . suivie d'un discours ou exposé des considérations qui doivent servir de base au système administratif proposé à la Régence d'Alger. Paris: 8vo.


558. ——— Note fournie à M. le Lieutenant-Général Comte d'Erlon, Gouverneur-Général, au sujet du respect de la propriété, équitablement concilié en raison des
circumstances et des lieux avec le logement militaire permanent chez l'habitant.
Paris : 8vo, pp. 16.

559. 1834. Hedde ainé, J. A.—Observation sur la colonisation de la Régence

560. 1834. Colonisation de l'ex-régence d'Alger.—Documents officiels dé-
posés sur le bureau de la Chambre des Députés. Paris : 8vo, 1 map.

561. 1834. Flandin.—De la Régence d'Alger. Solution de ces questions.
Doit-on conserver cette Régence ? etc. Paris : 8vo.—See No. 540.

562. —— Prise de possession des trésors d'Alger. Réponse au Mémoire présenté
à la Cour de Cassation (Chambre Criminelle), par Me. Dalloz, avocat des Sieurs,

Paris : 8vo.

564. 1834. Brivazac, Le Comte H. de, Juge Royal à Bône.—De l'Algérie et
de sa colonisation. Paris : 8vo, pp. 158.

565. 1834. Montagne, D. J., Ancien Administrateur.—Physiologie morale et
physique d'Alger. Marseille : 8vo, pp. 334.

566. 1834. Rapports de la Commission d'Afrique, instituée par ordonnance du

567. 1834. Procès-verbaux et rapports de la Commission nommée par le roi,
le 7 juillet 1833, pour aller recueillir en Afrique tous les faits propres à éclairer
le gouvernement sur l'état du pays et sur les mesures que réclame son avenir.
Paris : 2 vol. 4to. Numerous discussions in the Chamber of Députés regarding
the two 'Commissions d'Afrique,' may be found in the Moniteur for 1834.

568. 1834. Montfort, Général.—Rapport sur les travaux publiqués lu à la

569. 1834. Commission d'Afrique. Rapport sur l'organisation et l'adminis-
tration de la justice dans les possessions françaises sur la côte septentrionale

570. 1834. Gräberg da Hemoé, Count J. C.—Notizia intorno alla famosa

571. 1834. Laurence, Député.—Discours dans la discussion de la partie du
From the Moniteur.

571a. 1834. Collection des Actes du Gouvernement depuis l'occupation
d'Alger, jusqu'au 1er octobre 1834. Alger : 8vo.

October 1834 and still continued.


573. 1834. Pétitions des Colons d'Alger à la Chambre des Députés suivies de
celle des négocians de Marseille. Marseille : 8vo.

574. 1834. Danjou, F.—Projet pour l'entreprise d'Alger. Contained in Archives
curieuses de l'histoire de France, 2 série, t. x. pp. 79–88, 8vo.

575. 1834. Maisonne, Nicolas de la.—De la souveraineté de la France en
Afrique par l'occupation restreinte et le système de razzias. Avignon : 8vo, pp. 16.

577. 1834. Petit dictionnaire des coutumes, costumes et usages étrangers aux Arabes. 8vo.


He gives an account of Algeria, and concludes that, in spite of the onerous nature of the conquest, France should retain the country.


This gives an account of the coast-line.


Regarding the religious establishments in Algeria.


He was sent by the Minister to study this question in Algeria.


The author was charged by Government to acclimatise the cochinilla.


Gives detailed statistics of the trade of Algiers and of the receipts and expenditure of the colony, showing that it costs rather more than eight millions of francs per annum.


Very correct for the time.

589. 1835. Dureau de la Malle.—Recherches sur l’histoire de la partie de l’Afrique septentrionale connue sous le nom de Régence d’Alger et sur l’administration et la colonisation de ce pays à l’époque de la domination romaine, par un
A BIBLIOGRAPHY OF ALGERIA.


592a. 1835. Gaillard, Capt.—De la création de corps indigènes en Afrique. l. c., 15th June.

593. 1835. Bard, Joseph.—Voyage d’études de Tunis à Gibraltar par l’Afrique Française. Vienne, 8vo.—See also No. 1711.


This also appears as Relation d’un voyage dans l’intérieur d’Afrique septent. in the Bull. de la Soc. de Géog., 2 série, t. i., pp. 277 et seq.


Gives an account of the Commission sent to Algiers by Louis Philippe.


The writer accompanied General Berthozène as his A.D.C.


An admirable and scholarly account of his journeys in the two countries during 1832-3. The original drawings made during his expedition are numerous and of great interest. One of them was published in the work above quoted, and thirteen others in ‘The Shores and Islands of the Mediterranean,’ Rev. G. N. Wright. London, Fisher & Son, 1839: 4to. The originals are in the possession of Sir Lambert Playfair.—See also No. 821.

603. 1835. Renault, Eugène.—Algier et sa colonisation, avec des considérations sur l’importance de ce pays. Paris: 8vo, pp. 64.


This journal originally appeared in the Spectateur Militaire for 1830.


608. 1835. Vaillant, Colonel.—Lettres sur Mascara.


618. 1835. Volland, Baron, Intendant Militaire.—Réfutation du rapport du budget, etc. Paris: 8vo, pp. 23.


A romance of the desert.

A mere compilation.

622. 1835. La Rochebouclau Liancourt, Marquis de.—Note sur l'administration d'Alger. Paris: 8vo, pp. 63.


A work of no value.


627. 1835. Trolliet, Dr., Président de la Société des Colons de Lyon.—Mémoire sur la nécessité et sur les avantages de la colonisation d’Alger. Lyon: 4to, pp. 15.

628. ——— Discours sur l’agriculture de la Régence d’Alger. Lyon: 8vo, pp. 20. Read before the “Société Royale d’Agriculture de Lyon.”

629. 1836. Lerminier.—De la conservation d’Alger. Revue des deux Mondes, 1er juin.


A new edition was published in 1854 (see No. 1700) with an appendix containing a résumé of the history of Algeria from 1848 to 1854.


643a. 1836. Answer to the above article. l. c., 15th January, 1837.


648. 1836. Piétri, l'Abbé de, Aumonier militaire.—Détails sur Bone et ses environs, followed by an account of several religious services performed by him. Alger: 8vo, pp. 55.
A work of no value.
The author was at this time secretary to Maréchal Clauzel, and accompa-
panied the force.
661a. 1836. Nouvelles officielles d’Alger; précis du rapport de M. le Maré-
chal Clauzel au ministre de la guerre sur la nouvelle victoire éclatante remportée
665. 1836. Pointe, Dr. J. P.—Relation médicale d’un voyage de Lyon à Alger,
à la Société Littéraire de Lyon. Lyon: 8vo, pp. 40.


668. 1836. Laurence, Député.—Discours dans la discussion du budget du Ministère de la Guerre. Paris : 8vo, pp. 28. "From the 'Moniteur'."


669b. —— Province d'Oran. L. c., 4th number.


676. 1836. Jaubert, Amédée.—Géographie d'Edrisi, traduit de l'Arabe en français, d'après deux MSS. de la Bibliothèque du Roi, et accompagnée de notes. T. i. 1836 ; t. ii. 1840.


M. Grand, Capitaine de Génie, was killed at the siege of Constantine. His notes and some letters were edited after his death by Capt. Guillemont.

682. 1837. Costallat, Dr. A.—Mémoire présenté à la Chambre des Députés sur
l’influence probable du climat d’Alger pour la guérison de la Phthisie. Paris :
8vo, pp. 24.

683. 1837. Ducoux, Dr. Fy. Jos.—Esquisse des maladies épidémiques du nord

684. 1837. Chaumont, Léon de, Pseudonym of Léon Guillemin, officer of


pp. 16.

687. 1837. Sur la Régence d’Alger au commencement de 1837. Subscribed :

688. 1837. Campbell, Thomas, the Poet.—Letters from the South during his
Residence in Algeria. London : 2 vol. 8vo.

These originally appeared in the New Monthly Magazine. The Revue
Britannique gave a French translation in 1835–6.—See also Quart. Rev.,
vol. xcix. p. 331.

689. 1837. Rang, Sander, et Ferdinand Denis.—Fondation de la Régence
d’Alger. Histoire des Barbarooses ; Chronique Arabe du XVIe siècle publié sur un
MS. de la Bibliothèque Royale, avec un appendice et des notes. Expédition de
8vo, portraits and map.


690. 1837. Schwarzenberg, F. von.—Rückblicke auf Alger und dessen
Eroberung . . . im Jahre 1830. Von einem Offizier aus dem Gefolge des Marschall
Grafen Bourmont. Wien : 8vo.

691. 1837. Esquisse d’organisation administrative et militaire des possessions

691a. 1837. Jean Bon Saint-André.—Rapport sur Alger, adressé de Mayence
27 juillet 1802, au Ministre de la Marine. Corresp. de Napoléon avec le Ministre

692. 1837. Dureau de la Malle, Ad. Jules César Aug.—Province de
Constantine. Recueil des renseignements pour l’expédition et l’établissement des

A notice of this is contained in the Rev. Afr., 1837, p. 94.

693. 1837. Guyon, Dr.—(Published anonymously.) Journal de l’expédition
dirigée de Bône sur Constantine, en novembre 1836, par un témoin oculaire.
Paris : 8vo, pp. 40.

This gives a vivid account, day by day, of this disastrous campaign.

694. 1837. L’Expédition de Constantine.—See the Eclaireur de la Médi-
terranée, 13 Jan.


696. 1837. Barthélémy, Aug.—Constantine. Chant de guerre, dédié à l’armée


704. 1837. Dupin, Ph.—Plaidoyer prononcé pour la défense de M. le Général de Rigny, devant le conseil de guerre séant à Marseille le 1er juillet 1837. Retraite de Constantine. Paris : 8vo, 2 cartes.


This elicited a reply from M. Polliossier, in the form of a letter, printed at Algiers in the same year, 8vo, pp. 18; and another from M. Franque, Avocat, entitled, ‘Première lettre à M. Desjobert à propos de son livre sur la question d’Alger.’ Paris : 18mo, pp. 13.

711. —— Also a ‘Projet de Pétition,’ signed by M. Franque, addressed to the Deputies, in the name of the ‘Cercle Algérien,’ praying that Algeria may be definitely annexed to France. Paris : 18mo, pp. 8.

A notice of this correspondence is contained in the Revue Africaine, p. 88.


The author, who belonged to the Swiss army, followed for several months military operations in Algeria.


718a. 1837. Planat de la Faye.—Examen critique de quelques passages d'une brochure intitulée 'Explications du Maréchal Clauzel.' Paris: Svo.


727a. 1837. Prichard, James Cowles.—Researches into the Physical History of Mankind. From p. 15 to p. 42, vol. ii., is a history of the Atlantic nations elucidated by researches into their languages.


729. 1837. Cès-Caupenne, Baron de.—Constantine à propos patriotiques.

731. 1837. Assemblée Générale de la Société pour l'évangélisation du Nord de l'Afrique tenue 15 janvier. Toulouse : 12mo, pp. 37. This was issued by a Protestant Society at Toulouse, having a branch at Geneva. The Pastor Chabrand was President.

732. 1837. Solvét, Ch.—Institutions du droit mahométan relatives à la guerre sainte. Alger : 8vo, pp. 37. This is a translation of the Latin of Hadrien Reland, 'Dissertatio de jure militari Mahommedanorum contra Christianos bellum gerentium,' contained in the 3rd vol. of his 'Dissertationes Miscellaneae' published at Utrecht in 1708.


734. 1837. Sacy, Sylvestre de.—Mémoire sur quelques monnaies arabes en or des Almohades et des Mérénides.—See Journal des Savants.

735. 1837 ? Quelques Réflexions sur trois questions fondamentales de notre établissement en Algérie. No place or date, pp. 36.

The questions are—1st. The best means of subduing the Arabs. 2nd. The method of governing them. 3rd. The establishment of Europeans amongst them.


From the 'Moniteur,' 23rd and 25th April. A most interesting criticism on the military operations then being conducted all over the colony.

738. 1837. Janvier, Député de Tarn-et-Garonne.—Rapport au nom de la commission chargée de l'examen du projet de loi relatif aux crédits supplémentaires et extraordinaires de 1836, et aux crédits additionnels sur les dépenses des exercices clos. Paris : 4to, pp. 120.

The portion referring to Algeria is from p. 33 to p. 98. It contains an interesting and authentic account of events civil and military.


This also contains much valuable information regarding the state of the colony.


The journal of a German student in the French service.


Also most instructive.


This was commanded by the Maréchal de Trézel. It started from Toulon, and arrived off Bougie on the 20th September. After six hours’ fighting Bougie was abandoned by its inhabitants and occupied on the following day.


A short journey between La Calle and Bône.

746. 1838. Lapisse, Ch. de.—Alger. l. c., p. 73.
A sketch of what Algiers was at that date.

This pamphlet gave rise to an answer entitled, ‘Révélations sur l’Algérie par un habitant de l’Afrique.’ Paris: 8vo, pp. 29.


This work was also published in German under the title, ‘Trachten, Sitten und Gebräuche der Algerien.’


A remarkable article.


755. 1838. Sedillot, Dr. Ch. Emm.—Campagne de Constantine de 1837. Paris: 8vo, 1 plate.


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757b. 1838. Sur l'expédition et le siège de Constantine. l. c., February.

757c. 1838. Notice biographique sur le général de Damrémont. l. c., September.

758. 1838. Détails sur l'expédition et la prise de Constantine, par un témoin oculaire, membre de la commission scientifique de l'expédition. Lyon: 12mo.


767. 1838. Tupier, Dr.—Epître au Roi sur la prise de Constantine. Constantine: 8vo, pp. 4.


771. ——— Quatre-vingt-deux jours de commandement de la province d'Oran. Perpignan: 8vo, pp. 60.

This is a vindication of his conduct: "Ma conduite indigneur calomniée m'en fait un devoir."


774. 1838. Guyon, Dr. J. L. S., Surgeon, and Member of the "Commission Scientifique."—Observations faites à la suite de l'armée qui en 1839 a traversé les Portes de Fer, &c.

775. ——— Mémoire sur une fille bicorps née à Alger.—See also No. 801.
   Articles in the Mémoires de Médecine et Pharmacie Militaire, 1838-40.

777. ——— Quelques inscriptions de la province de Constantine recueillies par le Dr. Guillon. Alger: folio.


782b. ——— Mémoire sur la ville de Bougie (Saida). Présenté à l’Institut.

782c. ——— Mémoire sur l’embouchure de la Mafrag. Présenté à l’Institut.


   This vol. contains ‘Relation d’une excursion à Constantine à la suite de l’armée française’ by Sir Grenville Temple and M. C. T. Falbe, with numerous interesting inscriptions and plates.


1888. ‘V... F. de.—La guerre d’Afrique, &c. 12mo.


1838. Abd-el-Kader et la province d’Oran, par un officier général (Oudinot). Extrait du Spectateur Militaire, 15th November.


The continuation bears the title ‘Statistique générale de l’Algérie.’ Vol. i. contains information for the period comprised between 1830 and 1837, pp. 417.

1838. Dupin, Ch.—Étrennes à la France. Siège de Constantine. In verse. 8vo, pp. 8.


The author, accompanied by General Changarier, went to the limit of the French possessions, such as the Treaty of the Tafna fixed them.


1839. La guerre d’Afrique, ou lettre d’un lieutenant de l’armée à son
—See also No. 933.


808. 1839. Caussidou, et Campaignac.—Manuel de cultivateur africain. Alger: 8vo. Published monthly during several years.


812. 1839. Czynski, Jean.—Colonisation de l'Algérie d'après la théorie de Charles Fourier.


In the name and with the authority of the Society.


817. 1839. Roland de Bussy, Th.—L'idiome d'Alger; dictionnaire francois-arabe et arabe-français, &c. 8vo.

818. ——— Petit vocabulaire français-arabe.


821. 1839. Temple, Sir Grenville, Rev. G. N. Wright, &c.—The Shores and Islands of the Medirerranean. London: 4to. —See also No. 662.


825. 1839. Blicke auf die letzte Eroberung. Copenhagen, 8vo.

On the conquest and colonisation of Algeria.


The author examines the sanitary condition of Algiers and its neighbourhood; the causes of the insalubrity of the plain; the fogs and siroccos which prevail, and the influence of the climate on pulmonary complaints.

832. 1839. Roscoe, Thomas.—The Life and Writings of Miguel de Cervantes Saavedra, with literary and historical illustrations from authentic documents supplied by Spanish biographers and other editors of his works. London : 12mo, pp. 412.

Chaps. ii. and iii. narrate C.'s capture [in 1575] by an Algerine squadron, long captivity, frequent attempts to escape, ransom, and return to Spain in [1581].


839. —— Considérations sur Alger. From the Revue Française, January, pp. 11.


842. 1840. Précis analytique de l'histoire anc. d'Afrique septentrionale.
——See Tableau de la Situation des Établissements français for 1840.


844. 1840. Juba II.—Born in Numidia; sent prisoner to Rome, subsequently King of Mauritania. Fragments of his History of Lybia, &c., have been preserved and collected in vol. iii. of 'Fragmenta historiorum Greecorum,' Collection Didot, 1840.


Read before the Académie des Sciences, which had charged the author to study the question of Algeria.


The author advises his countrymen to take no further notice of Abd-el-Kader, and as they would thus have no Jugurtha to overcome, they would have no occasion for a Marius.


847. 1840. Les Colons d'Alger à la France.—Domination générale, Colonisation progressive, Gouvernement civil. Marseille : 8vo, pp. 30. Signed by Baron de Vialar and many others.


The author examines the question, How far Abd-el-Kadir is to be followed up and colonisation encouraged.


The author is in favour of surrounding the hundred square leagues which form the territory of Algiers with a continuous line of defence flanked by towers, within which only he thinks colonisation possible. When this is peopled he would create others to the east and west.


The author, who was a peer of France, prepared this speech for delivery in the Chamber, but died before having delivered it.


861. 1840. Rossière.—Projet de colonisation en Algérie. Carpentras : 8vo, pp. 44.

The author endeavoured to form a Society for obtaining 12,000 hectares of land in Algeria.


863. 1840. Leblanc de Prébois, François, Capitaine d’État-major.—De la nécessité de substituer le gouvernement civile au gouvernement militaire. Paris and Montpellier : 8vo, pp. 80, with a map illustrating the author’s proposition for a system of military occupation.

864. ——— Conditions essentielles du progrès en Algérie. Paris and Montpellier : 8vo, pp. 92, with map. A sequel to the foregoing work.


A magnificent work, illustrating the geography, natural history, archaeology, and architecture of the country.


The first section is devoted to the occupation of the country, with a sketch of the military position at the beginning of 1840; the second deals with the subject of colonisation.


880. 1840. Duvéraine, A.—De la gestion des intérêts nationaux en Afrique, ou résumé critique de l'état politique et économique de l'Algérie. Paris: 8vo, pp. 88, with a map showing the extent of territory proposed to be colonised.


880c. 1840. Massias, le Baron.—Moyen unique d'occuper, de coloniser et de conserver l'Algérie. Strasbourg: 8vo.

The author proposes to cover Algeria with castles, as in Europe during the Middle Ages, and to revive a feudal system suited to the ideas of the present time!


This letter commences with the words "Les Juifs de ce pays sont esclaves de leur préjugés." A remarkable change has come over them since the conquest.


The author expresses the fears of the colonists and the hope that the colony may be incorporated with France.


Raymond Lully was a native of Majorca, born in 1235; after a dissipated youth he entered the Church and devoted himself to the conversion of Mahomedans. He was stoned at Bougie, and died before he could reach his native city of Palma, where he was buried.


Two short articles describing Algiers and Constantine.


He complains of the want of system in the military expeditions, during which only 4000 have been killed in action, while 36,000 have died from disease.


891. ——— Notes sur le théâtre des operations militaires dans le centre de l'Algérie. Paris: 8vo, pp. 24, with a large map of the environs of Algiers. From the same journal, April.

Reproduction of an article published in the Revue des deux Mondes, June 1838, said to have been inspired by General La Moricière.

893. 1840. Maisonne, Nicolas de la, Capitaine de Grenadiers.—De la souveraineté de la France en Afrique par l'occupation restreinte et le système des razzias. Avignon: 8vo, pp. 16.


898. 1841. Wagner, Dr. Moritz.—Reisen in der Regentschaft Algier in den Jahren 1836-7-8. Leipzig: 3 vol. 8vo, with map and 17 plates.

An excellent work for the time. A great deal of his information was supplied by a renegade Frenchman named Baudoin.—See Pulszky, No. 1706.


901. 1841. Pascul, Adrien.—Précis historique des actions de guerre du 17e Rég. d'Infanterie légère, &c. 8vo.


This work is well written. It terminates with the capture of Algiers.


Mrs. Broughton was daughter of Mr. Blanckley, H.M. Agent and Consul-General. The most valuable part of this volume consists of extracts from her mother's diary. 2 illustrations.—See Monthly Review, vol. clxix. p. 210.


A most important work.


919. 1841. Baudens, Dr.—Relation historique de l'expédition à Tagdempt. Paris: 8vo, pp. 32.

From the Musée des Familles, July. This place was the headquarters and arsenal of Abd-el-Kader.


924. 1841. Lamarque, Capitaine Léo.—De la conquête et de la colonisation de l'Algérie. Paris, Lyon: 8vo, pp. 239, 6 plates and 1 map.

926. 1841. Rumigny, Général M. T., &c.—Notes sur l'organisation des troupes irrégulières algériennes. Paris: 8vo, pp. 32.


This is a translation of a very valuable MS. obtained by M. Rousseau, and presented to the Library at Algiers, where it bears the No. 1001. Copious notes have been added by M. Berbrugger. The period embraced is from 1792 till 1817. Mention is made of the bombardment of Algiers by Lord Exmouth.


930b. 1841. Tableau de la situation des établissements français en Afrique en 1840. Published by the War Office. Paris: 4to, pp. 452; with nine plans of the principal cities, and a bibliography.


The supposed adventures of a young French soldier taken prisoner after the capture of Algiers.


He gives the result of cases observed at Tangier, and an historical précis of the appearance, progress, and extinction of the disease. There is no allusion to Algiers, but the disease in both places was similar.

933. 1841. La Guerre d'Afrique. Lettre d'un Lieutenant de l'armée d'Afrique à son oncle, vieux soldat de la Révolution et de l'Empire. Alger: 12mo, pp. 36.

Signed L. de V ***. A simple and interesting account of the operations in which he was engaged in the west of the province of Oran. 2nd ed.—See No. 806.


It only contains occasional papers regarding Algeria.
A valuable work.

Also Arab text, published by de Goeje, Leyden, 1871. English translation by Ousley, 1800.


844. 1842. Hauser.—Wer veranlasste die Berufung der Vandalen nach Africa. Dorpat: 4to.


He insists on the necessity for 80,000 troops in the colony, and a system of military colonisation and government.


850. 1842. Rozey, A. C.—Esquisse rapide et historique sur l’Algérie depuis 1830 et sur la direction qu’y donné le Général Bugeaud. Quelques observations sur les attaques dirigées contre la propreté et contre les colons. Mesures à adopter pour aider la colonisation. Marseille: 8vo, pp. 80.—See also No. 841.


196. A BIBLIOGRAPHY OF ALGERIA.


970. 1842. Lapène, Lieut.-Colonel.—Tableau historique de la province d'Oran, depuis le départ des Espagnols en 1792, jusqu'à l'élevation d'Abd-el-Kader en 1831. Metz: 8vo, pp. 52.


Contains the lives of distinguished Mohammedans from the Hegira till the 18th century. De Slane also published a French translation. A Latin one was published by Wüstenfeld at Gottingen in 1835-58.—See an article on this work in the Revue des deux Mondes, 15th Sept., 1842.


The question which the author attempts to settle is, "Quel est l'état de la propriété immobilière en Algérie et la nature de sa constitution?"


This is in reply to a communication the latter had addressed to M. Enfantin on the same subject.


Half the book is taken up with notes, containing an ode by the author on the prince’s arrival in Algeria; the scheme for erecting a statue to him on his departure; and a funeral service in his honour.


Vol. i. chapter v. gives an account of his embassy to the States of Barbary. He took Joshua Reynolds (then a youth) with him. He anchored in the Bay of Algiers 29th June, 1749. In his interview with the Dey on a subsequent visit the latter objected to the youth of the ambassador (twenty-four) as an indignity. “Had my master considered wisdom was measured by length of beard he’d have sent you a he-goat,” replied Keppel. A treaty was concluded in June 1751, after long negotiation.


Art. iii. is on New Sources of Trade, No. 1, The Barbary States.


This is chiefly founded on Baron Baude’s work ‘L’Algérie.’—See No. 896.


He gives a sketch of the condition of the colony and of the operations of M. Carcelle during the past two years.


The author is a partisan of war without mercy, and complete occupation.

980. 1843. Clausolles.—L’Algérie pittoresque depuis les temps les plus reculs jusqu’à nos jours. Toulouse: 4to.

A popular work, of no particular merit.

The writer is a warm admirer of Maréchal Bugeaud. He advocates the entire subjugation of Algeria and its colonisation by methods partly civil, partly military.


—See No. 946.


989. 1843. Masselot, J.—Ville et rade de Bougie.—See also No. 2935.

990.—Coup d’œil rapide sur Bougie par un administrateur qui a résidé longtemps en Afrique. 8vo, pp. 59.


This Smala was a sort of movable capital, the débris of the Emir’s power; it was captured by the Duc d’Aumale. A splendid picture of the capture, by Horace Vernet, is at Versailles.


999. 1843. Obert.—Aperçu général sur la colonisation de l’Algérie pour servir de base à l’organisation du travail. Paris: 8vo, pp. 40. The writer was agent-general of a company for the colonization of Algeria.


1019. 1844. **Hodgson, W. B.,** late U.S. Consul at Tunis.—Notes on Northern Africa, the Sahara and the Soudan. New York: 8vo, pp. 107. This work contains a bibliography of works on the Berbers and their dialects.


1030. 1844. **Blodfield, J. H.**—Algeria, Past and Present, containing a description of the country, ... with a review of its history, from notes made during a visit in 1843. London: 8vo.


This contains a description of Algeria.


A careful work, but with some inaccuracies.


A most valuable collection of documents on the early history of Algeria.


Published on the occasion of a demand for 15,000 men to reinforce the army of Africa. The writer was a persistent adversary of Algeria.


An invitation to attend a Te Deum in commemoration of the battle of Isly.

1052. 1844. Marey, Général.—Expédition de Laghouat, dirigée aux mois de mai et juin 1844. Alger : 8vo, pp. 72.

Sée aussi Revue de l'Orient, 1845, t. vii, pp. 57-67, for extracts of this work, under the title of 'Les Kaars du Sahara,' with topographical tables and a map of the district between Medea and Laghouat. To this is added a translation of certain passages of a curious work written 100 years previously by a Marabout of the place, predicting that Algiers would become a great European city and would send such an expedition to Laghouat. A most valuable paper.


1060. 1844. Montgrevier, Az. de.—Tumulus de Lachdar (Province d'Oran). 8vo.


1062. ——— Exposé de l'état actuel de la société arabe, du gouvernement et de la législation qui la régit. Alger : 8vo.

1063. ——— Rapport du 17 août sur la prise de la Smala d'Abd-el-Kader. Published in several of the journals and periodicals of the time.


He was Governor-General of Algeria in 1834, and introduced the Bureaux Arabes. His moderation towards the Arabs caused his recall in the following year.


1069. 1844. Bouvier, Commissaire colonial chargé des Haras.—Agriculture; Rapport sur l'agriculture, les Haras, les courses de chevaux, les remontes militaires, &c. Blidah: 8vo, pp. 51.


Published anonymously, attributed to Capitaine de Fénelon.


1079a. 1844. Vergé, Ch.—De la nécessité de conserver et d’augmenter les troupes d’infanterie indigène en Algérie, &c. Toul: 8vo.


This is a comparison between Mohammedanism and Christianity, and their methods of action on the world.


This had a very short existence.


The land which it was proposed to demand was from Bou Ismaiel to the Chiffa, 2600 hectares.

This work is a continuation of the author's 'Question d'Alger en 1844' (No. 1037).

1087. 1845. **Lapène, Edouard,** Colonel d'Artillerie.—Tableau historique de l'Algérie depuis l'occupation romaine jusqu'à la conquête par les Français en 1830. Metz: 8vo, pp. 333.

A very useful work.


1089. 1845. **Mas Latrée, de.**—Aperçu des relations commerciales d'Italie septentrionale avec l'Algérie au moyen-âge. Paris: 4to.—See also No. 1017.


1092. 1845. **Sahara Algérien.** La Mer Souterraine. l. c., pp. 164–7.


He examines the systems of General de la Moricière and of the Duc d'Isly, which he reproduces.


1099. 1845. **Daumas, Jos. Eug.**—Resided as Consul with Abd-el-Kader at Mascara. He subsequently became General of Brigade and Director of Algerian Affairs at the Ministry of War at Paris. He wrote:—

Exposé de l'état actuel de la société arabe, du gouvernement et de la législation qui la régit. Alger: 8vo.

Also, in conjunction with Fabar: Mœurs et coutumes de l'Algérie, Tell, Kabylie et Sahara. Paris: 12mo.


Vol. iii. chap. xxi. gives an account of Cardinal Ximenes' conquest of Oran.

1110. 1845. Duvivier, Général Francia de Fleurus.—Abolition de l'esclavage, Civilisation du centre de l'Afrique. 8vo.

1111. ——— Lettre à M. Desjobert (Député de la Seine-Inférieure) sur l'application de l'armée aux travaux publics. Paris: 8vo, pp. 36.

From the 'Spectateur Militaire,' July.


Also by the same author, 'Esquisse d'Alger.' Paris: n.d., fol.


1115. 1845. Franque.—Galerie historique de l'Algérie. Les Princes en Afrique. M. le Duc d'Orléans, pp. v. and 86. Le Duc d'Aumale, pp. 60. Le Duc de Montpensier, pp. 34. All bound up in a single vol. 8vo.

1116. 1845. Rotalier, Ch. de.—Histoire d'Alger et de la piraterie des Turcs dans la Méditerranée. Paris: 2 vol. 8vo.


A most valuable and exhaustive work.


One of the author’s propositions is to create a circle of military colonies to surround the civil zone.


Letters to friends in France.


He was sent to inquire into the condition of the Jews, and the means of civilising them.


A valuable work for the time at which it was written.

1130. 1845. Furnari, Dr. Salvato.—Voyage médicale dans l’Afrique septentrionale. Paris : 8vo.


Pp. 332-515 relate to Algiers.


As this work failed to sell, it was reissued in 1847 under the new title of ‘La Nouvelle France ; Souvenirs de l’Algérie et du Maroc.’
This work is particularly interesting, as it contains a good account of the affair of the caves of Dahra, which created a great sensation in Europe at the time.


The author maintains that it is useless to dream of making the Mediterranean a French lake. What is wanted is liberty and progressive colonisation.


The author describes this now well-known locality as a terra incognita.


1146. 1845. Dumalle, Amééeé Louis, Lieutenant de Vaisseau.—Mémoire sur le port de guerre et de commerce en cours de construction à Alger, sur les forces navales que les événements d’une guerre maritime peuvent faire aboutir au port d’Alger et sur les surfaces et profondeurs d’eau nécessaires à ces forces. Suivi d’un Exposé de quelles idées sur un système de domination et de colonisation de l’Algérie, ayant pour point de départ le port et la ville d’Alger. Alger: 8vo, pp. 152, with 2 plans.

The first letter is a “Compte-rendu” of the medical service of the military hospital at Blidah during the year 1842.


A letter from the Bishop of Algiers, forwarding copies of the communications which he had addressed to the Governor-General on the subject of the Church in Algeria.


The portion devoted to Algeria is from p. 68 to p. 108.

1153. 1845. Le Courrier d'Afrique, a journal appearing three times a week.
This had only seventeen months of existence.


1155. 1845. Sébatault.—De la nécessité d'établir un impôt sur les graines importées de l'étranger. Lettre à tous les amis de l'Algérie et de la France. Alger: 8vo, pp. 18.


1161. 1846. Shrimpton, Dr. C.—Relation médico-chirurgicale de l'expédition du Bou-Thaleb (Province de Constantine), et notice sur le service chirurgical de l'hôpital militaire de Sétil à la suite de cette expédition, sur les congélations partielles, leur traitement, &c. Constantine: 8vo, pp. 158.

1162. 1846. Les Princes en Afrique.—Le duc de Montpensier. Published anonymously; attributed to M. Franque. Paris: 8vo, pp. 34.
This gives an account of the princes' services in Algeria, and notes on the establishment of the Trappists; of the College at Algiers; and of the Library and Museum.


A very valuable work, containing the history of Bou-Maza.


Prepared by a Special Commission under Ministerial instructions.


Published anonymously, but acknowledged by the Maréchal. A more complete work on the subject was published in 1847. The former gave rise to the two following works.
   The writer implores the Maréchal to use his high position to counteract the injurious effects of his decrees of 1 Oct., 1844, and 21 July, 1846.

   A warm appeal in favour of Algeria. Attributed to M. Lingay, writing under the inspiration of M. Guizot.


1186. ——— Exposé sur la colonisation d’Algérie, adressé à MM. les Pairs de France. 8vo.


   The author advocates the transfer of the government of Algeria to the Ministry of Marine (Direction de Colonies).


   A letter of welcome and advice to the Duke on his appointment as Governor General.

1195. 1846. Audouard, Dr.—Un moyen d’assurer la conquête de l’Algérie, auquel on n’a pas encore pensé. Paris : 1846, 8vo.


1203. 1846. Bonnafont, Dr. J. Pierre.—Réflexions sur l'Algérie, particulièrement sur la Province de Constantine, sur l'origine de cette ville et les Beys qui y ont régné depuis 1710 jusqu'en 1837. Paris: 8vo, pp. 59. Of the last twenty-five Beys, three died natural deaths, four were recalled, and eighteen were assassinated.


1205. 1846. Lamiche, Hipp.—L'Algérie, son influence sur les destinées de la France et de l'Europe. Paris: 8vo, pp. 55. This is a letter addressed to MM. Thiers and Banot, the substance being that Algeria must assure to France the first rank, political and naval, in the Mediterranean, in spite of England, Gibraltar and Malta.

1206. 1846. Vialar, Baron de.—Lettre au Maréchal Bugeaud.


1208. 1846. Adresses au Roi et réponses au ‘Moniteur Universal,’ du 25 septembre. Alger: 8vo, pp. 27. These are signed by M. Rozet, President, and the members of the "Commission Algérienne," protesting against the Royal Ordinance of the 21st July, on the subject of real property, which they style "la loi agraire brutalement appliquée au profit de l'État."


1210. 1846. La Kabylie.—Recherches et observations sur cette riche contrée de l'Algérie. Par un colon, établi à Bougie depuis les premiers jours d'octobre 1833. Paris: 8vo, pp. 85, with a plan of Bougie. Published anonymously; attributed to M. Maffre.


1212. 1846. Fouquier, Achille.—Une excursion de Constantine à Biskra. l.c., t. x. p. 139.

1213. 1846. Carette et Warnier.—Description de l'Algérie. l.c., t. xi. p. 83.


1215. 1846. Fournel, Ingénieur en chef des Mines.—Mines de fer des environs de Bône. l.c., t. xi. p. 112.

1217. 1846. Fortin d'Ivry, T.—Domaine de la Reghaia. l. c., t. xi. p. 120.
1218. 1846. Porter, R. F.—Translation of work by M. A. de France. (No. 712.) Abd-el-Kader's Prisoners, or a five months' captivity among the Arabs.—See also For. Quart. Rev., vol. xxxvii. pp. 159-84.
1219. 1846. Dupuch, Mgr. A. A., Evêque d'Alger.—Un dernier chapitre de mon rapport à S.S. le Pape Grégoire XVI. Alger: 4to, pp. 35. The Bishop, feeling himself near death, forwards a correspondence regarding his work in Africa to the Pope "as his testament."
1222. 1846? Rallaud L'Angle, Père.—Projet de colonisation en grand de l'Algérie. No place or date: 12mo, pp. 32.
1224. 1846. Revue d'Afrique, organes des Départements algériens. The first number appeared at Paris on the 15th January. The motto of the work is 'L'Algérie doit devenir une Corse et non une Irlande.'
1225. 1846. Ressources militaires et financières des Arabes. l. c., p. 34.
1226. 1846. Causes de l'impuissance de notre armée en Algérie. l. c., p. 40.
1227. 1846. Sur la Colonisation de l'Algérie. l. c., pp. 7 et seq.
1231. 1846. Legoyt, A.—Colonisation de l'Algérie. Published in the Revue Mensuelle.
1235. 1847. Colonisation de la Province d'Oran. Oran: 8vo.
The author suggests that a French prince be sent to Algeria.
1244. 1847. Préaux Locré, Colonel d'Artillerie.—De l'Algérie. Urgence de réunir cette conquête d'outre-mer aux colonies administrées par la Marine ou son adjonction définitive à la Métropole en formant trois départements, compris dans une division militaire, et jouissant les mêmes avantages constitutionnels que l'île de Corse pour les lois et la représentation nationale. Alger: 8vo, pp. 18.
1246. 1847. Gérard, C. Jules Basile, called the Lion-killer.—Gérard, le Tueur de Lions. Biographie racontée par lui-même et écrite par A. Boissonier.
Complaints of undue favour to the natives, at the expense of the Europeans.
1254. 1847. Dumas, Alexandre.—Impressions de voyage, en forme de lettres adressées à une dame. Published originally in 'La Presse.'
The original work is a general history of the Mohammedan world, and is unsurpassed in Arabic literature as a masterpiece of historical composition. It was printed at Bulac, in 7 vol. royal 8vo, in a.H. 1284. He was a native of Tunis; taught at Tlemcen; was first the captive and subsequently the friend of Timur, and died at Cairo in a.D. 1406.—See also Nos. 354, 899, 2766.


The author eloquently pleads for civil government, and an end being put to the exceptional régime which compromises the future of the colony.


1263. 1847. Coetlogon, Le Comte L. Ch. Em. de.—Voyage en Algérie.


1265. 1847. Montrond, M. de.—Histoire de la conquête de l’Algérie de 1830 à 1847. “Paris: 2 vol. 8vo.—See also an article in the Revue des deux Mondes, pp. 431 and 438, in the same year by an anonymous writer.


The author was charged with the preparation of a general report on Algeria, but owing to political events it was never published.


   Originally published in ‘Le Correspondant,’ preceded by 34 pp. of Bibliography.

   A most important work.—See also Rev. de l’Orient, de l’Alg. et des Colonies, t. viii. p. 13, and t. ix. p. 249.


   A warm advocacy of Maréchal Bugeaud’s system.


1283. 1847. Prax, M.—Instructions pour le voyage de... dans le Sahara septentrional. Paris: 8vo.


   He proposes to create military colonies all over the country.

   The title on the cover is ‘L’Algérie... moins l’illusion.’

   These general officers were Commandants supérieurs of the provinces of Oran and Constantine. Their reports were presented to the Chambers for general information.

1288. 1847. Observations de M. le Gouverneur Général (Maréchal
Bugeaud) sur le projet de colonisation, présenté pour la province d'Oran, par M. le Lieutenant-Général de La Moricière. Alger: 8vo, pp. 87.

To it are appended the Report of Général de La Moricière in question. Also ‘Études pour servir à la colonisation dans la province d'Oran, par Général Martinprey,’ and ‘Études historiques pour servir au projet de colonisation d'une partie du territoire de la province d'Oran, par Azéma de Montgravier.’


1297. 1847. Bonnal, Marcellin de.—Examen de la colonisation au point de vue pratique. Paris: 8vo, pp. 78.

This is an examination of the military system of the Duc d'Isly, and of that of colonisation by capitalists of General de La Moricière, with the author's own ideas of practical colonisation, addressed for the enlightenment of the Minister of Public Works.


He maintains that the military government is indispensable, and Arab colonisation a debt of honour and a sacred duty.


A remarkable study, made immediately after the conquest of the Aurés and before that of Kabylia.


Exposing the pressing need of forming establishments of credit and reducing the exorbitant rate of interest.


1312. 1847. Derniers efforts et soumission d’Abd-el-Kader. l. c., p. 470.


1318. 1847. Lieutaud, E.—Projet de la création d’un village.

1319. 1847. Marion, A., Magistrat.—Hippone, Poème. Suivie de notes et extraits contenant l’opinion d’un grand nombre d’écrivains sur les principales questions que soulève la colonisation de l’Algérie. Alger: 4to, pp. vii. and 249, of which 65 are devoted to the poem.


This Society was formed to study and defend the interests of Algeria, and as colonisation was the most important and pressing question it charged its Committee to present a complete project on the subject.


This is an attempt to give an impartial account of the four candidates for the Presidency, Lamartine, Ledru-Rollin, General Cavaignac, and Louis-Napoléon Bonaparte.

1329. 1848. Berthoud, Sam. Henri, under the pseudonym of Sam. El-Hioudi (the Jew).—Étude de mœurs algériennes. 4 vol.


1333. 1848. La Passet, Capitaine F.—Mémoires sur la colonisation indigène et la colonisation européenne, suivies d’un projet sur l’établissement de Sètes de prévoyance pour les tribus arabes, servant en même temps de garantie de leur fidélité—with a plan of the native village of La Smala founded in 1845, and of one of the houses in it. Alger: 8vo, pp. 93.

1334. 1848. Deligny, Général.—Projet de colonisation des territoires mixtes dans la province d’Oran. Oran: 8vo.

1335. 1848. Montgravier, Azéma de, Chef d’escadron d’Artillerie.—Mémoire sur l’occupation de la Mauritanie par les Romains.

This work received the first gold medal at the competition of the Académie des Inscriptions in 1848.

1336. —— Études de topographie historiques sur la province d’Oran. Revue de la Province d’Oran, 1848, p. 1 et seq.


   This is a proposal to establish a Committee in each Department of France with a corresponding one in each of the three Provinces of Algeria.

1341. 1848. **Baillot, Avoué à Rouen.—Réflexions sur l’Algérie, et les moyens à contribuer à sa colonisation à l’aide de cultivateurs choisis dans le département de la Seine-Inférieure, et sur les modifications à introduire dans diverses ordonnances qui régissent cette colonie.** Paris and Rouen : 8vo, pp. 190.

1342. 1848. **Nour, Alfred.—Projet d’association nationale pour la colonisation de l’Algérie.** Alger : 8vo.


1344. —— **Le Souf. L. c., p. 192.**


1347. —— **Scènes de mœurs arabes.** 8vo.

1348. —— **Les mystères du peuple arabe.** 18mo.

1349. 1848. **Landmann, L’Abbé.—Appel à la France pour la colonisation de l’Algérie.** Paris : 8vo, pp. 88.—See also No. 1678.

1350. 1848. **Floreau, H., J. Buquet et Ernest Luce.—De l’organisation des ateliers nationaux, et de leur application à divers travaux d’utilité publique et à la colonisation de l’Algérie.** 8vo, pp. 16.

1351. 1848. **MacCarthy, Oscar.—Altitudes de l’Algérie.—See Bull. de la Soc. Géog., April 1848.**

1352. 1848. **Barest, Eugène.—Abd-el-Kader.** Paris : 18mo, pp. 52. A biography of the Emir of no value.


1355. —— **Abd-el-Kader au Château d’Amboise.** By Mgr. Dupuch, first Bishop of Algiers.

1356. 1848. **Abd-el-Kader.—Vie, aventures, combats, amours et prise d’Abd-el-Kader, by M. Marle aîné, under the pseudonym of De Lamenaire.** Paris : 12mo, pp. 48.—See also 1849 and 1858.

1357. 1848. **Pommier, L. Am. V.—L’Algérie ou la civilisation conquérante.** A poem, to which a prize was awarded by the Académie.

1359. 1848. De l’acclimateme1 et de la colonisation en Algérie. Alger: 8vo, pp. 48. No author or date.
The conclusions of the author are: (1) Colonise immediately, and as much as possible; (2) push on drainage; (3) cultivate as largely as possible.

This opens a credit of fifty millions for the creation of agricultural colonies.


1363. 1848. Mémoire sur la culture du nopal et l’éducation de la cochenille en Algérie. Signed by the perpetual Secretary of the Académie des Sciences. 8vo, pp. 32.


1365. 1848. Note sur le caractère du déboisement de la partie centrale de la province de Constantine et sur les difficultés de reboisement. Application à la colonisation de la vallée de Bou Merzoug. Constantine: 4to, lithographed, pp. 11.


1368. 1848. Account of the Slavery of Friends in the Barbary States towards the close of the seventeenth century, with some particulars of the exertion of their brethren at home for their redemption. London: 8vo, pp. 24.


A remarkable work, and still most useful.


1374. 1848. D’Avenac.—Articles on Algiers and the Berbers in the Encyclopédie Pittoresque, 1848.


This is an appeal in favour of General Cavaignac as President of the Republic.


1890. 1848. Organisation de l'administration générale de l'Algérie.

1891. 1848. Maggiolo, Henry, working carpenter.—Les 50 millions pour l'Algérie; l'insurrection de juin, et la présidence de la République. Alger: 8vo, pp. 16.


Dedicated to the Chambers of Peers and Deputies. The author protests against what he considers the lamentable errors of the Government of Algeria, and demands the introduction of the common law.


A wild scheme for sending 20,000 families from France to colonise Algeria.

1899. 1848. Durand, Dr. Auguste (de Lunel).—De la réforme sanitaire dans l’armée, au point de vue des institutions organiques. Alger: 8vo, pp. 35.


This is a similar project to that proposed by the author in his pamphlet published in 1842 (No. 963).


1423. 1849. Walsin-Esterhazy, Général.—Notice historique sur le Maghessen d’Oran. Oran: 8vo, p. 400.


1432. ——— 2e Lettre à M. le Président de la République, pp. 30.


1439. 1849. Notes sur la création d’établissements de colonisation en Algérie. 8vo.


1442. 1849. Giacobbi, Conseiller à la Cour d’Appel.—Installation du Tribunal de Première Instance à Constantine. Alger: 8vo, pp. 36.

1443. 1849. Société d’Agriculture d’Alger.—The first number of the Bulletin of this Society was published at the beginning of the year.

1444. 1849. Sagot (de Nantilly).—De la Boulangerie et des Fours Banaux à Alger. Alger: 8vo, pp. 112.


1453. 1849. Reybaud, Louis, Représentant du peuple, Rapporteur.—Rapport
fait à M. le Ministre de la Guerre par la commission d'inspection des colonies agricoles de l'Algérie. Paris : 4to, pp. 75.

The commission visited Algiers during the hottest part of the year, and inspected forty-two of the principal colonies in the three provinces, many of which were anything but prosperous. A very valuable record of what Algeria was at the time.


The author recommends his fellow-citizens to elect as their representative the person the most devoted to the "République démocratique et sociale!" and suggests Dr. Bodichon.


This decree, signed by General Cavagnac, "chargé de pouvoir exécutif," and countersigned by General de La Moricière, Minister of War, bears date 16th December, 1848, and was promulgated by Prince Louis Napoleon, President, 8th February, 1849.


1459. —— La grande Kabylie sous les Romains.

1460. —— Les époques de la grande Kabylie : tableau historique de cette contrée, depuis l'époque romaine exclusivement, jusqu'à nos jours. Paris : 18mo, with map by M. O. MacCarthy.


Most valuable illustrations of Algeria, but no text was ever published.


1469. 1850. Le Pays de Bourjolly, Général Jean Alex.—Du mode de gouvernement en Algérie. Paris : 8vo.

This work was never entirely finished. See Nos. 1381, 1420.
1478. 1850. Fortin d'Ivry.---Coutumes de la culture arabe; aperçu sur les us et coutumes agricoles des Arabes, suivis de considérations générales. 8vo.
1487. 1850. Revue du Progrès de l'Algérie.---Commenced at Algiers in January. Published every two months.

The first number gives the composition of the Parliamentary Committee appointed to revise Algerian legislation.
1487a. 1850? Castaingt.---Dégrèvement des rentes en Algérie. No date or place.
1488. 1850. Mœurs et coutumes de l'Algérie. Kabylie. l. c, pp. 59 et seq.


A brochure on the subjects then under consideration of a Parliamentary Committee.


1497. 1850. Richard, Ch., Capitaine de Génie.—De la civilisation du people arabe. Alger: 8vo, pp. 68.

1498. ——— Scènes de mœurs arabes. 18mo.


The Department of the Seine-Inférieure is more connected with Algeria than many others, as it sends its manufactures to a considerable extent, and is directly interested in the prosperity of the colony.


A work of no value.


The author gives an account of the ancient and modern colonisation of Algeria, and of the district contained in the map, including the mines of Monzaia.


1506. ——— Catalogue des végétaux cultivés à la pépinière centrale du gouvernement à Alger. Alger: 4to, pp. 81. This is preceded by a "Note climatologique sur l'Algérie au point de vue agricole," by Mr. Hardy, and a Report on this memoir made by the Académie des Sciences Naturelles of France.


1509. 1850. Dupin, Charles.—Rapport fait au nom de la commission chargée de présenter les principales lois particulières à l'Algérie, sur un projet de loi qui doit régler le commerce de l'Algérie avec la France et l'étranger. Paris: 8vo, pp. 46.

1510. 1850. Prax, chargé d'une mission par quatre Ministères français.—Commerce de l'Algérie avec la Mecque et le Soudan. Alger: 8vo.—See also No. 1437.


1513. 1850. Quesnoy, Dr. F.—Coup d'œil sur la subdivision de Bône relatif surtout à son état climatérique et l'influence que cet état exerce sur les progrès de colonisation. 8vo.


1515. 1850. MacCarthy, Oscar.—Excursion de Tiensien à Rachgoun. I. c., pp. 147 et seq.


1520. 1850. Haspel, Dr. Aug.—Maladies de l'Algérie, des causes, de la symptomatologie, de la nature et du traitement des maladies endémo-épidémiques de la province d'Oran. Paris: 2 vol. 8vo, pp. 400 and 441.

1521. 1850. Rumigny, Général de.—De l'établissement de colonies militaires Kabaïes en Algérie. 8vo.

1521a. 1850. Mouren, L.—Notes sur la question algérienne. 8vo.


A report of this was made by a Committee of the Academy (Héricout de

1524. —— Deuxième rapport. l.c., p. 217.
1525. —— Troisième rapport. l.c., p. 435.
1526. —— Quatrième rapport. l.c., p. 473.


General Daumas acted as Consul of France at Mascara with Abd el-Kadir from 1837 to 1839, and was subsequently attached to the Bureau de la Guerre at Paris. He wrote many valuable works and papers on North Africa. See Rev. de l’Orient, de l’Alg. et des Colonies, t. x. pp. 261–72. A second edition was published in 1886, pp. 544.


1534. 1851. Noirfontaine, Madame Pauline de.—Impressions africaines; lettre à Monsieur Léon Gozlan. Bourges : 8vo, pp. 16.


1542. 1851. Rapport adressé à M. le Président de la République par le Ministre

These effected the subjugation of Eastern Kabylia.


1544. 1851. Bourseul, Ch. de.—Souvenirs de la guerre d'Afrique. Insurrections des Ziban-Zaatcha. Metz: 8vo, pp. 36.

1545. 1851. Bocher, Ch. Ph.—Siège de Zaatcha. From the Revue des deux Mondes.


The adventures of a young French doctor among the Arab tribes; followed by 'De la régénération du peuple arabe par l'instruction.'


It was intended to insert this monograph in the botanical portion of the Commission Scientifique de l'Algérie, but the suspension of that work prevented its publication.


1554. 1851. Décuing.—La guerre de montagne en Kabylie. Rev. des deux Mondes, April.

Military remarks regarding the campaigns of Maréchal Bugeaud.


Account of an expedition commanded by General de Saint-Arnaud. The author remarks that the Kabyle can never be taught commerce till he is thoroughly beaten in war.


1559. 1851. Itier, Jules.—De la naturalisation en France et en Algérie de plusieurs plantes textiles originaires de la Chine et de l'application des procédés chinois à la préparation des filasses. Montpellier: 8vo, pp. 27. From the Bull. de la Soc. d'Agric. de l'Hérault, April, May and June, 1850.


1564. ——— Expédition en Kabylie. l. c., pp. 129-33. Discussion whether the expedition to the lesser Kabylia should be carried out.

1565. ——— La colonisation française. l. c., p. 76.—See also ‘L'Illustration,’ 17th Jan.


1567. 1851. MacCarthy, Oscar.—Notice historique sur les Ouled Ouiriéch, tribu de la province d'Oran. l. c., pp. 280-86.

1568. ——— Lettre sur les antiquités de la province d'Oran. Hadjar-Ouaghief, Bordj-Roumi. l. c., pp. 204-12. These are “standing stones” at 10 kil. from Tlemçen, near Hennaiah.


1571. 1851. D'Estry, Stéphen.—Histoire d'Alger, de son territoire et de ses habitants, de ses pirateries, de son commerce, de ses guerres, de ses mœurs et usages. 4th edition. Tours: 8vo, pp. 372.

1572. 1851. Projet d'organisation d'un service de douanes sur les frontières de terre de l'Algérie. Alger: 4to, pp. 45, with two maps.

1573. 1851. Estibot.—La vérité sur la choléra. Oran: 8vo, pp. 90.


   From the Politique Nouvelle, Livraisons 31 and 32.

1578. 1851. Travaux hydrauliques du Port d'Alger. Devis et cahier des

   8vo, pp. 434.

1580. 1852. Dureau de la Malle.—L’Algérie. Histoire des guerres des Romains,


1582. 1852. Ville, Ingénieur en chef des Mines.—Recherches sur les roches, les

1583. 1852. Houry, C. B.—Du commerce dans les États Barbareques et dans
   l’Afrique centrale. Bruxelles: 8vo, pp. 44.

1584. 1852. Mauroy, P.—Précis de l’histoire et du commerce de l’Afrique
   septentrionale depuis les temps les plus anciens jusqu’aux temps modernes.
   Paris: 8vo.

1585. 1852. D’Herbinghem, Capitaine de Frégate.—Instructions particulières
   pour les bâtiments à vapeur qui naviguent les côtes de l’Algérie. Paris: 8vo,
   pp. 173.

1586. 1852. Perron, M.—Précis de jurisprudence musulmane, ou Principes
   de Législation musulmane civile et religieuse, selon le rite Malékite. Par

   Forming part of the Exploration Scientifique de l’Algérie.

1587. 1852. Wright, John, Chairman of the South-Western Railway.—Project
   for constructing Railways in Algeria, &c. London: 8vo. See No. 1729.

1588. 1852. Wild, R. T.—Narrative of a Voyage to Madeira, Teneriffe, and
   along the Shores of the Mediterranean, including a Visit to Algiers, Egypt, &c.
   Dublin: 8vo.

1589. 1852. Castellane, Louis Charles Pierre, Comte de.—Souvenirs de

1590. ——— Military Life in Algeria. London: 2 vols. 8vo. See also Nos. 1622a
   and 4520.


1592. 1852. Revue Orientale et Algérienne. Recueil de documents sur l’histoire,
   la géographie, &c., de diverses contrées de l’Orient. Commenced 1852.
   Paris: 8vo.

   Alger: 8vo, pp. 331, and atlas, with 33 plates.

1594. 1852. Dubocq.—Mémoire sur la constitution géologique des Zibans et de
   l’Ouad R’ir au point de vue des eaux artésiennes de cette portion du Sahara.
   Paris: 8vo, pp. 83, with 3 plans, including sections of the district. From

1595. 1852. Fromentin, Eugène, a distinguished artist. He travelled in
   Algeria, and published numerous articles in the feuilleton of ‘Pays’ and else-
   where under the title of ‘Visites artistiques, simples pèlerinages 1852–1856,’ before
   writing his more important works in 1859.—See No. 2091.


1597. 1852. Bardy, Gust., Avocat général Algiers.—L’Algérie et son organisa-


1604. ——— Notes d'un voyage archéologique au pied de l'Aurès. Paris : 8vb. See also Nos. 1523-6.


1612. 1852. Marchal.—Notes sur un projet de subside communal dont le
résultat pourrait être 30 millions de francs, employés annuellement à la colonisation de l'Algérie, plus la disponibilité de 10 millions d'hectares sans qu'il ne coûte rien à la France. Alger: 18mo, pp. 32.


The wife of W. S., master of the brig Perseverance, relates her experiences in 1827-8.


Part of the 'Bibliothèque de l'enfance chrétienne.'


1625. 1853. Arab Art.—The Ill. Mag. of Art, vol. i. p. 37, gives drawings, with letterpress, of three specimens of Algerian Art.


1836. 1853. Lestiboudois, Dr. Thémistocle.—Voyage en Algérie. Étude sur la colonisation civile. Lille: 8vo.


1841. —— Les chevaux du Sahara. l. c., pp. 254 et seq.


1845. 1853. Berbrugger, A.—Uncherif Kabile en 1804. Article inserted in the ‘Akhbar,’ 3rd May.—See also No. 2108.

1846. —— Notes archéologiques sur l’Algérie. 4to.

1847. 1853. Annuaire de la Société Archéologique de la Province de Constantine, commenced in 1853 and still continued. The first volume is dated 1853. In 1864 the name was changed to Recueil des Notices et Mémoires de la Société Archéologique de Constantine. It contains many valuable papers on Algeria.

1848. 1853. Creully, Colonel du Génie.—Deux villes numido-romaines.


1850. 1853. Foy, Commandant du Génie.—De quelques inscriptions tumulaires recueillies en Algérie, &c. l. c., p. 137.

1851. 1853. Foutrier, Trésorier-Payeur.—Notes sur des objets antiques trouvés à Phillippeville. l. c., p. 82.

1653. 1853. De Mareilly, M., Capitaine du Génie.—Notice sur l'occupation romaine dans le cercle de Philippeville. l.c., p. 20


1655. ———— Constantine et ses antiquités. l.c., p. 102.


A most important work.


1659. 1853. Robe, Eugène, Avocat.—Essai sur l'histoire de droit musulman pendant les deux premiers siècles de l'Islamisme. Alger: 8vo, pp. 84.


1662. ———— Du Mahométisme, discours prononcé à la Cathédrale d'Alger. Alger: 8vo, pp. 45.


1671. ———— Le Marabout Cidi Bou-Médyn. l.c., p. 33.

1672. ———— La Sahara et le Soudan. Documents historiques et géographiques recueillis par le Cid el-Hadj Abd-el Kader-ben Abou-Bekr et Touati. Avec un alphabet Touareg. Translated by the Abbé Bargès. l.c., pp. 73 et seq.

1673. ———— Tableau historique de la dynastie des Beni Djellab, Sultans de Tougourt, par l'Imam Cid el-Hadj-Mohammed-el-Edrissy, traduit de l'Arabe. l.c., p. 216.


This purports to be the history of a family transported to Lambessa, after the coup d'état of the 2nd December.

1677. 1853. Société d’Afrique pour la colonisation de la Régence d’Alger. 4to, pp. 16.


The author obtained a concession of Medjéz Amar near Bône, with 500 hectares of land and a subvention of 20,000 fr. for the purpose of carrying out his views, which completely failed.—See also No. 1349.


This is written with special reference to Algeria.


A small portion only of his narrative refers to Algeria. On his outward journey he passed through Tiémçen, Milianah, Algiers, Bougie, Constantine, and Bône, vol. i. pp. 12-19; and on his return, Ténès, Mázohna, Mostaganem, Tiémçen, and Nedromah, vol. iv. pp. 331-2.


1890. 1853. **Baillot.**—Rapport sur son voyage en 1852 en Algérie. Rouen. The writer was "Mandataire de la Société rouennaise algérienne," which possessed large estates in the colony.

1891. 1853. **Ducuing, François.**—Les villages départementaux en Algérie. The writer has united in a single volume the various articles he has written on the subject of colonising Algeria by the various departments of France.—See also Rev. de l'Orient, de l'Alg. et des Colonies, t. xiv. p. 29.


1893. 1853. **MacCarthy, O.**—Arsennaria (Province d'Oran). l. c., p. 180. This memoir was read before the Académie des Inscriptions et Belles-Lettres by M. Jomard.


1896. —— Les eaux thermales de Berrouagha. l. c., p. 225.

1897. 1853. **Cherbonneau, J.** Professeur d'Arabe à la chaire de Constantine.—Précis historique de la dynastie des Aglabites, traduit en français et accompagné de notes. l. c., p. 417. The original is by Ibn-Oudrâne, and exists in the Djama Ez-zeitouna at Tunis.


1700. 1854. ** Pellissier, E.**—Annales algériennes. A new edition continued to the fall of Abd-el-Kader, with an appendix containing the résumé of the history of Algeria from 1848-54. 3 vol. 8vo, pp. 478, 511, and 520, The best work hitherto published on Algeria.

1701. 1854. **Y. Z.**—Explication de deux épigraphes chrétiennes trouvées, l'une à Sétif, l'autre à Tharret, ou détermination de l'ère de la province en Mauritanie. Collection de Précis Historiques, &c., 65* livraison, p. 469.

1702. 1854. **Penchonat ainé.**—La guerre de la Kabylie, ou description historique et militaire de cette confédération, avec l'explication du système politique et stratégique que l'on doit employer pour la conquérir. 8vo.

1703. 1854. **Cherbonneau, A.**—Manuel des écoles arabes-françaises expliqué dans les deux langues. Constantine: sm. 8vo, pp. 84.

1704. 1854. **Gomara, F. Lopez de.**—Cronica de los Barbarrojas, written about 1547 and published at Madrid in 1854. 8vo, pp. 211.


1706. 1854. **Pulszky, Francis.**—The Tricolor on the Atlas, or Algeria and the French Conquest. London: 8vo, pp. 402. This is a translation of Wagner's work (No. 898) with later additions.


1711. 1854. Bard, Joseph.—L’Algérie en 1854. Itinéraire général de Tunis à Tanger; colonisation, paysages, monuments, culte, agriculture, &c. Paris: 8vo, pp. 251, 1 plate.—See also No. 593.


1720. 1854. Bertherand, Dr. E. L.—Médecine et hygiène des Arabes. Lille: 8vo.


VOL. II.
1724. 1854. Daumas, Général E.—Principes généraux de cavalier arabe. 32mo.


1726. 1854. Réponse aux objections faites aux projets de colonisation présentés par MM. D. Pantin et Algine et actuellement soumis à l'examen du Conseil supérieur de Gouvernement.


1729. 1854. Wright, John (de Londres).—Projet de chemin de fer à établir entre l'Algérie, l'Égypte et l'Inde. 8vo.—See No. 1557.

1730. 1854. Cazalas, Dr. L.—Examen de la brochure de M. Boudin sur la colonisation et de la population de l'Algérie (No. 1634). Alger: 8vo, pp. 16.


1737. —— Tribus du Sahara algérien, les Ouled-Nayls de l'ouest. l. c., t. xv. pp. 201 et seq.

1738. 1854. Massol, Marquis de.—Souvenirs de la province d'Oran. Coup d'œil sur Dala. l. c., t. xv. p. 112.

1739. —— Itinéraire de Sidi bel Abbès à Oran. l. c., t. xv. pp. 288 et seq.


1744a. ——— Exploration archéologique dans la subdivision de Medeia. l. c., t. xvi. p. 42.


1747. 1854. Pilet, Dr. E.—Quelques souvenirs de Laghouat et de son service médical en 1853-4. Alger: 8vo, pp. 49.

1748. 1854. Levens, Jeannin, Parfumeur.—Colonisation algérienne. Alger: 12mo, pp. 68.


The work of a departmental commission.

1750. 1854. Programme des questions soumises à la Chambre d'Agriculture d'Oran. Oran: 12mo, pp. 21.


1752. 1854. Résumé des documents relatifs à l'émigration dans les colonies suisses de Sétif en Algérie. 4to, pp. 32, maps and illustrations. In French and German.


1755. 1854. Pages, Aug., Capitaine d'Infanterie.—Les deux sièges de Constantine. 8vo.


1757. 1854. Natte, Ch.—Tipasa: projet d'établissement d'une ferme village. 8vo.


These contain many relative to Algeria.

1763. 1855. Tableau de la situation des établissements français dans l'Algérie, année 1852-5. 2 parts, 4to.

1765. 1855. Ruidavets, Pedro.—Descripción y plano de las islas Chafarinas. See Cronica Naval, Madrid, t. i. 1855, p. 662. Regarding a project for forming a great naval station here.


1769. 1855. Bell, Consul-General.—Report on the Trade of Algiers during 1855. Consular Trade Reports, No. 6, 1858, p. 89.


This exhibition was located at Rue de Grenelle, St. Germain, 107.


1778. 1855. Tableau des distances de chaque centre de population de la province d'Alger, aux chef-lieux judiciaires, de canton, d'arrondissement et de département.

1779. 1855. Berbrugger, A.—Erreurs populaires à propos de l'Algérie.—See the 'Akbar,' 12th Feb., 1855.


1782. 1855. Renier, Léon, Bibliothécaire à la Sorbonne.—Inscriptions romaines de l'Algérie, recueillies et publiées par . . . . Paris: 4to. A most important work, containing nearly 4000 inscriptions.


1790. 1855. Cherbonneau, Professeur d'Arabe à Constantine.—Leçons de lecture arabe. Constantine: 12mo.


1803. 1855. Bressy, Dr. de.—Rapport adressé à M. le Comte Randon, Gouverneur général, sur les maladies d'yeux observées et traitées en Algérie. Alger: 12mo, pp. 16.


1809. —— Réflexions sur l’Algérie. Rouen: 8vo.
He particularly insists on the creation of departmental villages and agricultural colonies.—See also Rev. de l’Orient, de l’Alg. et des Colonies, nouv. sér., t. iii. p. 533.


1812. 1855. Daumas, Général.—Du chameau d’Afrique. l. c., p. 178.
Originally addressed to the President of the Soc. Zool. d’Acclim.

Also published in the Rev. de l’Orient, de l’Alg. et des Colonies, 1856, nouv. sér., t. iii. p. 234.


1815. 1855. Pharaon, Florian.—D’Alger à Lar’ouat, Blidah, Médéah, Boghari. l. c., pp. 237 et seq.

1816. 1855. Le Clercq, A.—Étude historique sur la légende algérienne du tombeau de cinq Dies. l. c., pp. 315 et seq.
This is the story of the five Days successively elevated to the sovereignty and massacred on the same day, in 1700.


1819. 1855. Buivy, Dr. L (of Berlin).—Le Djebel Edough. l. c., pp. 332.

1820. —— Algerien und seine Zukunft unter französischer Herrschaft. Nach eigener Ausschauung und authentischen Quellen namentlich auch in Rücksicht auf deutsche Auswanderung bearbeitet von... Berlin.

First vol. published in 1856; continued every two months to the present day. This contains many important articles on Algeria.

1822. 1856. Reboud, Dr.—Notes archéologiques sur les ruines de Djelfa. l. c., vol. i. p. 25.


1824. 1856. Julia Césarea (Cherchel). l. c., p. 113.
1825. 1856. Thagaste (Souk-Ahras), by Commandant Lewal and others. l. c., p. 197.

1826. 1856. Godard, l'Abbé.—Notes archéologiques sur Numidie centrale. l. c., p. 253.


1828. 1856. L'Afrique septentrionale après le partage du monde romain en empire d'orient et empire d'occident. l. c., p. 81.

1829. 1856. Époque de l'établissement des Turcs à Constantine. l. c., p. 399.

1830. 1856. Julienne.—Les Rir'a de la subdivision de Miliana. l. c., p. 281.

1831. 1856. De Voulx, A.—Recherches sur la coopération de la Régence d'Alger à la guerre de l'indépendance grecque d'après des documents inédites. l. c., pp. 129 et seq.


1833. 1856. La Basset, Lieut.-Colonel.—Antiquités du cercle de Ténès. l. c., p. 335.

1834. 1856. Gorgous.—Notice sur le Bey d'Oran, Mohammed el Kebir. l. c., p. 403.


He took possession of his diocese on the 6th January, 1839. He brought from Pavia the relics of St. Augustine. He resigned his office on the 9th December, 1845, and died 10th July, 1856.


1842. 1856. Gérard, Jules.—Lion-hunting and Sporting Life in Algeria. This forms one of a series entitled 'Addey's Library for old and young.' London: 8vo.


The author was secretary of the commission composed of deputies and peers of France sent to Algeria by the Government in 1833.

1848. 1856. Cosson, Dr. Ernest St. Charles.—Rapport sur un voyage de Philippeville à Biskra et dans les Monts Aurès.


This report was called for by the Minister of War, and was made by a commission of the Académie des Inscriptions, &c. M. Geslin died in Algeria before his task was completed.


This gives an account of the expeditions to Médea, Miliana, and a journey to the Zibans.


1863. 1856. Rosny, Léon de.—Notice sur le Thuya de Barbarie (Callitris quadrivalvis). l. c., pp. 44 et seq.


1865. 1856. Berbrugger, A.—Note sur le monument connu sous le nom de Tombeau de la Chrétienne. l. c., p. 326.—See also Rev. Afr., t. i. p. 31.

1866. 1856. Duplat, J. B., Pharmacien en chef.—Tombeau du roi Juha et de la reine Séleme Cléopatre, Koubber-el-Roumiat, connu sous le nom de Tombeau de la Chrétienne. l. c., p. 512.


1872. 1856. Leclerc, L., Chirurgien militaire.—Les oasis de la province d’Oran. Les Oulad-Sidi-Chikh. l. c., p. 78.


1873. 1856. Le Maréchal Randon, Gouverneur général de l’Algérie. l. c., p. 106.

This is an article from the ‘Émancipation Belge’ on the administration of the Maréchal.


1879. 1856. Compagnie des Mines de Mouzaiha.—Procès-verbal. 4to, pp. 16.


1891. 1857. Cherbonneau, A. — Histoire de la conquête d’Espagne par les Musulmans, translated from the Arabic of Mohammed bin Mozahim bin El-Koutta (the female Goth).


1895. 1857. Bonnemain. — Voyage à l’Édamès. Paris : 8vo, pp. 36. The author was sent on a mission by the Maréchal de MacMahon. This was published by M. Cherbonneau in the Nouvelles Annales des Voyages.


Read at the Acad. des Insr. et Belles-lettres, 26th June. See also Rev. de l’Orient, de l’Alg. et des Colonies, nouv. sér., t. vi. pp. 162.
1888. 1857. Blackburn, Henry.—Life in Algeria, described in two lectures, as delivered at various literary and scientific institutions. London: 12mo, pp. 75.

1899. 1857. Gérard, Jules, Life and Adventures of; comprising his ten years' campaigns amongst the lions of North Africa, with a history and description of Algeria. London: 12mo, pp. 224, plates.


Both works of considerable importance.

Arago gives an account of his landing at Bougie in December 1808, his journey overland to Algiers, and his residence there during several months.

The periods here described are (1) French, (2) Turkish, (3) Arab, and (4) Roman.


M. Léon Renier wrote a reply to this paper, pp. 15.

Review of the article by General Daumas in the 'Revue Contemporaine.'

1913. ——— De l'influence des Smala des Spahis sur l'avenir de l'Algérie. l. c., p. 144.
1914. Monglave, Eug. de.—Colonies suisses de Sétif. l. c., pp. 317 et seq.


The inscription is given both in reduced fac-simile and in Roman characters.


1917. 1857. Leclerc, L.—Étude sur le Medracen et sur le Tombeau de la Chrétienne. l. c., t. vi. pp. 87 et seq.


A short résumé of operations executed in the Western Aurès before 1850; the march of Colonel Canrobert in the Oued Abdi, and the capture of Narah.


Narrates visit to a Cadi in the neighbourhood of Algiers.


1925. —— Épigraphie de Tlemçen, &c. l. c., p. 62.

1926. —— F'arfa des Oulad Selama. l. c., p. 103.

1927. 1857. Pharaon, Florian.—Notes sur les tribus de la subdivision de Médéa. l. c., p. 47.


1931. 1857. Le Clerc, Dr. H.—Antiquités de la Kabylie. l. c., p. 140.


1934. 1857. Adolphe, Dr. Fr. Victor.—Études étiologiques des fièvres en Algérie. 8vo. Published in the Algérie médicale.


1843. 1857. Loche, Capitaine.—Description d’une nouvelle espèce de genette (G. Bonaparti). Rev. et Mag. de Zool., No. 9, with plate.


This rite is followed in nearly every part of Africa. The work in question was written by an Egyptian doctor in the 14th century.


A society projected to work the coal supposed to be at Cape Bengut.


1859. 1857. Laurent, Charles.—Puits artésiens du Sahara Oriental. 1. c., p. 615, with a map of the district and sections.


The Governor-General in his opening address says, “Après trois ans de guerre formidable; après trois ans de disette cruelle, et d’épreuves de toute espèce..., partout la paix, partout l’abondance.”


1868. 1858. Malte-Brun, Victor Adolphe.—Itinéraire historique et archéologique de Philippeville à Constantine accompagné d’une carte présentant le tracé
de l'ancienne voie romaine, de la route actuelle et du chemin de fer projeté. Paris: 8vo, pp. 44. From the Nouvelles Annales de Voyages.


1970. —— Notes et notices algériennes. 18mo, pp. 208.


Simply a project for establishing a slave trade.


Founded on the preceding, but written by one who has personal acquaintance with the colony.


He was sent to Algiers to destroy the illusions of the Arabs regarding the miracles of their Marabouts.


1985. 1858. Bertherand, Dr. E. L.—Des ressources que la matière médicale peut offrir aux pharmacopées française et algérienne. 8vo.


1890. 1858. Fey, Léon.—Histoire d’Oran, avant, pendant et après la domination espagnole. Oran: 8vo, pp. 348.


1895. 1858. Gillote, Ch., Défenseur.—De l’administration de la justice en Algérie; ce qui a été, ce qui est, ce qui pourrait être. Constantine: 12mo.—See No. 2061.


1899. ——— Description de deux nouvelles espèces d’oiseaux découvertes dans le Sahara algérien. Paris: 8vo, pp. 4. From the Revue et Magasin de Zoologie, No. 9, with plate. (Stoparola deserti, and Malurus Sahara.)


2008. 1858. Cherbonneau, Prof. A.—Inscriptions arabes de la province de Constantine. 1. c., p. 70.
sources d'Ain-Drinn et d'Aïn Boubennana. l. c., p. 157.

2008. 1858. Payen, Capitaine.—Notice sur l'emplacement de plusieurs villes
romaines de la sub-division de Batna. l. c., p. 170.

vol. ii. p. 185.

2010. —— Les Romains dans le sud de l'Algérie. Hautes plateaux et Sahara
du centre de l'Algérie. l. c., p. 276.

2011. —— Observations archéologiques sur les oasis méridionales du Sahara
algérien. l. c., p. 295.

2012. —— Sarcophage romain de Dellis. l. c., p. 309.


2014. —— Notice sur M. Pélissier, l'auteur des 'Annales Algériennes.'
l. c., p. 419.

2015. 1858. Lewal, Capitaine J.—Tombeau en marbre trouvé à Souk Harras,
l'ancienne Thagaste. l. c., p. 215.

2016. —— Note sur quelques établissements romains dans le sud du cercle
de Souk Harras. l. c., p. 288.

2017. 1858. Davenet, Capitaine.—Itinéraire descriptif des régions méridionales
de l'Algérie. l. c., p. 285.

2018. 1858. Faraon, Florian.—Les Chorfa, fraction des Abd. l. c., p. 301.


de Constantine, vol. iii. p. 304.

2021. —— Exploration nautique. De la Soummam et du Bou Sellam dans la
grande Kabylie. l. c., p. 372.

2022. —— Notes sur Bougie. l. c., p. 458.

2023. 1858. Pavy, Mgr., Bishop of Algiers.—La piraterie musulmane. l. c.,
p. 387.

2024. 1858. Godard, l'Abbé Léon.—Observations générales sur la formation
des diocèses dans l'ancienne église d'Afrique. l. c., p. 399.

2025. 1858. Thomas, Général.—Ruines romaines de Zeffoun. l. c., p. 441.

2026. 1858. Roux, Daniel.—Recherches biographiques sur Mohammed, sa
famille, ses compagnons, &c., précédées de sa généalogie par Mohammed Ben Abi
Zeid el K'erouani. l. c., p. 466.

vol. iii. p. 23.

2028. 1858. Gorgous.—Expédition de Mohammed el-Kebir, Bey de Mascara,
dans les contrées du sud, terminée par le siège d'El-Ar'ouat et la soumission
daïn Mad'î. Translation from the Arabic. l. c., p. 62.

2029. 1858. Brosselard, Charles.—Les inscriptions arabes de Tlemcen. l. c.,
p. 81.

2030. 1858. Berbrugger, A.—Les ruines d'Oppidum Novum à Duperré, la
Khadra du Dr. Shaw, Vallée du Chelif. l. c., p. 95.

2031. —— Une brique romaine. l. c., p. 102.


2041. 1858. Chassériau, Frédéric.—Étude pour l’avant-projet d’une cité Napoléon-Ville à établir sur la place de Mustapha à Alger. Alger: folio, pp. 15, with plan. The proposed city is just outside the Port de Constantine.


2043. 1858. Moreau, Dr. L. E. (de Thuin).—Eaux thermales de Hammam-Meskhtouine. Bône: 8vo, pp. 125, with a plan of the environs, and a lithographic view of the springs.


2045. 1858. Perron, Dr.—Femmes arabes avant et depuis l’Islamisme. Paris: 8vo.


2051. 1858. De la Mare, Chef d'escadron d'artillerie.—Étude sur Stora, port de Philippeville. Paris: 8vo, with plans and views. From the Mém. de la Soc. Imp. des Antiquaires de France, t. xxiv. Full of interesting archeological matter.


2056. —— La question douanière. l. c., p. 65.

2057. —— L'enseignement public en Algérie. l. c., p. 185.

2058. —— Le commerce du sud de l'Algérie. l. c., p. 269.


Poems of no merit, written in Algeria.


2068. 1858. Daumas, Général.—La Société Kabyle. l. c., p. 305.

2069. 1858. Leguest, L'Abbé.—Y a-t-il ou n'y a-t-il pas un Arabe vulgaire en Algérie? Paris: 8vo, pp. 50.


2074. 1858. Fraud, Ismail.—Importance des progrès de la meunerie. Alger: 4to, pp. 20, with a plate.


2077. 1858. Tassim, M., Rapporteur.—Rapport au Conseil de Gouvernement, sur l'opportunité de continuer les encouragements accordés à la culture de coton. It concludes with a "projet de décret" encouraging the cultivation for three years.


2079. 1859. Loi relative à la fondation d'une banque en Algérie, decreed by the Emperor 12th March.

2080. 1859. Cave, Laurence Trent, late Captain 54th Regiment.—The French in Africa. London: 6vo, pp. 248. Chaps. i., ii., and iii. give the ancient history of Algiers, the remainder that of the French conquest.


This had only two years' existence. It was the organ of the Ministère de l'Algérie, and did not survive that short-lived institution.


2083. 1859. Du Bouchage, F., Lieutenant de vaisseau.—Étude sur les ports de commerce de la province Constantine. l. c., p. 65.

2084. 1859. Duranton, Inspecteur du service des tabacs.—Culture du tabac en Algérie. l. c., p. 82.

2085. 1859. Robe, Eugène, Avocat.—État actuel de la propriété immobilière en Algérie au point de vue de la législation. Alger: 8vo, pp. 16.


2091. 1859. Fromentin, Eugène.—Un été dans le Sahara. 16mo.
There is also a splendidly illustrated edition, Paris, 8vo.

2092. ——— Une année dans le Sahel. 12mo. Another edition, 8vo, pp. 349. —See No. 1595.

This work abounds in information of the most valuable nature.


The best book on Kabylie till the appearance of Hannoteau and Letourneux’s great work.

Extract of a report of the General commanding the division of Algiers. A good résumé of what was then known of the Djemâa, the Sof and the Karrômi of the Kabyles.


2098. 1859. Blakesley, Rev. J. W.—Four months in Algeria, with a visit to Carthage. Cambridge: 8vo, with maps and illustrations.—See also Peterm. Mitt., p. 167.

A work of great learning and value. It was translated into Spanish by T. Artuño y Ors, Spanish Consul at Oran, and published at Madrid in 1860.—See No. 2189.


2101. 1859. Adolphe, Fr. Victor.—Médecine et hygiène des pays chauds et spécialement de l’Algérie et des colonies. 8vo, with map of Algeria.

The number recorded is 2600 species. No descriptions are given.


2108. —— Un Chérif Kable en 1804. l. c., p. 209.

2109. —— La Polygamie Musulmane, ses causes fatales et le moyen de la détruire. l. c., p. 254.

2110. —— Rubrae (en Arabe Hadjar-er-Roum). l. c., p. 277.


2112. —— La mort du fondateur de la Régence d'Alger. l. c., p. 25.

2113. —— La colonie de Rasgunia (Matifou). l. c., p. 36.

2114. —— Rapidi (Sour Djouab). l. c., p. 47.

2115. —— Livret de la Bibliothèque et Musée d'Alger. l. c., p. 47.

2116. —— Geronimo, le martyr du fort des Vingt-quatre Heures, à Alger. 1. La découverte de son corps. 2. Sa vie de 1542 à 1569. 3. Pièces à l'appui. A story of the deepest interest.


2118. 1859. Ville, Ingénieur des Mines.—Notice sur les recherches d'eau potable dans le sud de la province d'Alger. l. c., p. 341.

2119. 1859. Meyer, Alphonse, Interprète.—Origine des habitants de la Kabylie d'après la tradition locale. l. c., p. 357.

The Kabyles maintain that they are of foreign origin, some of the tribes being Persian, others Arab.

2120. 1859. Fey, Léon Henri.—Timici colonia. (Ain Temouchent de l'est.) l. c., p. 420.


2122. 1859. Cherbonneau, A.—Inscription arabe de la Madrassa de Sidîl Akhdar à Constantine. l. c., p. 469.

2123. 1859. Brosselard, Charles.—Épitaphe d'un Roi Grenadin mort à Tiemcen. l. c., p. 68.

This is the tombstone of Bou Abdulla, last king of Granada.

2124. 1859. Le Cierc, Dr.—Inscriptions arables de Mascara. l. c., p. 42.

2125. 1859. Cherbonneau, A.—Aîcha, poète de Bougie. l. c., p. 34.

2126. 1859. Aucapitaine, Baron Henri.—Idrica. l. c., p. 71.


2130. —— Études récentes sur les dialectes berbères de l'Algérie. 8vo.

2132. 1859. Établissement pour peine en Algérie.—Application des condamnés à des travaux d’utilité publique et de colonisation, par E. L. Alger : 8vo.

He was killed in 1817 in an action with an American frigate.


2135. 1859. Ribourt, F., Colonel d’État-major.—Le gouvernement de l’Algérie de 1852 à 1858 (Gouverneur le Maréchal Randon). Paris : 8vo, pp. 94.
A very interesting period of Algerian history, comprising the conquest of Kabylie and the Sahara.


2140. 1859. Wahu, Dr. A.—Deux positions trop inégales. Un mot en faveur des médecins coloniaux de l’Algérie. Alger : 8vo, pp. 64.

An appeal in favour of Cherchel, the ancient Julia Cæsarea.


A project for State participation in the slave trade.


2146. —— Dernière réponse au conseil d’administration de la Compagnie des Colonies de Sétif. Lausanne : 4to, pp. 32.


2151. 1859. Duveyrier, Henri.—Voyage dans le pays de Beni M’zab. Tour du Monde, No. 90, p. 177.


2157. 1859. Reineleon Pesceux.—Les Touaregs à Constantine. l.c., p. 536.


2173. ——— Inscriptions romaines découvertes à Tébessa et dans ses environs pendant les années 1858–59. l. c., p. 176.

2174. 1860. Payen, Capitaine.—Inscriptions inédites de la subdivision de Batna. l. c., p. 87.


An interesting record of travel in a region then little known; not without historical errors. The appendices contain physical geography, geological system, history, mammals, birds, reptiles, mollusca.


2183. 1860. Windham, W. G.—Up among the Arabs in 1860; or, Jottings in Algeria and Tunis, Descriptive and Sporting. London : 12mo, pp. 96, with several poor illustrations.

A work of no merit.


An interesting paper on the manners and traditions of the Kabyles, with map.
A remarkable work, in which the author recommends the Kabyles for the
cultivation of Algeria.

2189. ——— Un kanoûn ou code Kabyle. Rev. de l’Orient, de l’Alg. et des
Colonies, nouv. sér., t. xi. p. 187.
These ancient codes are the most interesting monuments of Berber
democracy.

2190. 1860. Bertherand, Dr.—Les eaux minérales et les bains de mer en
Algérie. 8vo.

2191. 1860. Thibaud.—Algérie et colonies: acclimatement et colonisation.
12mo.

2192. 1860. Roussel.—Culture, exploitation et aménagement du chêne-liège en
France et en Algérie, suivis d’un état détaillé des forêts de chêne-liège de l’Algérie.
8vo.

2193. 1860. Fabre, J. R.—Des grands travaux d’utilité publique exécutés en
Algérie et dans les colonies. Rev. de l’Orient, de l’Alg. et des Colonies, nouv. sér.,
t. xi. p. 321.

2194. 1860. Commerce de la France avec l’Algérie. l. c., December.

2195. 1860. Gillotte, Ch., Avocat-défenseur.—Traité de droit musulman,
précédé du décret du 31 décembre 1839. Accompagné d’une notice inédite sur

2196. 1860. De l’enseignement du droit en Algérie, ou de la création d’une
ecole préparatoire de droit à Alger. Par un Algérien Progressiste. Alger: 8vo,
p. 40.

2197. 1860. Cuttings, Nathaniel.—Journal of an Embassy to Algiers in 1793
under Col. David Humphreys, with an introduction by W. G. Brooks (editor).

This recognises the immense gain to humanity that has been achieved by
the occupation of Algiers.

2199. 1860. Ortuno y Ora, T., Consul de España en Oran.—Constitucion de las
Sociedades Religioso-Musulmanas por M. Charles Brosslard (see No. 2099). Tradi-
cido y anotado por . . . . Madrid: 12mo, pp. 50.

2200. 1860. Robinet de Clery, Avocat-général.—Essai de transcription hypo-
théorique dans les tribus du Tell algérien. Alger: 8vo, pp. 16.

2201. 1860. Cormenin, L. M. de la Haye, Vicomte de.—Le droit de

2202. 1860. Procès du Cadi Mohammed bou Abiulla et de ses accusés
devant la Cour d’Assise d’Oran (août 1860). Alger: 8vo.

2203. 1860. Touchard et Lacoste.—Histoire de la gendarmerie d’Afrique et de
la colonie d’après les documents de l’arme (1830-60). Alger: 8vo, pp. 554.

2204. 1860. Personneaux, A.—Rapport sur le recrutement de la bureaucratie
publique. Oran.

2205. 1860. Bresnior, L. V.—Expédition de Chellala, par le Bey d’Oran

2207. 1860. Devoulx.—Ahad Aman. Ou règlement politique et militaire. Texte turc, traduit en arabe par Mohammed ben Moustafa, et reproduit en français. l. c., p. 211. Published separately, see No. 3023.

2208. Devoulx.—Notes historiques sur les mosquées et autres édifices religieux d'Alger. l. c., pp. 467 et seq.


2211. ——— Les frontières de l'Algérie. l. c., p. 401.

2212. ——— Une expédition romaine inédite. l. c., p. 434.


2214. 1860. Bulard.—Notice sur l'éclipse totale de soleil du 18 juillet 1860, visible en Espagne et Algérie. l. c., p. 375, with maps and plates. Also published separately, 8vo, pp. 16.


2216. ——— Notice sur la tribu des Aît Fraoucen. l. c., p. 446.

2217. 1860. Leclerc, Dr.—Campagne de Kabylie en 1850. Route de Sétif à Bougie. l. c., pp. 426 et seq.


An important work, accompanied by a map of Berber groups in Algeria, showing how the total number of 855,159 Berber inhabitants are distributed. An analysis of this by Pruner Bey is contained in Bull. Soc. Géogr. Paris, 1863, 2e sem., pp. 267–81.


From the Revue Algérienne et Coloniale.


By means of exempting peasants from the conscription and sending them to Algeria.


Narrates the humiliations suffered by the United States for nearly twenty-five years.


This learned work was commenced in this year and completed in 1862. It contains a scientific classification of all the Greek and Roman money of North Africa from Cyrene to Mauritania. It is one of the most important works ever written on Africa.


2237. 1860. Pétition adressée par les habitants de Bône et de Guelma à S.M. Napoléon III. Bône: 4to, pp. 11. Protesting against the line of railway being made from Constantine to Philippeville instead of to Bône.


2242. 1860. Berthoud, A. — Notre première caravane. Alger: 8vo, pp. 28. The author gives his ideas of how the first caravan should be organised which is to carry the national manufactures to the Soudan and bring back the rich (?) products of that country “en quantités énormes.”


This is followed by papers on the transplantation of trees, and on several new species recently acclimatized at Algiers.

2245. ——— Importance de l’Algérie comme station d’acclimatation. 8vo, pp. 20.


The author corrects all the misrepresentations regarding the colony and gives his own ideas of how it should be conducted, on the strength of having established a Lycée at Rio de Janeiro!


2248. 1860. Martin, Dr.—Manuel d’hygiène à l’usage des Européens qui viennent s’établir en Algérie. Alger: 8vo.


2258. ——— Découverte de 18 monuments numidiques (prosycnèmes) et épitaphes. L. c., p. 214.


The author attempts to settle two important questions, the amelioration in the condition of foundlings in France, and the colonisation of Algeria.


Contains also two letters from M. Clément Duvernois, formerly editor of the Algérie Nouvelle.


A criticism on the preceding.


This was written at the time of the massacres in Mount Lebanon, and its object was to suggest the immigration of the Maronites to Algeria.


To illustrate the hardship of imprisonment for debt.


A criticism on the Mandement of the Bishop in 1858, on the "Culte de la Sainte Vierge." A long polemic preceded and followed this brochure, which it would be useless even to quote.

2276. —— Confession d'un Catholique repoussé du confessionnal, pour avoir protesté contre le nouveau dogme de l'immaculée conception. Alger: 8vo, pp. 47.


Marked "Confidentielle," and addressed to his clergy. The Bishop quotes from Tristram Shandy.

The Bishop criticises severely the Procureur's work, 'Manuel de droit ecclésiastique.'


This treats of the influence of religion on charitable societies, and of the installation of the society of St. Francis Xavier.

2281. 1860. Dupont, Paul, Membre du Corps Législatif.—Un dernier mot sur les traitements, leur insuffisance et la nécessité d'un règlement général pour toutes les administrations centrales. Paris: 8vo, pp. 116. This includes at p. 102, 'Ministère de l'Algérie et des Colonies.'


2288. ——- Dernière dynastie mauritanienne: Juba II., Cléopatre Séliène, Ptolémée. l. c., pp. 81 et seq.

2289. ——- Archéologie des environs d’Alger. l. c., pp. 131 et seq.

2290. ——- Burgus Centenarius. l. c., p. 185.

2291. ——- Abdulla Terdjemau. l. c., p. 261.

2292. 1861. Dugat, G.—Traduction de Sidi Hamed ben Mohammed ben Mokri. l. c., p. 422.

2293. 1861. Godard, Léon.—Observations critiques sur quelques points de l'histoire du Christianisme en Afrique. l. c., p. 48.

2294. ——- Souvenirs de l'expédition de Ximénés en Afrique. l. c., p. 54.

2295. 1861. Gorgous.—Bou Ras, historien inédit de l'Afrique septentrionale. l. c., pp. 141 et seq.

2296. ——- Ambassade marocaine en Espagne au 18e siècle. l. c., p. 456.


2299. 1861. Pelletier.—Entre Sétif et le Bou Taleb. l. c., p. 447.

2300. 1861. Porille et Pelletier.—Entre Sétif et Constantine. l. c., p. 191.


2304. —— Les femmes et les meurs en Algérie. 12mo.


From the Publications de l'Académie Nationale, Agricole, Manufacturière et Commerciale, July and August. A valuable paper, having especial reference to the south of Algeria.


Another article on Duveyrier's travels in 1860 is contained in Peterm. Geog. Mitth. for 1861, p. 389, under the title, 'Henri Duveyrier's Reisen und Forschungen im Grenzgebiete von Algier, Tunis und Tripoli, 1860.'


2315. 1861. Payen, Le Capitaine.—Inscriptions latines de la subdivision de Batna. l. c., p. 115.

2316. 1861. Duveyrier, Henri.—Lettre sur des inscriptions romaines recueillies dans l'Aurès. l. c., p. 106.


2318. 1861. Creuly, Général.—Sur une inscription trouvée à Soukakras (ancienne Thagaste).

2319. 1861. Duval, Jules.—Les colonies de l'Algérie au concours national d'agriculture. 8vo.
A BIBLIOGRAPHY OF ALGERIA.

The author remarks, “Le gouvernement général est supprimé. Le Ministère de l’Algérie et des Colonies le remplace; et aussitôt la colonie entre dans une voie rapide de désorganisation et de décadence.”

The writer maintains that the work of the Ministry was “affranchissement” in every department, political, administrative, and economic.

Reprinted from the Spectateur Militaire.


A poem.


2327a. 1861. Taillefer, Oswald.—De l’Algérie et de nos colonies au point de vue français et anglais. Périgueux: Svo.


An appeal for more liberal institutions in Algeria.


An account of the general situation of the colony, and the amount it cost to France.


This was prepared by a commission, the object of which was to prepare a decree determining the principles to be observed in the matter of “cantonnement indigène.”


VOL. II.
2335. 1861. Desvaux, Général, commandant la Division de Constantine.—
Rapport au Gouverneur-général sur les puits artésiens exécutés dans la division de
Constantine en 1859-60. Constantine : 8vo, pp. 49, with tables and map.

2336. 1861. Fournet.—Lettre sur les résultats et des observations faites en

2337. 1861. Thierry-Mieg, Ch.—Six semaines en Algérie. Souvenirs de
voyage. Paris : 12mo, pp. 413.

Preuss. Handsel-Archiv, 7 Juni 1861, SS. 553-56.

2339. 1861. Descosse, L’Abbé F.—La nouvelle Église d’Afrique, ou réponse à
un article du Correspondant. Marseille : 8vo, pp. 29.

The article in question, bearing the same name, appeared on the 25th
September preceding, from the pen of the Abbé Marty, Aumônier of the Lycée.

2340. 1861. Conseil Supérieur. Projet de décret sur la constitution de la
propriété chez les Arabes. Alger : 8vo, pp. 68.

2341* 1861. Reinaud, Membre de l’Institut, Conservateur de la Bibliothèque
Impériale.—Notices sur les dictionnaires géographiques arabes, et sur le système
primitif de la numération chez les peuples de race berbère. Paris : 8vo, pp. 54.

Read by the author 2nd July, 1860, at the general meeting of the Société
Asiatique.

2342. 1861. Didier, Henry.—L’Algérie et le décret du 24 novembre. Paris :
8vo, pp. 32.

The decree in question suppressed the Ministry of Algeria, and consolidated
and augmented the power of the military governor-general. This is a review
of M. de Menerville’s work, ‘Dictionnaire de la législation algérienne.’

2343. 1861. Fregier, C.—Du droit algérien, sa nature, ses éléments, son
caractère. Essai d’introduction à un cours de droit algérien par un magistrat
algérien. Alger : 8vo, pp. 47.

2344. 1861. Installation de M. Pierrey, Procureur général, et de M. de Clery,
Premier Avocat général. Alger : 8vo, pp. 23.


2346. 1861. Barny de Romanet.—Traité de la culture de la vigne en Algérie.
Alger : 12mo, pp. 72.

2347. 1861. Garbœ, ancien Préfet d’Oran.—Chemin de fer d’Alger à Oran.
Observations en faveur de son prolongement jusqu’aux Quais de Mers-el-Kebir.
Paris : 4to, pp. 23.


2349. 1861. Sant’ Agabio, Cav. di.—Rapporto del regio Conseile generale in
Algeri. This is dated 9th December, and is published in the Italian series of
Consular Reports, pp. 57-105.

2350. ——— Pesca del corallo sulle coste di Barberia. I. c., pp. 139-51.

2351. 1862. Gouvernement Général.—Tableau de la situation des établissemens

2352. 1862. Fillias, Aichille.—État actuel en Algérie. Géographie physique
et politique de l’Algérie. Description physique, divisions naturelles, divisions
culturelles, produits, zoologie, populations, mœurs et coutumes, commerce et


The letter commanded the brig Silène, the former was a midshipman on board, when she was wrecked a few weeks before the capture of Algiers.


It consisted of Commandant Mircher, Capitaine de Polignac, l’Ingénieur Vatonne, l’Aide-major Hoffmann, and the interpreter Ismael bon Djebra. It took place in September to December 1861.—See also Rev. des deux-Mondes, 1863; Bull. Soc. Géogr. Paris, 2e sem., p. 405. Published separately, Alger, 8vo, pp. 358, with map, plans, and numerous sections of ground.


A well-written description of a tour to Algiers, Annaba, Maïla, Bou Saada, Biakra, Batna, &c.


2370. 1862. Oberthur.—Dictionnaire des postes de l’Algérie.


2379. 1862. Péraud, L.—Eleven plates of Roman antiquities, with explanations by M. Cherbonneau. l. c., p. 40.


2383. 1862. L’État et les Tribus.—L’Algérie à la France. Constantine : 8vo.


A BIBLIOGRAPHY OF ALGERIA.

2391. 1862. Feraud, E.—Zebouchi et Osman Bey. 1. c., p. 120. An account of the Battle of Khenig Alibem, where Osman Bey was killed.

2392. —— Mœurs et coutumes kabyles. 1. c., pp. 273 et seq. A valuable paper.


2394. —— Alger à l'époque du Consulat. 1. c., p. 128.

2395. —— Une énigme lapidaire. 1. c., p. 81.

2396. —— Le Fal. 1. c., p. 298.

2397. —— Harout et Marout. 1. c., p. 305.

2398. —— Un Consul à Alger au xviiié siècle. 1. c., p. 322.

2399. —— Le génie de Mont Dira. 1. c., p. 142.

2400. —— Missua civitatis. 1. c., p. 214.

2401. —— Origines de la Société Historique Algérienne. 1. c., p. 218.

2402. 1862. Berbrugger et Bresnier.—Première proclamation française aux Algériens. 1. c., p. 147.


2404. 1862. Tauxier, H.—Examen des traditions grecques, latines et musulmanes, relatives à l'origine du peuple berbère. 1. c., pp. 353 et seq.

A résumé of this, under the title 'Études sur les Migrations des nations berbères,' is given in the Journal Asiat., Oct., pp. 340-54. The writer takes as his point of departure the distribution of Berber tribes at the time of the Arab invasion, and the base of his investigations is of course the celebrated work of Ibn Khaldoun.


By this Senatus-Consultum the Government recognised the Arabs as individual proprietors of the land which they had hitherto held only in common. The following are some of the preliminary studies on the subject:—1st Lettre de M. Marion à M. Enfantin; 2nd Lettre de M. Pelissier à M. Marion; 3rd Délibération du conseil supérieur de l'Algérie sur le projet de cantonnement des indigènes; 4th David, Baron Jérôme. Réflexions et discours sur la propriété chez les Arabes.


2409. 1862. Leblanc de Prébois, F., Ex-Représentant.—Langueur de l'Algérie; ses causes et le moyen d'y remédier. Alger: 12mo, pp. 31.

The author states that the result of thirty-two years' occupation is an expense of two milliards, for having created half the value of a French department, or 180 square leagues of colonisation.


A poem sold for the benefit of the Chapel of N.D. d’Afrique.


A reply to his critics who had handled him severely.


2419. —— Quelques notes d’un magistrat français sur le traitement de la magistrature algérienne. Sétif: 8vo, pp. 32.


2421. —— De l’immobilité judiciaire en Algérie. Sétif: 8vo, pp. 41.

The writer strongly urges this privilege which does not exist in Algeria.


A valuable and accurate account of perhaps the most interesting spot in Algeria. Originally published in the ‘Recueil des Notices et Méms. de la Soc. Arch. de Constantine.’

2427. 1862. Pingrenon, F. S. J., Chirurgien.—Relation sous le point de vue de l’hygiène publique de la marche du choléra dans la subdivision de Mostaganem, province d’Oran, depuis son invasion jusqu’à sa terminaison en 1851, accompagnée de notes relatives à la mortalité dans l’armée. Paris: 8vo, pp. 49.


A pleasantly written work.


He characterises absinthe-drinking as the scourge of Algeria, and seeks to create a legal remedy for it.


Describes a journey to Ain Beïda and Tebessa.


The author recommends that both State and private colonisation should be carried out.


In this work all the traditions and all the ancient texts regarding the natives of North Africa are discussed.


2452. 1863. Faidherbe, Gen., and Dr. Topinard.—Instr. sur l’anthropologie de l’Algérie.


This is the first year in which a marked activity is apparent regarding the oasis of the great desert, and a desire to turn them to commercial and political account.


This is the narrative of an expedition made in 1853-4, under the command of Colonel Durrieu.


2462. 1863. Desprez, Ch.—Alger l'été, pp. 80. Also, L'hiver à Alger, pp. 96. Two little manuals of no great value to the stranger. Alger: 18mo.

2463. ——— Les jardins d'Hussein-Dey. Alger: 12mo.


2466. 1863. The New Mole of Algiers. Notice regarding in Quart. Rev., vol. cxiv, p. 305. This was the first ever constructed with blocks of concrete.


2468. 1863. Cabrol, Dr.—De l’Algérie sous le rapport de l'hygiène et de la colonisation. Strasbourg: 18mo, pp. 54.


2470. ——— Essai sur l'origine et la transformation de quelques instruments.


2476. 1863. Bellemare, Alex.—Abd-el-Kader, sa vie politique et militaire. 12mo.


2482. 1863. Berbrugger, A.—Épigraphie d'Auzia. l. c., p. 36.
2483. ——— Note sur le tombeau et la chambre sépulcrale découverts le 16–22 juin 1863. l. c., p. 193.
2484. ——— Remarque sur les inscriptions d'Auzia. l. c., p. 358.
2485. ——— Traité de paix avec le gouvernement de la ville et du royaume d'Alger, 1869. l. c., p. 433.
2486. 1863. Dewulf, E.—Note sur Ibn Hammad et sur un mémoire de M. Cherbonneau. l. c., p. 446.
2488. ——— Un vœu de Hussein Bey. l. c., p. 84.
2489. 1863. Guin.—Note sur le Bey Mohammed. l. c., p. 293.
2490. 1863. Lacroix, F.—Colonisation et administration romaines dans l'Afrique septentrionale. l. c., pp. 363 et seq.
2491. 1863. Mercier.—Sidi Aissa. l. c., p. 286.
2493. 1863. Vaysettes, E.—La question de propriété jugée par les docteurs de la loi musulmane. l. c., p. 353.
At vol. i. p. 51, is an account of Sir R. Mansel's war on Algiers in 1620–21; at p. 76 a narration of Blake's operations at Tunis and Algiers; at p. 83 Lord Sandwich's bombardment; and in vol. ii. p. 418, an account of Lord Exmouth's battle in 1816.
They solicit the creation of roads.
Suggestions are made for transferring this industry from foreign to French hands.
This was addressed to the Duc de Malakoff, and published in the 'Moniteur' of 7th February. This remarkable document was intended to mark an era in Algerian history, and to confer upon the Arabs individual rights in the land they occupied.


2510. 1863. Discussion au sujet des barrages-réservoirs de la province d’Oran. Oran: 8vo, pp. 43. This is a statement made by M. Canquiel, the reporter of the commission charged to examine the question, to the Conseil Général of Oran.


2516. 1863. Wahu, Dr.—Manuel de planteur de tabac; traduit de l’Espagnol de Don Manuel Rodriguez. Alger: 12mo, pp. 78.


A most valuable work.

2523. 1864. Warnier, Dr. Aug. Hub.—L’Algérie devant l’opinion publique. 8vo.


In a supplement to this work the Moliuscs are described by M. Bourgnignat, and the new plants by M. Cosson. 39 pp., 6 pls. The Geogr. Soc. of France awarded its gold medal to M. Duveyrier for this important work.


This paper was finished in 1866. The writer gives an account of the configuration of the Sahara, its geology, botany, and fauna, as well as its hygiene.


Contains nothing very original. The illustrations are sometimes inexact.


A story, the scene of which is laid in Algeria.


The map in question is in two large sheets (2,000,000°), and includes the whole district between the Cyrenaica and the Atlantic.—See also L’Ann. Géogr., t. iii. p. 110.

2534. ——— Algérie; géographie, histoire, statistique, villages et hameaux, organisation des tribus, &c. Marseille: 16mo, pp. 112.


An important series of observations from the coast inward to the edge of the desert.


2537. 1864. **Ormsby, John (Middle Temple).**—Autumn Rambles in North Africa, with 16 illustrations from sketches by the author. London: 8vo, pp. 298.


2541. 1864. **Stucklé, Henri.**—Le commerce de la France avec le Soudan. Paris: 12mo, pp. 36.


In vol. i. is an account of the ravages of the Barbary pirates.—See also Quart. Rev., 1865, p. 64.


These waters, of singular efficacy, are situated at 7 kil. from Rovigo, in the valley of the Harach. They are saltier than the sea.

2544. 1864. **Fonvielle, de.**—La météorologie en Algérie. Rev. de Monde Colon., janvier.


2546. 1864. **Mémoires de la Congrégation de la Mission, dite de St. Lazare, vol. ii. and iii. Paris, à la Maison Principale de la Congrégation de la Mission, Rue de Sèvre, 94.**

This work is printed for the exclusive use of the congregation. It contains most valuable contemporary correspondence from the missionaries of St. Vincent de Paul at Algiers, from the beginning of the seventeenth century.


2548. ——— Briefe aus Algerien und Morokko. Oktober 1863 bis April 1864. l. c., p. 336.


Describes hunting adventures in the Province of Constantine.


2562. 1864. Floquy, Commandant. — MédailIon de l'arc-de-triomphe de Tebessa. 1. c., p. 35.


2569. 1864. Martin, Dr. L. Th., De Gallargues (Gard). — Des localités désignées pour l'établissement des colonies militaires dans la province de Constantine au point de vue de la salubrité. Montpellier: 8vo, pp. 92.


This gives a detailed account of the expedition to Algiers and of the events which followed as far as the occupation of the city. The amount of treasure found was 48,685,627 francs.

2572. 1864. **Rebaud, L.**—La culture et le commerce du coton en Algérie. Rev. des deux Mondes, August.


Dr. Gray herein describes an African bear, the bones of which have been found in the caves of Djebel Thaya.


2577. —— Ouichah el-Katab. Regulations of the army of Abd-el-Kader, a memoir addressed by him to General Daumas and M. Bellemare. l. c., p. 98.

2578. —— Épigraphie numismique. l. c., pp. 118, 188 et seq.

2579. —— Charte des hôpitaux chrétiens d’Alger en 1694.

2580. —— Un tiers d’inscription romaine, found near Sigus. l. c., p. 145.

2581. —— Expédition du Comte O’Reilly contre Alger en 1775. l. c., pp. 172 et seq.


2583. —— De l’hallucination épigraphique. l. c., p. 227.

2584. —— El-Hadji Pacha. l. c., p. 290.

2585. —— Captif et patronne à Alger en 1640. l. c., p. 302.

2586. —— Hammam Bigha (Rir’a), Aque Calidae. l. c., p. 347.

2587. —— Les Arib. l. c., p. 378.

2588. —— L’autoplastie ou le moulage naturel à Alger et à Pompéi. l. c., p. 383.

2589. —— Milliana. l. c., pp. 421 et seq.

2590. —— Ruines du Marabout de Sidi Abd el-Kader sous Milliana. l. c., p. 454.

2591. 1864. **Arnaud, Military Interpreter.**—Notice sur les Sahara, les Oulad ben Aliya, les Oulad Nail et sur l’origine des tribus Cheurfa. l. c., p. 104.

2592. —— Siège d’Ain Madi par el Hadj Abd-el-Kader ben Mohi-ed-deen. l. c., pp. 355 et seq.


2594. 1864. **Sandoval, C. X. de.**—Sur la reprise d’Oran en 1732. Letter addressed by . . . to M. Berbrugger. l. c., p. 221.

2595. 1864. **Catalogue alphabétique des ouvrages dans la Bibliothèque Municipale de Constantine.** Constantine: 8vo, pp. 64.
2596. 1864. M'hammed el-Ouennas.—Félicitation et allégresse au sujet de l'entrée de S.M. Napoléon III. à Alger. Poem in Arabic, with French translation. Alger: 8vo, pp. 27.


A little work intended to convey good advice and useful information to the rising generation.


2600. 1864. Freppel, l'Abbé.—L'Afrique à l'époque de Tertullien. Rev. des Cours Littér., pp. 142 et seq.


2602. —— Les colonies françaises. 1. c., p. 660.


2605. 1864. Turrel, Dr. L.—Les résidences d'hiver. Toulon: 12mo, pp. 100. Pp. 45-53 are devoted to Algiers; superficial.


The writer says that the Kabyles “méritent vraiment le nom de nationalité.”


A remarkably fine work, with excellent maps.

2611. 1865. Mas-Latrie, L. de.—Chef de section aux Archives de l'Empire.—Traité de paix et de commerce et documents divers concernant les relations des chrétiens avec les Arabes de l'Afrique septentrionale au moyen âge. Supplément et tables. Paris: 4to, pp. xxvii, 342 and 402. New editions in 1868 and 1873. This was published by order of Napoleon III.


Chapter iii. contains an account of the mission of Commodore the Hon. A. Keppel to Algiers in H.M.S. Centurion. Reynolds accompanied him.


A work published shortly after the visit of Napoleon III. to Algeria.


2820. 1865. Voyage de Napoléon III. en Algérie, contenant la relation du séjour de Sa Majesté dans les trois provinces, le texte des proclamations, discours, adresses, etc., etc., qui se rattachent à ce mémorable voyage, avec des notes historiques et géographiques. Alger: 12mo, pp. 360.


2825. 1865. Félieu, F. — La Milianaise. Cantate en l'honneur de la présence de S.M. Napoléon III. à Milliana, 7 mai. 8vo, pp. 16.


In this remarkable document the Emperor states that since the establish
ment of the Empire 15 different systems of government have been attempted.
"Il s’agit aujourd’hui de substituer l’action à la discussion; on a bien assez
légiféré pour l’Algérie."

2628. 1865. Churchill, Consul-General.—Report on the Navigation and
Trade of Algeria from 1857-1863. Consular Commercial Reports, 1865, part i.

2629. 1865. Plée, Léon.—Abd el-Kader, nos soldats, nos généraux, les guerres

2630. 1865. Ville, Ingénieur en chef des Mines.—Notes d’un voyage d’exploration
dans les bassins du Hodna et du Sahara. Notice sur les sources minérales de
la province d’Alger. Analyses de diverses eaux minérales de la province d’Alger.
Paris: 8vo, pp. 137, with section.

2631. 1865. Dr. X.—Souvenirs d’Afrique. Lille: 8vo.

2632. 1865. Guyas, Henry, ancien Consul de France.—Recherches sur la
destruction du Christianisme dans l’Afrique septentrionale, et sur les causes qui
ont retardé la colonisation française en Algérie. Paris: 8vo, pp. 32.

2633. 1865. Béhagueul, Arthur Alex., Journalist.—L’Algérie ; histoire, géo-
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2634. ——— L’Algérie ; conquêtes et colonisation, religion, moeurs, armée.
Alger: 12mo, pp. 430.

pp. 318.

An unpretending account of an interesting journey.

2636. 1865. Labre, Jules.—Un mois dans le Sahara. Lille: 18mo.

2637. 1865. Ballesteros, Luis.—L’Emir Abd-el-Kader en Algérie. Paris: 8vo,
pp. 30.


2639. 1865.Martins, Ch. Fred.—Du Spitzberg au Sahara, étapes d’un natura-
The last 100 pages are devoted to Algeria.

2640. 1865. Lacretelle, P.—Études sur la province d’Oran. Paris and
Marseilles: 18mo, pp. 248.

illustrations.


2644. 1865. Féraud, L.—Recherches sur les monuments dites celtiques de la
province de Constantine et d’Algérie. Ann. de la Soc. Météorologique de France,


2646. 1865. Judas, Dr. A.—Sur quelques animaux attribués ou refusés à la
Lybie par Hérodot. Rec. de Notices et Mémoires de la Société Archéologique de
Constantine, 1865, p. 1.

l. c., p. 31.
2648. 1865. Mélix, Sous-Lieutenant.—Note sur les vestiges de l'aqueduc romain venant de Tondja à Bougie. 1. c., p. 23.

2649. ———— Note sur les travaux hydrauliques romains exécutés à Tubusupitum (Tiklat), environs de Bougie. 1. c., p. 40.

2650. 1865. Féraud, L.—Expédition du Comte O'Reilly contre Alger en 1775 l. c., p. 47.

2651. 1865. La prise d'Alger d'après un écrivain musulman, par M. L. Féraud, Interprète. 1. c., p. 67.

2652. 1865. Neltnez, Capitaine.—Notice sur les fouilles d'el-Mengoub. 1. c. p. 80.


2654. 1865. Marchand, Jules.—Inscriptions funéraires recueillies à Constantine et dans la banlieue. 1. c., p. 113. Also printed separately, Constantine Svo, pp. 66.

2655. 1865. Chabassière, Jules.—Notes sur Hadjar-T'seldj, Ksar-Tekkouk et Aïn-el-Rhettat. 1. c., p. 117.


2660. 1865. Berbrugger, Adr.—Les Consuls d'Alger pendant la conquête de 1830. 1. c., p. 57.

2661. ———— Épitaphe d'Ouzoun Hassan, le conquérant d'Oran en 1708. 1. c., p. 122.

2662. ———— Situation religieuse et politique de la Mauritanie lors de la grande révolte berbère à la fin du 3e siècle. 1. c., pp. 193 et seq.

2663. ———— Le fort de Cherchel. 1. c., p. 202. This fort has now been entirely destroyed.

2664. ———— Le Dieu Manu Draconis. 1. c., p. 207.

2665. ———— Mers-el-Kebir. Traduction de Diego Suarez Montânes. 1. c., pp. 251 et seq.

2666. ———— Épigraphie d'Auzia (Aumale). 1. c., pp. 307 et seq.

2667. ———— Siège de Melilla par les Marocains. Traduction de documents originaux. 1. c., p. 366.

2668. ———— Négociations entre Hassan Aga et le Comte d'Alcaudete, Gouverneur d'Oran (1541–2). Traduction de pièces authentiques. 1. c., p. 379.—See No. 8.

2669. 1865. Devoulx, Albert.—Un exploit des Algériens en 1802. This was the capture of a Portuguese frigate. 1. c., p. 126.

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The author asserts that military rule is condemned, and that it is most urgent to substitute civil government. He gives a history of the insurrection of 1864.


The author is a warm supporter of military rule. He was himself a Commandant in the Garde Impériale.


2681. 1865. Logesay, Ch.—Le Maréchal Comte de Bourmont. Conquête d'Algéir. l. c., p. 29.

2682. 1865. Del Monte, Jean Baptiste.—Mémoire devant la cour impériale d'Alger, sur l'appel d'un jugement du tribunal de 1er instance de Tlemçen à l'occasion des carrières de marbre onyx translucide d'Ain Teekbalet. Oran : 8vo, pp. 68.


2686. 1866. Thomson, Arnold, Rédacteur de l'Akhbar.—La réorganisation de l'armée française, dédié à M. de Wimpffen, général de division, commandant la province d'Alger. Alger : 8vo, pp. 32.

2687. 1866. Vatonne, Ingénieur des Mines.—Notice sur les sondages exécutés par le service des mines de la province d'Alger, sur le territoire du village de
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The author went by the most ordinary route to Algiers and Oran.


2703. 1866. Cockpit Royal. All the Year Round, vol. xv. pp. 469-74. Describes Algiers and a visit to a cockpit at Mustafa Supérieur.


2707. 1866. Dozy, R., and J. de Goeje.—Description de l’Afrique et du
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vie intime et extérieure, aussi que celle des Européens dans la colonie. Paris:
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pp. 176.

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Algérie. Alger: 8vo, pp. 36.

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le Maréchal de France, gouverneur général de l’Algérie, en date du 30 décembre
1865. Alger: 4to, pp. 98.

2712. 1866. Bell, Joach. Houmaud, otherwise called Georges, condemned to
deportation to Algeria for political offences.—Ethel; souvenirs d’Afrique. Paris:
18me.

2713. 1866. Dewulf, Capitaine.—Notice sur l’aqueduc de Bougie.

2714. 1866. Agnely, Lallemant et Darru.—Le criquet pèlerin (Acrídium
peregrinum), vulgairement sauterelle volante et voyageuse d’Afrique. Ses in-
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Tithéri devenus 1er régiment de Tirailleurs algériens. Constantine, Paris: 8vo,
p. 604.

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adressée par l’Empereur au Maréchal de MacMahon. Paris: 8vo, pp. 31. From
le Courrier de Dimanche. Anon.

2718. 1866. Duval, Paul, Directeur de l’Économiste Français.—Réflexions-
The author attacks the theory of a “Royaume arabe.”

2719. 1866. Fourmestraux, E.—Les idées napoléoniennes en Algérie. Paris:
12mo, pp. 197.

2720. 1866. Cahen, Abr., Grand Rabbin.—Sur les Juifs de l’Algérie et de

2721. 1866. Marchand, Jules.—Inscriptions recueillies à Constantine. l. c.,
p. 17.

2722. 1866. Tauxier, H.—Sur la détermination et le sens de plusieurs mots de
l’ancienne langue Numide. l. c., p. 97.

2723. 1866. Chabassière.—Recherches à Thubursicum, Madauri et Tipasa.
l. c., p. 108, with plates and translation of inscriptions by M. Marchand.

2724. 1866. Barnéoud, Director of the Maison Centrale.—Sur les recherches
exécutées à Lambèse. l. c., p. 239.

2726. 1866. Judas, Dr.—Sur des inscriptions numidico-puniques. 1 c., p. 262.


This contains an account of John Betton, who left half his fortune for the redemption of slaves in Barbary.


2733. ——— Exploration du Tombeau de la Chrétienne; résultats obtenus. 1 c., p. 208.

2734. ——— Notes relatives à la révolte de Ben Sakheri. 1 c., p. 337.

2735. ——— Tanaramosa Castra. 1 c., p. 353.

2736. ——— Le Tombeau de la Chrétienne d'après Shaw et Bruce. 1 c., p. 441

2737. 1866. Féraud, L.—Épique de l'établissement des Turcs à Constantine. 1 c., p. 179.

2738. 1866. Plesse, Louis.—L'Odyssée ou diversité d'aventure, &c., par le Sieur Chastelet des Boys. 1 c., pp. 91 et seq.—See No. 145.

2739. 1866. Salvator, Daniel.—Fantaisie sur une flûte double, instrument arabe. 1 c., pp. 382 et seq.


2747. 1866. Schmit, G.—Instructions sur le service forestier applicable à Algérie.

2748. 1866. État de consistence des forêts.

2749. 1866. Rapports sur les incendies de forêts, 1863-65.


2753. 1866. Rohlfs, Gerhard.—Résumé historique et géographique de l’expédition de . . . au Touat et à In-çalal, d’après les lettres du voyageur insérées aux Annales des Voyages par V. A. Malte-Brun : 8vo, pp. 150, map.

Rohlfs made the expedition to Kabylia in the Légion Étrangère in 1861, and subsequently visited many parts of North Africa hitherto unknown to Europeans.


2755. —— Gerhard Rohlfs’ Tagebuch seiner Reise von Touat nach Rhadames 1864. l. c., p. 8.


The map in question is contained in the Geogr. Mitth., 1865, Tafel 14.

2757. 1866. Duveyrier, Henri.—Ausführliche Daten über mehrere erkundigte Routen in der Nordwestlichen Sahara. l. c., p. 53.

2758. 1866. Resultate der Rohlfs’schen Höhenmessungen in Morokko und Touat. l. c., p. 119.


The author enumerates 141 species.


2766. 1867. Ibn Khaldun.—Kitabu 'l Ibr wa Diwan ul-Mubteda. General history of the Mohammedan world, with a lengthy introduction to the science of history. In Arabic. Published at Bulac, A.H. 1284: 7 vol. roy. 8vo.—See also No. 1255.


2768. —— Mémoire sur les éléphants des armées carthaginoises. Bône: 8vo, map.


2781. —— Notes relatives à un projet d'agrandissement de la ville d'Alger par la création d'un quartier maritime. Alger: 4to, pp. 6.

2782. 1867. Cardona, F.—Dos palabras sobre la emigracion Española en Africa. No place: 4to, pp. 16.


This report was made at the request of the Soc. Géogr. de Paris, and read on the 14th Dec., 1866.


The story of Lord Exmouth’s expedition.


2796. 1867. Churchill, Lieut.-Colonel.—Life of Abd-el-Kader, written from his own dictation, and compiled from other authentic sources. London: 8vo.


The author puts the question and replies affirmatively, “Les agriculteurs belges peuvent-ils trouver en Algérie de bonnes conditions d’existence?”


2803. 1867. De Monti, Leo.—Un Sou. (Nouvelle.) Alger: 8vo, pp. 46.

The author enumerates 79 species of plants found on the monument.


2807. ——— Inscriptions trouvées à Ain-Beïda. l. c., p. 209.


2809. 1867. Vayssettes, E. — Histoire de Constantine sous la domination turque de 1517 à 1837. l. c., pp. 241 et seq.

2810. 1867. Sandoval, X. de.—Les inscriptions d’Oran y Mazalquiviri. Madrid: 8vo.—See also No. 3149.


A very important work; amongst others is a song on the arrival of the French in Algeria.


This is a description of that part of Morocco which bounds the south-west frontier of Algeria, and which is probably destined to be “rectified” at no distant date.


2814. 1867. Vincent, Dr. M. A., and Dr. V. Collardot.—Le choléra d’après les nœuds epidémiqve qui ont régné à Alger depuis 1835 jusqu’en 1865. Paris: 8vo, pp. 208, with plan of Algiers.


2817. ——— Voies et moyens du rachat des captifs chrétiens dans les états barbaresques. l. c., pp. 325 et seq.

2818. ——— Un voyage de Paris à Alger en 1731. l. c., pp. 417 et seq.

2819. 1867. Féraud, C.—Choba municipium. l. c., pp. 399 et seq.

2820. 1867. Piesse, Louis.—Relation d’un ancien voyage.—See Tollot, 1742.


The author published several other letters on the same subject in 1868.


The object of these conferences was to devise means for preventing famine, such as devastated the country in 1867-8. The report ends with the words, “Plaise à Dieu que la race arabe échappe en 1869 aux fatales destinées de sa constitution économique.”


A letter addressed by a large number of inhabitants of Constantine to the senators and deputies.


The author published an analysis of the Thugga inscription and further observations on Libyan inscriptions in 1869. Paris: 8vo, pp. 80, 1 plate.


2834. 1868. Evans, Mrs. Lloyd.—Last Winter in Algeria. London: 8vo, pp. 343.


An interesting work, the result of seven successive voyages by an ardent and intelligent traveller.


This is an Arabic work of modern date, a curious picture of tribal history and desert life.

   Containing information on two points of geography hitherto doubtful, Mascula and Baraf.

2843. 1868. Mercier, E., Interprète judiciaire.—Une page de l'histoire de l'invasion arabe. La Kahena. l. c., pp. 241-54.


2845. —— Observations sur l'inscription administrative de Lambèsè. l. c., p. 479, plate.


2851. 1868. Desprez, Ch.—Alger naguère et maintenant. Alger: 12mo.


2854. 1868. Souvenirs d'Afrique, 1854-5; par le Docteur X. Lille: 8vo, pp. vi. and 255.


2856. 1868. Pardicq, l'Abbé.—Voyage archéologique dans la vallée d'Oran. From the Revue de l'Art Chrétien, December.


2861. 1868. Lacretelle, Général Ch. Nic.—De l'Algérie au point de vue de la crise actuelle. Paris, Lyon [printed]: 8vo, pp. 102. Published anonymously.
   The travels in the Sahara consist simply of a visit to Tlemçen and Saida.


2865. 1868. Niel, Maréchal.—Rapport à l’Empereur. From the Journal Officiel, 10th Dec., regarding the new delimitation of the Department of Constantine.


2869. 1868. Tarzanowski.—La chasse au Sahara algérien. From the Biblioteka Warszawska, May 1868.


2872. 1868. Devoulx, A.—Le livre des signaux de la flotte de l’ancienne Régence. Alger: 8vo, only 100 copies were lithographed, pp. iv. and 25, coloured illustrations.

   The writer applies to the various systems tried in Algeria the saying of A. Karr, “Plus cela change et plus c’est la même chose.”


2877. 1868. Bertherand, Dr. E. L.—La médecine légale en Algérie. 8vo.

2878. ——— Médecine du Prophète. 8vo.


The author’s remarks apply both to Arabs and Kabyles.

2881. 1868. Étler, C.—Arabern og Kabylar; skildringer. Copenhagen: 8vo, pp. 188.

Sketches of Arabs and Kabyles.


A sketch of the manner in which Algeria has been governed since the
conquest, and an appeal for no more systems or legislation but personal
government and action.
vol. xii, p. 62.
2903. ——— Note sur le pont antique de Constantine. l. c., pp. 132 et seg.
2904. ——— Note sur un sarcophage découvert au Jardin Marengo. l. c., p. 134.
2906. ——— Note sur le pont de l'Harrache et son inscription. l. c., p. 230.
2907. 1868. Féraud, L.—Tournée dans la province de Constantine. l. c., p. 47.
Interesting information regarding the great Arab tribe of Abd-en-Nour.
2908. ——— Les anciens établissements religieux musulmans en Constantine.
l. c., p. 121.
2909. ——— Conquête de Bougie par les Espagnols, d'après un MS. arabe. l. c.,
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2911. 1868. Cherbonneau.—Observations sur l'origine et la formation du
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2912. ——— Documents inédits sur Obeid-Allah, fondateur de la dynastie
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2913. ——— Notice bibliographique sur Kalaçadi, mathématicien arabe du
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2914. 1868. Godard, Léon.—Noms africains renfermés dans le Johanniades
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2915. 1868. Mercier, E.—Notice sur les Almoravides et les Almoahades d'après
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2916. ——— Ruines de l'Oppidum Tucca, à Merdja. l. c., p. 364.
2917. 1868. Judas, A.—Sur ving-sept inscriptions libyques récemment trouvées
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2918. 1868. Gallais, F.—Essai de naturalisation des végétaux utiles à l'agri-
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A letter addressed to the Minister of Agriculture.
2919. 1868. Lacroix, Frédéric.—Afrique ancienne. Produits végétaux. l. c.,
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2920. 1868. Tauxier, H.—Bartas, le plus ancien nom d'Alger. l. c., pp. 426
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2922. 1868. Agnely.—L'eau pour tous, l'eau partout, à bon marché.
2923. 1868. Gemy, Dr. Alphonse, and Dr. Edmond Bruch.—De l'hôpital
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2924. 1868. Bertholon, César.—Enquête sur la situation et les besoins de

2926. ——— De l'hospitalité chez les Arabes. l. c., p. 145.


2928. 1869. Féraud, Ch.—Les chérifs kabyles de 1804 et 1809 dans la province de Constantine. l. c., p. 211.


2932. 1869. Chabassière, Géomètre.—Sour Djouab et ses environs, with 2 plates. l. c., p. 315.

2933. 1869. Devouix, Albert.—La marine de la Régence d'Alger. l. c., p. 384.

2934. ——— Enlèvement d'un Pacha par les Kabyles. l. c., p. 459.

2935. 1869. Masselot, J., Lieutenant de vaisseau.—Ville et rade de Bougie. Bougie : 8vo, pp. 32.


2937. 1869. Desjardins, Ernest.—La Table de Peutinger d'après l'original conservé à Vienne, précédée d'une introduction historique et critique. Paris : folio.


2939. ——— Histoire de Bougie. l. c., pp. 85-408, map.

2940. 1869. Judas, Dr. A.—Sur plusieurs inscriptions libyques découvertes dans les environs de Constantine. This completes a memoir by the same author in the same year, in the Annales des Voyages. l. c., p. 69.

2941. 1869. Cherbonneau.—L'inscription du Tétrastyle de Potitus à Constantine.

2942. 1869. Mercier, E.—Étude sur la confrérie des Khouan de Sidi Abd-el-Kader-el-Djilani, à propos d'un catéchisme à l'usage de la dite secte. l. c., p. 409.

2943. 1869. Boysson, Capitaine de.—Les tombeaux mégalithiques des Madid. l. c., p. 621.

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VOL. II.


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The author was nephew of Maréchal de MacMahon, and accompanied a column from El-Aghounat against the Oulad Sidi Cheikh.


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2971. 1869. Denancé, V.—Les esclaves affranchis, ou retour d’Afrique. Bibliothèque religieuse de l’enfance. Limoges et Isles: 12mo, pp. 120.


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2998. 1869. **Papaut, L.**—À propos de la création d’un arrière-port à Alger.

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3005. 1869. **Delprais.**—L’orange de Blidah, par un ancien colon. Blidah: 8vo, pp. viii. and 44.


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From being a stone-cutter Colonel Beauprétre became a most distinguished officer, and was massacred with all his escort by the Oulad Sidi Cheikh in 1864. Rev. Afr., vol. xiv. p. 441.

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M. Albert Devoulx was unanimously elected.

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3017. 1870. **Darmon.**—Origine et constitution de la communauté Israélite à Tlemçen. l. c., p. 376.


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3021. 1870. **Robin, N.**—Histoire d’un Chérif de la Grande Kabylie. l. c., p. 348. (Moulay Mohammed ben Aoud.)

3022. 1870. **Watbled, E.**—Cirta-Constantine. Expéditions et prise de Constantine (1836–37), d’après de documents laissés par MM. Berbrugger, Mollières et Tour du Fin. l. c., pp. 200 et seq. Published separately, see No. 3168.


The author was captain in the Tiraillleurs Algériens, and a proprietor near Constantine.

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3039. 1870. Cham (Vicomte Amédée de Noé).—Du régime parlementaire en Algérie.


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3048. 1870. Roland de Bussy, Th.—Petit dictionnaire français-arabe et arabe-français. 18mo.

3049. 1870. Alix, Dr. Ch. Em.—Observations médicales en Algérie. Paris: 8vo, pp. xii. and 312, map.

3050. 1870. Cauquil, Dr.—Aperçu sur les ressources thérapeutiques des eaux des Bains-de-la-Reine, près Oran. Oran: 8vo, pp. 14.


3055. 1870. Letourneux, Aristide, Conseiller à la Cour d’Appel d’Alger.—Excursions malacologiques en Kabylie et dans le Tell oriental. Paris: 8vo, pp. 64, 1 plate. From the Annales de Malacologie, August.


3060. 1870. Liantaud, Dr.—Les différents régimes administratifs de l’Algérie, Alger.


3067. 1870. Taupiac.—Les Indigènes Israélites. 8vo.


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3071. 1870. Bézy.—La vérité sur le régime militaire en Algérie. Alger: 18mo, pp. 64.


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3075. 1870. Monbrun, Alfred.—La Trappe de Staoueli. Lille, Paris: 18mo, pp. 139, and illustrations.


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3081. 1871. Robe, Eugène, Avocat.—De l'impôt en Algérie. Alger: 8vo, pp. 74. This is divided into two parts. 1. Sous les Turcs; and 2. Après la conquête; de 1830-1870.


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3086. ——— Notice sur la statue de Bacchus de Constantine. l.c., p. 407, plate.

3087. ——— Des silex en Algérie. l. c., p. 410.


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3097. 1871. A King for an hour. Chambers’s Journal, 2nd Dec. This is an account written from recollection of an article in the Gazetteer of 1754 of the massacre of a Dey by the soldiery and the assassination of the assassins on the 11th December in that year.


3103. 1871. Ville, L.—Rapport d'ensemble sur les travaux de la commission de colonisation et d'immigration de la Province d'Alger. Alger : 8vo, pp. 49, with map.

This commission was named by the Société d'Agriculture d'Alger. An official character was subsequently given to it by the Commissaire Extraordinaire.

3104. 1871. Leblanc de Frébois, François.—Le bilan du régime civil de l'Algérie à la fin de 1871. Paris : 8vo, pp. 16.

3105. 1871. Bonnafont, Dr.—De l'acculturation des Européens, et de l'existence d'une population civile romaine en Algérie démontrée par l'histoire, suivi d'une notice historique sur les beys qui ont régné à Constantine depuis 1710 jusqu'en 1837. Paris : 8vo, pp. 46. From L'Union Médicale.


Proposing to offer them an asylum in Algeria.


This gave rise to a reply by Taupiac, 'Les Indigènes Israélites. Réponse à M. Du Bouzet.'


3112. —— Études sur la confrérie des Khouns de Sidé Abl-el-Kader-el-Djilani, à propos d'un catéchisme.


3118. —— Les Juifs algériens. 8vo.


   This gave rise to a reply by E. Ducos, 'L'Algérie; quelques mots de réponse à la brochure, "La vérité sur l'Algérie."' Paris: 8vo, pp. 39.


3129. 1871. La pacification de l'Algérie; par un officier supérieur de la Milice. Constantine: 8vo, pp. 19.


3131. 1871. La France et l'Algérie.—Article in L'Italia, 17th May.


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3140. 1871. Devouix, Albert.—La première révolte des janissaires d'Alger. l. c., p. 1.

3141. ———— Le registre des prises maritimes. l. c., pp. 70 et seq.
   An interesting document discovered by the author, containing an account of all the prizes captured by the Algerines from 1765 till the French conquest. Published separately in 1872. Alger: 8vo.
314. A BIBLIOGRAPHY OF ALGERIA.


3144. ——— Querelle entre consul et négociant. L. c., p. 261.

3145. ——— Quelques tentées à Alger. L. c., p. 341.


3149. 1871. Monnerau, Dr.—Les inscriptions d'Oran et de Mers-el-Kebir, par M. le Général de Sandoval, traduit de l'espagnol. L. c., pp. 173 et seq.—See No. 2810.


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3154. 1871. Pharaoh, Florian, and H. Em. Chevalier.—Récits algériens: le Rénégat; L'arbre des trois pendus; La balle du Colonel Clos; Un jugement de Kara-Kack; Un pied dans l'eau; Le soc et l'épée. Paris: 12mo.


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This article was republished in French in the Globe, Geneva; and in English in the Ann. and Mag. of Nat. History, London, having been read at the Brit. Assoc. in this year.


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3166. 1871. Compagnie génévoise des Colonies de Sétif.—Vingtième rapport
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3168. 1871. Watbled, E.—Cirta-Constantine. Expédition et prise de Con-
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A most original and excellent work, above all strictly accurate.

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Dr. Reboud has rendered eminent service by his valuable work, at once
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3192. 1872. Faidherbe, Général.—Nouvelles inscriptions numidiques de Sidi-Arrath. Lille: 8vo.

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3232. ——— La tombe de Khedeur Pacha à Alger. This is in the grounds of the Zaouia of Sidi Abd er-Rahman Eth-Thalebi. l. c., p. 273.


3234. ——— La Batterie des Andalous à Alger. l. c., p. 340. This was destroyed in making the new boulevard.

3235. ——— Relevé des principaux Français qui ont résidé à Alger de 1686 à 1830. l. c., pp. 357 et seq.

3236. ——— Un médecin condamné à mort pour avoir laissé mourir son malade. l. c., p. 471.

3237. 1872. Mercier, E.—Un mot sur les étymologies à propos de la signification exacte de “Sour el R’zlan.” l. c., p. 46.


3239. ——— Délivrance d’esclaves nègres dans le sud de la province de Constantine. Lettre à M. le Ministre de l’Instruction publique. l. c., p. 167.

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3241. ——— Ain Beida (Province de Constantine). l. c., p. 401.

3242. ——— Les corporations de métiers à Constantine avant la conquête française. Traduction d’un manuscrit arabe. l. c., p. 450.


3252. 1872. Liautaud, Dr.—Notice topographique sur Bouzaria. Alger: 12mo, pp. 47.


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The accused was the great religious head of the insurrection, as Mokrani was the political chief.


3278. 1873. De Mascara à Saidia. Le Temps, 22nd May.


3289. 1873. *Lecomte*, retired Chef d’escadron.—Notice détaillée sur la manière adoptée en Afrique pour établir les hommes et les chevaux de cavalerie au bivac. The 22nd edition of this work was published in Paris in 1873. 32mo, pp. 54, 3 plates.


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Originally published by the Société d'Anthropologie in 1870.

3310. 1873. Creusat, J. B., Jesuit priest.—Essai de dictionnaire français-
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3311. 1873. Sautayra et Cherbonneau.—Droit musulman; statut personnel 

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These contain numerous articles on Algeria.

3317. 1873. Devouix, Albert.—Le canon dit la Consulaire à Alger. Rev. Afr., 
An immense gun, from which several French consuls were blown away; 
now at Brest.

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3319. ——— Destruction des établissements français de La Calle en 1827, d'après 
des documents indigènes. 1. c., p. 421.

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pp. 25 et seq. A tribe situated 45 kilom. south-west of Aumale.

3321. ——— Notice sur la famille des Robrini de Cherchel. 1. c., p. 444.

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l. c., p. 43.

3323. 1873. Robin.—Note sur l'organisation militaire et administrative des 
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3324. ——— Le Bey Mohammed ben Ali ed-Debbah. 1. c., p. 364.

3325. 1873. Arnaud.—Les tribus Cheurfa (nobles). Traduction d’un fragment 
du livre ‘de la vérité’ par Mohammed ben bou Zid, des Oulad Khaled (Djebel 
Amour). 1. c., p. 208.

3326. 1873. Watbled, Ernest.—Expédition du Duc de Beaufort contre Djidjeli 
(1664). 1. c., p. 213.

3327. ——— Établissement de la domination turque en Algérie. 1. c., pp. 287 et 
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3328. ——— Pachas—Pacha-Deyas. 1. c., p. 438.

3330. 1873. Warnier, Dr.—Rapport au nom de la commission de l'Assemblée 
Nationale chargée d'examiner le projet de loi relatif à l'établissement et à la 
3331. 1873. Compagnie genevoise des colonies suisses de Sétif.—Vingt-troisième rapport du conseil d'administration. Genève : 4to, pp. 56, with map, and a plan of the Company's properties at Sétif.


Written on the occasion of the trial of the great chiefs at Constantine for participation in the insurrection of 1871.

3335. 1873. Lapasset, Général.—La guerre en Algérie. Instructions sommaires pour la conduite d'une colonne. Publication de la Réunion des Officiers. Alger : 12mo, pp. 32.

3336. 1873. Dobraniachi, Dr.—Du climat d'Alger, de sa valeur au point de vue de la tuberculose, comme station hivernale. Paris : 8vo, pp. 76.

3337. 1873. Charrrier, Commandant supérieur de Saida.—L'Alfa des hauts plateaux de l'Algérie. Alger : 8vo, pp. 54, with a map of the Alfa regions of the province of Oran.


The Année Géogr. remarks of this, "l'efficacité et vraie politique de notre colonisation algérienne, la seule vraie, la seule efficace, est admirablement résumée," t. xii. p. 255.


A work of great interest and value.


3346. 1873. Féraud, L. Charles.—Nouveau document sur l'insurrection contre les Turcs en 1804. l. c., p. 41.

3347. 1874. Bosredon, Capitaine Lac de.—Notice sur quelques monuments de l'occupation romaine dans le cercle de Tébessa. l. c. p. 53.
3348. 1874. Bosredon, Capitaine Lac de.—Inscriptions tumulaires recueillies à Tébessa pendant l'année 1873-4. l. c., p. 471.

3349. 1874. Ragot, Capitaine W.—Le Sahara de la province deConstantine. l. c., p. 91.

3350. 1874. Cherbonneau, Aug.—Un monument de Marcouna dédié à Antonin par le Légat D. Fonteius Frontinianus. l. c., p. 77.

3351. —— Dédicace au dieu solaire Phosphorus, trouvée à Lambése. l. c., p. 81.

3352. —— Explication du nom d'el-Kantour. l. c., p. 85.

3353. 1874. Payen, Commandant.—Notice sur les thermes romains de Sétif. l. c., p. 301.

3354. 1874. Brunon, Colonel.—Mémoire sur les fouilles exécutées au Madrasen, mausolée des rois de Numidie. l. c., p. 303.

3355. 1874. Poule, A.—Inscriptions diverses de la Mauritanie Sétifiène et de la Numidie. l. c., p. 363.

3356. 1874. Bossière, Inspecteur d'Académie.—Inscriptions de Constantine. l. c., p. 460.

3357. 1874. Roger, J., Conservateur du Musée.—Inscriptions de Philippeville. l. c., p. 464.

3358. 1874. Mangiavacchi.—Inscriptions de Messaoud. l. c., p. 467.


The most interesting part is chapter xvii., in which there is a short résumé of Hanoteau and Loutourneux’s work on Kabyla.


The author claims “l’Algérie libre dans la France libre.”


Articles originally published in the Vigie Algérienne, attributed to M. V. Mallarmé, Avocat. The Projet in question was presented to the Assemblée Nationale by the Minister of Justice on the 30th May, as follows :—“Le décret des 24 octobre et 10 nov. 1870 relatif à l’institution du jury et au fonctionnement des cours d’assises en Algérie est abrogé.”


The writer is not a believer in the possibility of the scheme.


3375. ——— Voyage au Sahara par Norbert Dournaux Dupéré, rédigé d'après son journal et ses lettres. l. c., August, p. 113, 2 maps.


3381. 1874. Sept mois d'expédition dans la Kabylie orientale et dans le Hodna ; par H. V. . . . Angoulême: 8vo, pp. 147.


The Kléber had to visit the coral fisheries and to “show the flag” in Tunis and Tripoli.


A BIBLIOGRAPHY OF ALGERIA.


3406. ——— Rapport sur l’exploitation de l’Alfa. 1. c.

3407. ——— Rapport sur le commerce des plumes d’autruche. 1. c.

3409. 1874. Bertherand, Dr. E.—Notice biographique sur le Dr. A. Puzin, médecin de colonisation. Alger: 12mo, pp. 8.

3410. ——— Notice biographique sur Abdulla ben Mohammed, pharmacien à l'École de Médecine à Alger (en français et en arabe). Alger: 8vo, pp. 11.


3412. 1874. Ville, Ingénieur en chef des mines en Algérie.—Situation de l'industrie minière des départements d'Alger, d'Oran et de Constantine, au commencement de 1874. Alger: 4to, pp. 139.


A detailed and official account of this important work.


3426. 1874. Delpeche, Adrien, Interprète judiciaire.—Résumé historique sur le soulèvement des Derkaoua de la province d'Oran, d'après la chronique d'El-Messellem ben Mohammed Bach Deftar du Bey Hassan, de 1800 à 1813. l. c., p. 39.

This is situated at 25 kilom. from Tizi Ouzou on the road to Dra el-Mizan.

3428. ——— Un diplôme de Mokoddem de la confrérie religieuse Rahmania.

l. c., p. 418.

3429. 1874. Féraud, Charles.—Les Harrar, seigneurs des Hanencha. Études historiques sur la province de Constantine.  l. c., pp. 11 et seq.

3430. ——— Éphémérides d’un secrétaire officiel sous la domination turque à Alger, de 1775 à 1805.  l. c., p. 295.

3431. ——— Lettres autographes de Mohammed Manamanni Bey de Constantine de 1824–26.  l. c., p. 413.

3432. ——— Notes sur Tebessa.  l. c., p. 430.


Yahia Moustafa was Agha of the Arabs from 1818–28.


A heroine of Kabylia who lived in the beginning of the nineteenth century.

3435. ——— Les Imessebelen.  l. c., p. 401.

Heroes who sacrificed themselves for the defence of their country (Kabylia).

3436. 1874. Trumelet, Colonel.—Lettre au sujet d’une pièce commémorative indiquant l’endroit où a été tué le Bach Agha Mokrani.  l. c., p. 474.


A work of the highest value.


The scheme of creating an inland sea by taking the waters of the Mediterranean into the Sahara had been so strongly urged, that the Assemblée Nationale voted a sum of money for preliminary studies. This task was confided to the daring originator, with whom were associated M. Henri Duveyrier and several engineers.


The writer is one of the most steady opponents of this scheme.

3446. 1875. Villot, Capitaine, Chef de Bureau Arabe.—Mœurs, coutumes et institutions des indigènes de l'Algérie. Constantine: 8vo, pp. 444.


The result of long and patient investigation.


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A short account of his journey to Aïnsalah, and his project of proceeding as above to Tombouctou.


3467. 1875. Harris, Rev. C.—How we fared in Algeria. Published anonymously. London : 8vo.

3468. 1875. Dean, J. C.—A visit to the Aures Mountains in July. Land and Water, 7th August, 1875.


—See also No. 3527.


3473. —— La condition et la naturalisation des indigènes en Algérie; les Juifs et les Musulmans. L. c., 15th August.


Part i., pp. 295-373, contains ‘Coast of Algeria,’ and in appendix, ‘Summary of laws and decrees relating to Algeria; tonnage dues, and magnetic variations.’


3485. 1875. Bertherand, Dr. E.—Des sources thermales et minérales de l’Algérie, au point de vue de l’emplacement des centres de population à créer. Alger: 8vo, pp. 34, with map.


3487. 1875. Planchon, J. E., Professeur à la Faculté de Montpellier.—L’Eucalyptus globulus au point de vue botanique, économique et médical. Revue des deux Mondes, 1st Jan.


3490. 1875. Houdas, O.—Cours élémentaire de langue arabe. 2 parts, 8vo.

3491. 1875. Gaskell, George.—Algeria as it is. London: 8vo, pp. xxviii. and 327.

From p. 117–214 is an Arab story ‘Ourida,’ which has been translated by the author into Spanish and Italian, and published separately at Algiers and Florence. A German translation of the work was published at Vienna in 1877.


3493. Leblanc de Prébois, François, Commandant.—Situation de l’Algérie depuis le quatre septembre 1870. Alger: 8vo, pp. 41.


The author’s object is to show the part taken by the French navy in the conquest of Algeria. The work is divided into three parts. 1. A précis of the principal expeditions against Algiers prior to 1830. 2. The chief events in which the navy was concerned since that time. 3. A description of the littoral. He also gives a list of all the Admirals commanding the Marine since the conquest.


Describes the efforts at military colonisation and subsequent schemes.


3501. 1875. Feraud, Ch.—Documents pour servir à l'histoire de Philippeville. Rev. Afr., vol. xix. pp. 50 et seq.—See also No. 3552.
   A continuation of a work commenced by the late M. E. V. Fenech.

   These are chiefly from the archives of Simancas.

3503. 1875. Michiel, Alfred.—La prise d'Alger, racontée par un captif. l. c., p. 471.
   This was originally published in the Revue Contemporaine of 31st Dec., 1854. The work was originally written by a German captive, and bore the title 'Meine Reisen und meine fünfjährige Gefangenschaft in Algier, von Simon Friedrich Pfeiffer.'

3504. 1875. Robin, V.—Les Oulad ben Zamoum. l. c., p. 32. From the Arabic MS. of the Oulad ben Kanoun.


   A review of two works, one on 'Acclimatement,' by M. Bertillon in the Dict. Encycl. des Sc. Méd.; and the other by M. Ricoux, 'Contribution à l'étude de l'acclimatement des Français en Algérie.'

3511. 1875. Bainier, F.—Cours de géographie commerciale de l'école supérieure du commerce de Marseille, comprenant l'Afrique. Marseille : 4to, pp. 611 (autographed). Algeria occupies a preponderating part of this work.

   Also, Matériaux pour l'histoire prim. et nat. de l'homme, 1876, 4 plates.


3514. —— Les puits artésiens dans l'Oued Rhir. l. c., No. 9, p. 200.

3515. —— Touggourt : industries, productions, commerce. l. c., No. 10, p. 223.

3516. —— Rapport sur son séjour à Ghadames. l. c., No. 11, p. 248.

3517. —— Le grand désert : Ghadames. l. c., No. 11, p. 250; No. 12, p. 269; No. 14, p. 317.

3517a. —— Voyage à Ghadames. l. c., No. 44, pp. 542 et seq.

3519. 1875. Largeau, V.—Exploration de M. l. c., No. 18, p. 419; No. 19, pp. 442 et seq.


This mission had for its object the collection of Roman inscriptions, recently discovered in the province of Constantine. The writer’s work is a valuable supplement to the precious collection of M. Léon Renier.

3526. 1876. Veth, Prof. P. J., en Dr. C. M. Kan.—Bibliografie van Nederlandsche Boeken, Brochures, Kaarten enz. over Afrika. Utrecht, 8vo, pp. 98.


3528. ——— Ordre des inscriptions nouvelles ou déjà connues, reproduites dans les planches. l. c., p. 55.

3529. ——— Tableau général des localités où l’on a découvert des inscriptions libyques. l. c., p. 59.

3530. 1876. Brunon, Colonel of Engineers.—Note sur les vestiges d’un monument découvert à Constantine dans la Rue Combes. l. c., p. 66; followed by an article on the same subject by M. Meister, Architect.


3534. 1876. Costa, and others.—Inscriptions recueillies dans la province de Constantine, 1874-5. l. c., p. 339.

3535. 1876. Poulle, A.—Inscriptions de la Numidie et de la Mauritanie Séptiennene. l. c., p. 351.


3540. 1876. Guy, C., &c.—Mouvement commercial du département d'Alger. L'Explorateur, No. 70, pp. 578 et seq.


3544. ——— Report of a Consular Tour in the Regency of Tunis during March and April. l. c., p. 1187.


3547. ——— Les chemins de fer algériens. l. c., No. 64, p. 422, with map.

3548. ——— Les Montagnes des Traras. l. c., No. 3 et seq.

3549. 1876. Duponchel.—Les chemins de fer de l'Afrique centrale. l. c., No. 64, p. 22, with map.


3552. 1876. Féraud, Ch.—Histoire de Philippeville. Alger: 8vo, pp. 190.


3554. 1876. Sabatier.—De Figuig au Touat; recherches sur la vallée de l'Oued Messaoura. Mabacher, 1876.

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3559. 1876. L'Algérie, notions générales. L'Explorateur, No. 50, p. 38, with map.


3571. 1876. Bertherand, Dr. E.—Hygienik oder Gesundheitslehre des Kolonisten in Algerien. Alger: 12mo, pp. 27.

3572. 1876. Dejoux, E.—Une excursion à la forêt des Ouiled-Antheur, cercle de Boghar. L’Explorateur, No. 62, pp. 264 et seq.


3574. 1876. Tournafon, P.—Le Lac Fetzara et son dessèchement. L’Explorateur, No. 69, pp. 546 et seq.


A most valuable contribution to the history of Tlemçen, the more valuable as the manner in which the interesting antiquities of this historic city have been neglected by the French is a disgrace to civilisation.


3581. 1876. Exposition d’Alger.—Rapport, section des Machines. Alger: 8vo, pp. 44.


3583. 1876. Czyszkowski, Stephen, Ingénieur civil.—Coup d’œil sur la nature et le gisement des minerais de fer en Algérie et considérations générales
sur les gisements métallifères—Algérie, Pyrénées, &c. Essai de classification des gîtes minéraux—Thalwegs métallifères. Alais: 8vo, pp. 73, 4 double-page plates.


A résumé of the traditions, principles, and customs of the military staff in Algeria.

3586. 1876. Ville, L., Inspecteur général des Mines.—Législation des mines et situation de l'industrie minéralurgique de l'Algérie, à la fin de 1875. Alger: 8vo, pp. 91, carte minéralogique au 1/2,400,000°.


3588. 1876. Résumé historique des sondages artésiens exécutés dans le département de Constantine de 1856 à 1875. Constantine: 4to.

During this time the government made nearly 400 artesian sounds.


The ‘Souvenirs militaires’ of Colonel Fabre first appeared in the Centre Africain.


The original work was written by the author during his internment at Bleda, from 1843 till the capitulation of the Amir in 1848.

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3604. 1876. Champlin, John D.—See No. 3369.


3606. 1876. Fuchs.—Same subject. l. c., p. 38.


The narrative of a march made by a column under General Gallifet in 1873. (See ante, No. 3339.)


The time in question is that between the fall of the Turkish government and the appearance of Abd-el-Kadir in Kabylie.


The Johannide, a Latin poem by Flavius Cresconius, was written in the sixth century, and narrates the exploits of Johannes Trogilta, an officer of Justinian, and one of the successors of Belisarius and Salomon in Africa.

3623. 1877. Féraud, L. Ch.—Les trois attaques des Espagnols contre Alger au XVIIIe siècle. l. c., p. 300.

3624. 1877. Trumelet, C.—Notes pour servir à l'histoire de l'insurrection dans le sud de la Province d'Alger en 1864. l. c., p. 476.


3635. 1877. Moliner-Violle, Instituteur.—Précis de géographie historique de l'Algérie, avec 14 cartes, ouvrage couronné à l'exposition d'Alger 1876. Alger: 8vo, pp. 55.—See also Explorateur, No. 78, 1876.


3839. 1877. Herbert, Lady, of Lea.—A Saint in Algeria. The Month and
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Notre Dame d’Afrique.

Lettre à la Chambre de Commerce d’Alger. L’ Exploration, 16th December, p. 61.

3841. 1877. Duval, Jules.—L’Algérie et les colonies françaises, avec une notice
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Maxime Gaucher.

3842. 1877. La Tunisie et les Chemins de Fer Algériens, avec une carte
des chemins de fer algériens et tunisiens en exploitation, en construction et à

3843. 1877. Golozzi, Dr. E.—Station thermo-minérale d’Hammam R’irha.
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3844. 1877. Rohlfis, Dr. Gerhard.—Sigilmása und Tâfiyet. Zeitschrift der
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3845. ——— Tekna und Nun. Peterm. Geog. Mittheil., t. xxiii. No. 11, pp. 422-
426.

3846. 1877. Mosenthal, Julius de, and James Edward Harting.—
At p. 237 is a note by Lieut.-Colonel Playfair on ostrich farming in Algeria.

3847. 1877. Joret, Henri.—Sur quelques végétaux cultivés en plein air en
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3848. 1877. Legrand, Ch., Avocat.—De l’organisation judiciaire musulmane en
Algérie. Paris: 8vo, pp. 73.

3849. 1877. Roudaire, Capt.—Rapport à M. le Ministre de l’Instruction
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3663. 1877. Gouvernement Général Civil.—Statistique générale de l’Algérie, années 1873-1875. Alger: 4to, pp. 526. This volume contains the census of Algeria for 1866, and the Imperial decree regarding the constitution of property amongst the Arab tribes.


Bruce the traveller was Consul-General at Algiers from 1763 to 1765. He subsequently made extensive explorations in Algeria and Tunis, and magnificent architectural drawings of all the Roman remains he visited, but he left no account of his journey. These drawings are in the possession of his descendant, Lady Thurlow. The author has published an account of his journey over the ground traversed by Bruce, illustrated by fac-similes of his drawings. This work is now very rare, as the remaining copies of the edition were destroyed by fire in Kegan Paul’s premises in 1883.

Reviews on it appeared in the Times, 3rd Dec.; Examiner, 7th Nov.; Academy, 15th Dec.; Scotsman, 14th Dec.; Spectator, p. 1628; Standard, 11th March, 1878; Daily News, 2nd Jan., 1878; Athenæum, 22nd Dec.; Saturday Review, 19th Jan., 1878; Guardian, 23rd Jan., 1878; Morning Post, 28th Feb., 1878; Pall Mall Gazette, 9th April, 1878; Magazin für die Literatur des Auslandes, Berlin, 13th April, 1878; Nature, 23rd May, 1878.


3673. 1877. Mille, Inspecteur général des ponts et chaussées.—Note sur les travaux de colonisation en Algérie. Paris: 8vo, p. 31, with map and plans on a single sheet. From the Ann. des Ponts et Chaussées, t. xii.


The author regards all Arabs as insurmountable obstacles to French civilisation. This is the enlarged edition of a brochure published at Constantine in 1871.


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A most amusing caricature. Many editions, the fiftieth in 1887, illustrated.


A work in Russian, containing statistical and military tables; with remarks on the population in general, and especially on the Kabyles.

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The best description hitherto published of the interesting ruins of Thamugas. —See also L’Années Géogr., 2e sér., t. i. p. 39; and Rev. Afr., vol. xxi. p. 409.

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3775. 1878. **Notice sur les Marbres du Filfla.**—Paris : 12mo, pp. 16. These are the property of Mr. Georges Le-Sueur, of Philippeville.


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A commission charged to examine this work reported that it was of incontestable utility, and recommended it for the use of magistrates, &c.


3788. 1878. **Perrier, Colonel.**—Détermination des longitudes, latitudes et azimuths terrestres en Algérie. Paris, Dépôt de la Guerre, 4to.


3790. 1878. **Arnaud.**—Voyages extraordinaires et nouvelles agréables par Mohammed Abou Ras ben Ahmed ben Abd-el-Kader, en-Nasri. Translated


The author maintains that this took place at the Rio Salado, on the road from Oran to Tlemçen.


The second part, from p. 55, is devoted to poems on Algeria.


The Society was inaugurated on the 14th July, 1878.


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The author’s object was to reach the Niger from Algeria, but he penetrated no further than 31° N. lat., after staying at Ouargla.


This has nothing to do with the botany of the district.


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—See also Peterm. Geogr. Mitth., p. 33.

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3815. ——— Chronique d’Abou Zakaria, publiée pour la première fois, traduite 
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The introduction narrates the manner in which M. Masqueray obtained 
permission to copy this volume, one of the most treasured records of the Beni 
Mzab.

From the Revue Africaine (see No. 3857).

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No. 622 contains information regarding the eastern basin of the Mediterraneen, 
including Tripoli, the Island of Djerba, and El-Arish. Paris : 8vo, 1880.—See 
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On the commerce between Algeria and the Soudan; it appeared in the 
Akhar, and was reprinted in the Revue de Géographie, 1879, Paris.

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Three vols. have already appeared, A to K. In vol. i., p. 73, there is an 
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3821. 1879. Parquet, Madame de.—Une excursion à Biskra. Rev. des deux 
Mondes, 15th April.

3822. 1879. Chavanne, Dr. J. — Die Sahara oder Von Oase zu Oase. Bilder 
aus dem Natur- und Volksleben in der grossen afrikanischen Wüste. Wien : 8vo, 
pp. 639, map of the Sahara, with the travellers’ routes, 7 chromolithographs and 
65 cuts in the text—a compilation of various journeys.

3823. 1879. Niel, O.—Bône et ses environs, with a map and plan of the town. 
Bône : 12mo, pp. 112.

3824. 1879. La Question Algérienne. Extraits de la Solidarité. Alger : 
8vo, pp. 62.

3825. 1879. Vilburt, J.—Yasmina, récit de œuvres kabyles. Rev. des deux 
Mondes, 5th Aug.

This first appeared in the 'Revue Africaine,' 1862-3.


Médaille d’or de la société centrale de médecine vétérinaire.


1879. L’Afrique explorée et civilisée. Monthly journal commenced in this year; each number 8vo, pp. 30.

An excellent publication, containing much valuable information regarding Algeria.


The author does not believe in the possibility of M. Duponchel’s plan.

   The author gives a technical study of the proposed route in two sections, the first being from Algiers to El-Aghouat.
   The same vol. contains other memoirs on the same subject.
   The country of the Mzab is situated about 110 kil. south of El-Aghouat. An excellent paper.
3858. 1879. Féraud, L. Ch.—Les Ben-Djellab, Sultans de Toucourt. l. c., pp. 49 et seq.
3860. 1879. Trumelet, Colonel C.—Note sur les variations de sens des mots Berbère, Oum, Afarek, Beranés, Botr, Mazigh et Frank. l. c., p. 471.


3865. —— Constantine au xvi° siècle. Élaboration de la famille el-Feggoun. l. c., p. 215.

3866. 1887. Rebourd, Dr. V.—Recueil d'inscriptions lybco-berbères. Inscriptions des environs de Milah et de Souk Ahras. l. c., p. 187.


3870. 1879. Westerveller.—Silex ou jaspe taillés, découverts au puits de Bir-en-nsa. l. c., p. 309.

3871. 1879. Pouille, A.—Les Bains de Pompéianus. l. c., p. 431. These remarkable ruins were discovered in 1878. Beautiful drawings of the mosaic flooring were made by M. Martin, and exhibited at the Paris Exhibition of the same year. They were subsequently published on a large scale by the Society, and two of the plates were reproduced by Mr. Graham in his paper. —See No. 4406.


3873. 1879. Cambon, Ferdinand.—Pour le régime civil en Algérie. Constantine: 8vo, pp. 18.

3874. 1879. Marès, G.—Algérie; climat et constitution géodésique. l. c., No. 118.


3876. 1879. Étude sur la propriété indigène et la loi du 26 juillet 1873, suivie d'un appendice comprenant: 1° Un projet de loi sur partage et licitation des immeubles appartenant à des Musulmans. 2° Un projet de loi sur l'état civil des indigènes. Alger: 1879, 8vo, pp. 93.

3877. 1879. Cuniac, Substitut du Procureur général.—Discours sur les institutions judiciaires et plus spécialement de la répression pénale en Algérie avant la conquête. Alger: 8vo, pp. 48. This was pronounced at the "audience de rentrée" of the Cour d'appel.


Conference held at the request of the Société d’Excursions Artistiques, Sc. et Litt.


3889. 1880. Coomann, Casimir.—De Marseille à Gênes par la Corniche. En Algérie. Souvenirs et notes de voyage. Bruxelles: 8vo, pp. 258, of which 68 are devoted to Algeria.


Reviewed by Leo Quesnel in Rev. Pol. et Litt., 3e sér., vol. i. pp. 404-8:—

“Mercier is a colonist of experience, and his work is written in a remarkable spirit of wisdom and moderation.”


An excellent work.


3905. —— Démographie de l’Algérie. l. c., 1er sept.—See No. 3900.


3910. 1880. Coint, Bavarot.—De la création de chambres de commerce françaises à l’étranger. l. c., p. 459.


3916. 1880. Lieutaud, Dr.—De l’assimilation des terres algériennes aux biens fonciers de France. Alger: 12mo, pp. 83.


3919. 1880. **Lettres de Saint Vincent de Paul.** Paris: 4 vol. 8vo.


3928. 1880. **Colonieu, Général.**—Le tracé central du chemin de fer trans-saharien. Langres: 8vo, pp. 29, with map. The writer was one of the commission appointed to study the subject.


3932. 1880. **Grévy, Albert, Gouv. général civil.**—État de l'Algérie—1er au 31 déc. 1879; 2e au 1er octobre 1880, d'après les documents officiels. Alger: 8vo, pp. 370, with 2 maps, showing the extension of civil territory.

3933. 1880. **Playfair, Lt.-Col. R. L.**—Report on the Trade and Commerce of Algeria for 1879. Consular Commercial Reports, 1880, p. 1676. This report is a summary of the fifty years' French rule in Algeria, ending 14th June, 1880.


3935. 1880. **Quesnay, Dr. F.**—L'Algérie. Paris: 16mo, 100 woodcuts.


3945. 1880. Derrien, J.—Le chemin de fer trans-saharien d’Oran à Touat par Tlemçen et l’Oued Messaoura. Oran : 8vo, pp. 40.


3948. 1880. Die Beni Msab. Ausland, No. 16.


3952. ——— Das algerisch-tunisische Binnenmeer. 1. c., pp. 272–308.


Printed originally in Le Nogentais.


3984. 1881. Lubbock, Sir John, Bart.—Note on a stone implement of the Palaeolithic type found in Algeria. From Jour. Anthrop. Institute, Feb. 1881, pp. 4, with illustration.

3985. 1881. Ledercq, Jules.—De Mogador à Biskra; Maroc et Algérie. Paris: 18mo, with map.


3993. 1881. Bardy, Gustave, ancien Conseiller à la Cour.—Solutions pratiques algériennes. Alger: 8vo, pp. 32.


3995. ——— Am Rande der Wüste. Von der el Kantra-Schlucht nach Biskra. Weltpost, Nos. 7 and 8.


4002. —— Ghadamès et le commerce soudanien. l. c., June, pp. 412-19.


4017. 1881. Laftitte, Prosper de.—La question de Phylloxera et le rôle des vignes américaines. Revue des deux Mondes, 1st March.

4018. 1881. Voies ferrées.—Chemins de fer mixte à section d’un mètre (voyageurs et marchandises) de Bône à la Calle et Kef-Oum-Teboul. Avant-projet modifié conformément aux observations de MM. les Ingénieurs des ponts et chaussées de la circonscription de Bône, présenté le 9 octobre 1880 par M. Carpentier. Paris: 4to.


This excellent work forms one of the series of ‘Guides Joaanne.’

4026. 1881. Nordström, J. H., Consul-general.—Consular Report; see Berättelser om handel och sjöfart, Stockholm, No. 6, pp. 385–90.


Demonstrates the necessity of French education in Kabylia.


Originally published in the ‘Siècle’ under the signature of “un ancien Algérien.”

4031. 1881. Téallier.—Excursion agricole en Algérie. Riom: 12mo, pp. 53. Published by the Soc. d’Agr. du Puy-de-Dôme.


4034. 1881. Tirman, Louis, Gouverneur général civil.—État de l’Algérie. 1er au 31 déc. 1880, 2e au 1er octobre 1881. Publié d’après les documents officiels.


4038. —— Additions to the foregoing memoir, by Dr. Reboud. l. c., p. 74.


The author identifies this position with the modern Ksiba.

4042. 1881. Farges, Abel, Lieut. adjoint au Bureau Arabe de Tebessa.—Simples réflexions au sujet de la découverte d’un sacrum à Tebessa. l. c., p. 215.

A general sketch of the geology of Africa, divided into Atlas system, Sahara, Sudan, and Central and South Highlands.


The writer advocates a parliamentary commission especially charged to study Algerian questions.

This stream is situated in the west of the circle of La Calle.


4048. 1881. Rinn, L, Commandant.—Essai d’études linguistiques et ethnologiques sur les origines berbères. l. c., pp. 161 et seq.

He was the most celebrated of the chérifs of Kabylia who gave so much trouble to the French. His name was Mohammed bin Abdulla, surnamed Bon Baghla, “the father of a mule.”

The history of John Dyer, barber, of Bristol, impressed for a sailor, deserted to Algiers, rose to be favourite with the Dey, but was ultimately killed.


4056. 1881. Sabatier, Camille.—La question du sud-ouest. Alger : 8vo, pp. 70, with map.
The author gives an account, geographical and political, of the Sahara, and his ideas of the means of preventing future disturbances—one, of course, being a rectification of frontier.

This purports to be a narrative of slave life in Algiers.


The author was employed as engineer on the survey of the proposed trans-saharan railway.


The subject alluded to is the rattachement of the various services of the colony to their respective ministries in Paris.


Translation of an Arabic MS. (No. 1031) in the Library at Algiers. This
gives the Arabic names, the French representatives, and copious notes. From the Journ de Méd. et de Pharm. de l’Algérie.


The meeting was under the presidency of M. Albert Grévy, Governor-General of Algeria, and an opening address was given by M. Chauveau, Professor of the Faculty of Medicine at Lyons, on ‘Ferments et Virus.’


4097. 1882. Fourchault, Colonel.—Villages défensifs. l. c., p. 283.
4099. —— Carte des pluies en Algérie. l. c., p. 476.
4100. 1882. Durando, M., Professeur de botanique à Alger.—Note sur une excursion à la forêt de cèdres de Teniel-el-Haad. l. c., p. 617.
4104. 1882. Millot, Dr. Benjamin.—Le dessèchement du lac Fetzara. l. c., p. 802.
4106. 1882. Perrier, Lieut.-Colonel.—Jonction géodésique et astronomique de l'Algérie avec l'Espagne. l. c., p. 1002.
4107. 1882. Bouty, M., Garde-mines.—État de la question des chemins de fer trans-sahariens. l. c.
4111. 1882. Remy, le Docteur.—Excursion dans la Grande Kabylie. l. c., p. 1118.
4112. 1882. Quirot, M.—Excursion au tombeau du roi Juba II. et de la reine Cléopâtre Scéline (Koub-el-Roumia) et à la cité romaine de Tipaza. l. c., p. 1125.
4114. 1882. Martin, M. Henri.—Excursions à la nécropole mégalithique de Bou Noara; Djebel Merah; Sigus; Roknia; Alger, &c., with many interesting illustrations. l. c., p. 1135.
4115. 1882. Parmentier, Général.—Vocabulaire arabe-français des principaux termes de géographie et des mots qui entrent le plus fréquemment dans la composition de noms de lieux. l. c., Supplement.
4117. —— Étude sociologique sur les Kabyles.

A very interesting account of the Kabyles of Djurdjura and two tribes of Morocco, Ait Aïssa and Ait Mesâd.


4127. —— Deuxième mission Flatters, historique et rapports rédigés au service central des affaires indigènes. Alger: 8vo, pp. 368, with map.

M. Bernard was a member of the first mission.


4129. 1882. Richet, Charles.—Une excursion dans l'Oued Rir. 1. c., 15th May.


4131. 1882. Farine, Ch.—Kabyles et Kroumirs. Paris: 8vo, pp. 430, with illustrations. Contains nothing very original, but handsomely got up.


The first number was published in January 1882, by Émile Masqueray, "Le Directeur de l'École."


Kaoua is the modern name of an interesting Roman fortress of the Theodosian epoch, bearing the name of Ferinus, evidently a man of note in the country.

4135. —— Les Souama de Mechersfa, province d'Oran. — See 'Mélanges d'Archéologie et d'Histoire,' publié par l'École Française de Rome, 8vo, 7 pp. and plate. Also Bull. de la Soc. de Géog. et d'Arch. d'Oran, 1882, No. 14, Arch. p. 148.


4150. 1882. Ardouin.—L’Algérie, politique et économique. 8vo, pp. 365.

4151. 1882. Hamy, Dr.—Note sur les figures et les inscriptions d’el Hadj Mimoun. Extracted from the Revue d’Ethnographie.


4155. ——— Antiquités romaines au palais archiépiscopal d’Alger. l. c., fasc. i. p. 23.


4158. ——— La stèle lybyque de Souama. l. c., fasc. i. p. 38.

4159. ——— El Meraba des Beni Ouelban. l. c., fasc. ii. pp. 45–109, with map. An important paper on the archaeology of El Maraba, a plain near Collo traversed by the Oued Gueblia, and inhabited by the B. O.


4162. 1882. Brandt, Dr. G. H.—Hammam R'Irha, a winter bath station. London.

4163. 1882. Brunton, Dr. Lander.—Notice of Hammam R'Irha in the 'Practitioner' for April 1881 and November 1882.

4164. 1882. Renard, Dr. Ernest.—Résultats thérapeutiques de Hammam R'Irha. Alger.


Reference is made to the capability of Algeria for the growth of this plant.


4178. —— Le domaine des sources (Oued-el-Halleg). Exploitation agricole de M. A. Artès Dufour. Alger: 8vo, pp. 69, with a note on the ensilage of maize in Austria, translated from the German.


4197. 1882. Poitou-Duplessy, Dr.—La mer des Chotts. Lorient: 8vo, pp. 16.


The writer visited Wargla and other parts of the M'zab confederation, and gives an account of the last Flatters expedition.


4205. 1882. Grammont, H. D. de.—Un épisode diplomatique à Alger au xvin° siècle.

This paper was read at the annual meeting of learned societies at the Sorbonne.

4206. —— Relation des préparatifs faits pour surprendre Alger—par Jeronimo Conestaggio. l. c., p. 286. —— See No. 49.

4207. —— Un Académicien captif à Alger (1674–75). l. c., p. 309.

The person in question was a celebrated numismatist, Jean Foy Vaillant; he died in 1706. —— See also No. 4236.


1882. —— Mammifères nouveaux d’Algérie. Naturaliste, 1er nov. au 1er mars.


The author was charged with the preparation of the 8th vol. of Roman Inscriptions.

1883. L’Oued Abdi. l. c., p. 327.


This article contains an admirable description of the ancient monuments near Tiarat and Frenia, called “Les Djedar,” and other ruins.


This was the celebrated numismatist Vaillant, who in 1674 was taken prisoner by Algerines when proceeding from France to Rome to assist at the fêtes of the Jubilee.—See also No. 4207.


A review of Le Comte d’Haussonville’s ‘Colonisation officielle en Algérie.’


Apropos of the declaration of Jews to be French citizens.


Published with the approbation of the Governor-General. Full of valuable information.

4250. 1883. Délibération sur un emprunt de 2,500,000 f. destinés aux travaux du port de Philippeville. Philippeville: 4to, pp. 26, plan.


4252. 1883. Réflexions sur le projet de création en Algérie d'une école d'agriculture pour les enfants assistés du département de la Seine. Alger: 12mo, pp. 52.


4255. ——— Conspectus florae atlanticae seu enumeratio plantarum omnium in Algeria, regno Tunetano et imperio Marocano hucusque notarum exhibens quoque diagnoses specierum novarum et annotationes de plantis minus cognititis.


After having shown how far a law is applicable in Algeria since 1834, the author examines the exceptions established by experience.


Chap. ix. is devoted to the Hamitic group. A, Egyptian; B, Libyan or Berber; C, Ethiopic.


This is an account of the megalithic remains near Guyotville, and of others both in Algeria and France. It contains a note by M. de Saint-Simon on the shells found in them.

4267. 1883. Rozet, Capitaine d'État-major.—Voyage dans la Régence d'Alger, ou description du pays occupé par l'armée française en Afrique, contenant des observations sur la géographie physique, la géologie, la météorologie, l'histoire naturelle, etc., etc. París: 3 vol. 8vo, atlas 4to, with coloured plates.

4268. 1883. Basset, René.—Notes de lexicographie berbères. The first series appeared in the 'Journal Asiatique' in 1883, the second in 1885, and the third in 1886. This work gives a comparison between the various dialects spoken in Algeria.

4269. —— Mission scientifique en Algérie et au Maroc; and 'Documents géographiques sur l'Algérie septentrionale.' Bull. de la Soc. de Géogr. de l'Est, 4th trimestre et seq.


This interesting MS. was found in the Bibliothèque Mazarin; it consists of 261 folio leaves, and bears the number 1919.

4272. 1883. Guin, L.—Une improvisation de l'Émir Abd-el-Kader. l. c., p. 224. This is a short poem in praise of Temçen.
4273. 1883. Gavault, P.—Note sur les ruines antiques de Toukria. l. c., p. 231, with 2 plates.

4274. —— Tipasa. l. c., pp. 321 et seq.


This work was written by the Cheikh Mohammed ben Mohammed ben Ahmed, called Benou Meriem, Ech-Cherif, a native of Tlemcen, and is arranged alphabetically.


The author has great hopes of the improvement of the Kabyles by education.


The author argues that the axis of French influence is in the Mediterranean, where it should concentrate its action, and extend itself in the direction of Africa.

4279. 1883. Farges, Abel.—Notes épigraphiques sur Mascula (Khenncha) et notes sur divers objets de fabrication romaine découverts à Tebessa, Tifech, etc. Bull. de l’Acad. d’Hippone, No. 18, 1883, 6 plates.

4280. 1883. Reboud, V.—Matériaux pour servir à l’histoire des monuments mégalithiques des provinces de Constantine et d’Alger. l. c.

A work of great importance.


4282. 1883. Goyt, Aug.—Inscriptions relevées dans la région comprise entre Constantine, Séïf et Philippeville. l. c., p. 129.

4283. 1883. Reboud, Dr. V.—Excursion dans la Maouna et ses contreforts (1881). l. c., pp. 17 et seq.

4284. —— Excursion dans le bassin de l’Oued Gueblil. l. c., p. 163.


4286. 1888. Julien, Capitaine.—l. c., p. 214.—See ‘Excursion de Henri Martin’ in the vol. of proceedings of Association française for 1881. (No. 4114.)


4288. 1883. Chédé, Commandant.—Fouilles exécutées à Tebessa-K hella. l. c., p. 269.


4290. 1883. Mémoire rédigé par la famille Sahaoui pour la défense de Si el Hadj Kaddour Sahaoui, Agha de Tiaret. Oran : 8vo, privately printed.

The object of this brochure is to disprove Si Sahaoui, regarding the murders of Colonel Beaupré (1884) and Lieut. Weinbrenner (1881).
In French and Arabic. An apology for the Bach Agha of Frenda Si Ahmed Ould Kadi, and the facts alleged against him by Sahraoui.

This contains three parts—the first, their history; second, genealogy; third, remarkable personages.


A review of ‘Le Maréchal Bugeaud d'après sa correspondance intime et des documents inédits.’


4304. 1883. Sabatier, C. — La question du Sud-Ouest. 8vo, pp. 72, with map.


A superb work. The frontispiece is a representation of one of the celebrated tapestries of Vermeyen.


The writer places the inland sea in the basin of Lake Kelbiah.

4310. 1883. Cotteau, Peron et Gauthier. — Échinides fossiles de l'Algérie. Description des espèces déjà recueillies dans ce pays et considérations sur leur
position stratigraphique. Paris: 2 vol. 8vo, with many fine illustrations, pagination not continuous.


4312. 1883. Derretero, General del Mediterraneo, redactado en la direccion de Hidrografia. t. i. comprende . . . la Costa de Africa, desde Ceuta hasta la frontera de Túnez. Madrid: vol. i. 8vo, pp. 780.


4320. 1884. Robin, Commandant.—Le M'zab et son annexion à la France. Alger: 8vo, pp. 47.

An excellent paper, explaining clearly the civil and religious government of this people.


M. Flatters and nearly his whole party perished in the second expedition commanded by him. They were massacred by the Touaregs.


4334. 1884. Rinn, Louis, Chef de bataillon, Chef du service central des affaires indigènes au Gouvernement général.—Marabouts et Khouan. Étude sur l’Islam en Algérie. Alger: 8vo, pp. 552, with a map indicating the situation and importance of the various religious orders.

A work of great political importance. No less than 168,974 of the natives of Algeria are affiliated to the various orders here described. A review of this work is given in the Bull. de Corres. Afr., 1885, p. 178, written by M. Masqueray.

4335. 1884. Le Bon, Dr. Gustave.—La civilisation des Arabes. Paris: 8vo, pp. 705, splendidly illustrated with 4 maps, 10 chromolithographs, and 366 plates. Chapter v. is devoted to ‘Les Arabes dans l’Afrique septentrionale.’ At the end there is a Bibliographie Méthodique.

The author maintains that there is only one means of describing the plastic art of a people; that is to show it.


4345. ——— Le littoral des Trara. Promenade de Nemours à Honai, with map.—See l. c., No. 20, pp. 6–17, and No. 22, pp. 134–51, with numerous illustrations.
4346. 1884. Langlois, A. D.—Voyage dans le sud du département de Constantine (Sahara oriental), with map and plan of Biskra. l. c., No. 20, 1884, pp. 20–35.
4347. 1884. Demaeght, L.—Portus Magnus (St. Leu), with plate of the great mosaic found there. l. c., No. 20, pp. 113–21; also Bull. Trim. des Antiq. Afr., No. 11, 1885, p. 1.
4348. 1884. Tisserand, P.—L’ancien et le nouvel Oran. l. c., No. 20, 1884, pp. 38–56.
4349. 1884. Tauxier, Capitaine H.—Essai de restitution de la Table de Peutinger pour la province d’Oran. l. c., No. 21, Archéologie, pp. 291–8.
4350. 1884. Jullian, Camille.—Notes sur l’armée d’Afrique sous le Bas Empire. l. c., No. 21, pp. 269–76.
Algiers is the first Consulate ever established by England. A nearly complete collection of the correspondence of diplomatic agents and consuls, and royal letters from 1800, are preserved in the Public Record Office. There is a break during the Commonwealth, but the letters of this period exist in the Rawlinson MSS. in the Bodleian. It is principally from these sources that the author has obtained his information. The great interest of the work is the subject of Christian slavery. Reviews on it appeared in The Athenæum, 9th Feb.; Pall Mall Gazette, 3rd March; Scotsman, 28th Feb.; John Bull, 23rd Feb.; Academy, 5th April; Vanity Fair, 5th April; Globe, 25th April; Glasgow Herald, 15th April; Allgemeine Zeitung, 18th April; Scottish Review, April; Daily News, 31st May; Nation, 8th May; Melbourne Argus, 26th April; Morning Post, 23rd August.
4356. ——— Statistique Minérale. l. c., 29th May.
4357. ——— Rapport Commercial. l. c., 15th Nov.


The author played an important part in the politics of the day in Algeria, and his work is an important contribution to contemporary history.


4363. 1884. Meaux, Ch., de.—L'Algérie depuis 1871. Le Correspondant, 25th October et seq.

4364. 1884. Roches, L.—La colonisation en Algérie. La Réforme Sociale, 15th October.


A society has been formed to give impulse to the colonisation of the Sahara, by digging wells and planting palm trees.


4374. 1884. De la Blanchère, René.—Malva, Mulucha, Mochath. Étude d'un nom géographique. l. c., p. 186.


4376. 1884. Menceaux, Paul.—Grecs et Maures, d'après les monnaies grecques du Musée d'Alger. l. c., p. 344.
4378. 1884. Waille, Victor.—Une reconnaissance archéologique entre Teniet-el-Had et Tiaret. l. c., p. 453.

This company, including its domain at the Habra and its railway from Arzew to the Alfa districts, monopolises a great part of the province of Oran.


This is an account of the anti-Semitic riots.


Ziban, pl. of Zab, from the Latin Savus, the Oued Djedi—flowing from west to east from El-Aghout towards Biskra.
4392. 1885. Mercier, E.—Quelques notes sur Taflalet. l. c., No. 25, pp. 79-87.

A necropolis situated on the river Mina, north of Frenda and west of Tiaret.

The writer seeks to prove that the river in question is the Makta, to the east of Arzew, and not the Moulouis on the frontier of Morocco.

This district is rich in megalithic monuments.


History of a great disaster to a column under General Bosquet in Kabylie.
It was overtaken by a tempest of snow; 300 men died and 300 were more or less frostbitten.


This contains many inscriptions from various parts of Algeria and Tunis.


4405. 1885. Daly, César.—Ce que peuvent raconter les pierres d’un tombeau et du symbolisme funéraire à propos du tombeau d’un sceptique romain à Akbou. Rev. de l’Arch. et des Trav. pub., vol. xliii. pp. 49 and 145.

Also another paper, by the same author and on the same subject, in 1866, with special reference to Tunisia, both most valuable and instructive papers.


Written by a traveller who is also a naturalist, and published by Senckenberg.

Naturf. Ges.

4410. — Skizzen aus Algerien. Globus, Nos. 11, 17, 19.


Under this title the author publishes a number of documents bearing on the early history of Algiers and of Christian slavery, from the archives of France and other sources.

4414. — Le nom de Barberousse dérive-t-il de Baba aroudj? 1. c., p. 226.


4416. 1885. Gavault, P.—Mosaïque de Cherchel. 1. c., p. 381.

4417. 1885. Zeys, E., Président de chambre à la cour d’appel.—Traité élémentaire de droit musulman algérien (école malékite) spécialement rédigé sur le cours oral fait à l’école de droit d’Alger, etc. t. i. Alger: 8vo, pp. 294. 2nd vol. published in 1887.

An excellent manual, treating of marriage, interdiction, and contracts.


This is an analysis of all the laws special to Algeria, and does not include those made for France, but which are also applicable to the colony.


A French reviewer of this volume says, “Il n’y a qu’à tirer un voile sur ces rhésodies.”


4422. 1885. Revue Algérienne et Tunisienne de législation et de jurisprudence publiée par l’école de droit d’Alger.


4424. — Étude sur la naturalisation des étrangers en Algérie. l. c., t. i. pp. 1-32.


4427. 1885. *Quesnoy, Dr. F.*—L’Algérie. Paris: 8vo, pp. 305, with map and 100 woodcuts.


4430. 1885. *Programme général de reboisement,* published by the Government general. Alger: 4to, pp. 120.


4433. ——— On the rediscovery of lost Numidian Marbles in Algeria and Tunis. Paper read at the Brit. Assoc. at Aberdeen, September. 8vo, pp. 12, with map.


4435. ——— *L’Algérie, la Tunisie et l’Exposition d’Anvers.* l. c., t. iii. p. 470.


4437. 1885. *La Garde, Ch.*—Une promenade dans le Sahara. 8vo, p. 307.


The portion devoted to Algeria is of unequal value and incomplete. The history of the conquest is perhaps the best part of it.


   An exhaustive paper on the fauna of N. Africa.


1885. Eug. del B.—Coups de pinceau sur Blida, Bône, Tlemçen, Oran et Constantine, etc. Paris, Tours : 12mo, pp. 228.


1885. Jouvenel.—L'Algérie ; un coup d'œil sur son administration ; son agriculture ; ses chemins de fer et ses destinations. Paris : 8vo.


1885. Luciani, D.—Excursion archéologique dans la région de Cello. l. c., p. 62.

1885. Poulle, A.—Nouvelles inscriptions de Lambèse et Timegad. l. c., p. 177, with two excellent coloured maps of the localities in question.


   The author resided among the Beni M'zab from the time of the occupation of their country, and the Tolbais placed all their books unreservedly at his disposal. This is a most important addition to our knowledge of this interesting people.

   This is the recital of a journey made by him in 1853, when explorations there were less common than they are now. The work in question has not been seriously revised, or kept up to the state of our knowledge of these regions at the present day.

1885. Masqueray, É.—Traditions de l'Aourâs oriental. l. c., p. 72.
   A memoir of great value.

1885. Lettre à M. Tissot sur la Gharfa des Oulad Selama. l. c., p. 110.

1885. Basset, René.—Les manuscrits arabes des bibliothèques des Zaouias de 'Ain Madhi et Tenaçin, de Ouargla et de 'Adjadja. l. c., pp. 211 et seq.
   The author was sent by the Governor-General in 1885 to study the Berber dialects in the M'zab, Ouargla, and Oued Righ.
4489. 1885. Le Chatelier, A.—Insalah. l. c., pp. 266 et seq., with map. A résumé of all the information the author could obtain regarding Insalah during a residence of eighteen months at Ouargla.


These letters were written between the 18th April and 12th May, and are well worthy of perusal. The latter part is addressed to the "Société pour la protection des Colons."

4471. 1885. Le projet de création en Algérie et en Tunisie d’une mer dite intérieure, devant le Congrès de Blois. Paris: Svo, pp. 44.


Nearly half this work is on Algeria.


4479. 1885. Lawless, Hon. Emily.—A Millionaire’s Cousin. London: Svo. A slight story, the scene of which is laid at Algiers.


This important work will embrace all the countries of extreme North

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Africa, and will be divided into two distinct parts: 'Algeria antiqua,' the ancient Algeria, with Mauritania Zingitana, or Morocco, and 'Tunisia antiqua,' the ancient Tunis with the Tripolitaine.


4495. 1886. Bert, J., Inspecteur des Forêts.—Étude sur les plantations. This has special reference to Algeria, and is published by the Government General. Alger: 18mo, pp. 91.


4497. 1886. Carrière, Gabriel.—Quelques stations préhistoriques de la Province d'Oran. l. c., Nos. 29, 30, pp. 138-54, 3 plates of flint instruments.


4501. 1886. Lapaine, Ivan.— Fouilles de Timisouin (Région de Saidia). l. c., p. 298.


4511. —— *De Aurasio monte ab initio secundi p. Ch. sæculi usque ad Solomonis expeditionem.* Thesim Facultati Litterarum in Academia Parisiensi, etc. Paris: 8vo, pp. 94, with 2 maps.


4515. —— *Journal de route et correspondance.* Paris: 18mo, pp. 315, with portrait and map.


4517. —— *Fleur d’Alfa.* Paris: 18mo. Lieut. Palat was a very promising young officer; he was assassinated by Bou Ammama in the south of Algeria.


4519. 1886. *Pallu, C. de Lessert.*—Notes d’un voyage en Afrique. The author received one of the “bourses” granted annually by the Conseil Municipal of Paris to the École des Hautes Études. The article in question is the first result of his mission. He travelled from Philippeville to Lambessa and various places in the interior of Constantine.—See Rev. de l’Afrique Franç., Paris, 1886, t. iv. pp. 10, 68, 145, with illustrations.


Gives an account of the works actually being carried on by the Inland Sea Company.


The author is also a professor at the École de Droit, and this was his inaugural lecture; it was originally published in the Rev. Algér. et Tunis. de Législation et de Jurisprudence.

4533a. ——— Traité élémentaire de droit Musulman Algérien. (École Malékite) t. 2.—See No. 4417.


History of a band of maurauders who infested the Sahara for ten years after the insurrection of Bou Choucha in 1871.


4540. 1886. Rinn, Louis, Commandant, Conseiller de Gouvernement.—Nos frontières sahariennes, avec carte. l. c., p. 161. Also published separately at Algiers.

4542. 1886. Guin, L.—Quelques notes sur les entreprises des Espagnoles pendant la première occupation d’Oran. l.c., p. 312.


4545. 1886. Rohls, Gerhard.—Quid novi ex Africa? Cassel: 8vo, pp. 288. A number of detached papers on a great variety of African subjects, including some on the Barbary States.

4546. 1886. Desfossés, Edmond, Avocat.—La Tunisie, sous le protectorat et son annexion à l’Algérie. Paris: 8vo, pp. 44. The writer is strongly in favour of the latter, and of the creation of a formidable port and arsenal at Bizerta.


4556. 1886. Leclerc, C.—L’Algérie. 1re Instructions interprétatives des divers articles du décret du 30 sep. 1878, sur les aliénations de terres domaniales de colonisation. 2e Création de centres. 3e Demande de concessions, &c. Constantine: 8vo, pp. 194.


4560. 1886. Lanessan, Dr. de, Député.—L’expansion coloniale de la France; étude historique, géographique, politique et économique de nos colonies et protectorats. Paris: 8vo, with numerous maps.


4567. 1886. Oltramare. — Note sur la détermination des coordonnées géogr. de Touggourt par les observations astronomiques de M. Duveyrier. l. c., p. 25.


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This is an account of a journey from Saida to Khalfalah by train in July.


4619. 1886. La Vente de terres domaniales en Algérie. L’Économiste français, 21st March.


4623. 1886. Le Sahara Algérien d’après M. Rolland (No. 4586). Gaz. Géogr. et Explor., 1st April.—See also No. 4638.

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4637. 1887. La France Coloniale : Algérie, Tunisie, &c., considérées au point de vue historique, géographique, ethnographique, et commercial. Tours : 8vo, pp. 376, with illustrations.


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4647. ——— La première expédition de Constantine. 1 c., 1st Feb.

4648. ——— Le gouvernement de Damrémont, le traité de la Tafna et la prise de Constantine. 1 c., 1st March.

4649. ——— La rupture du traité de la Tafna et le col de la Mouzaia. 1 c., 15th April.


4659. 1887. Rochaid, Alph.—Marine marchande et colonies. Paris: 12mo, with map of railways in Algeria and Tunisia.

This is a reproduction of articles that originally appeared in the Rev. de l’Afr. Franç. and the Rev. Franç. de l’Étrang. et des Colon.


4661. 1887. Boucher, Louis.—La colonisation de Philippeville à Constantine. Rouen: 4to, pp. 15.


4663. 1887. Benigni, Umb.—L’Affrica biblica; saggio di geografia fisica e politica dell’Affrica primitiva. Perugia: 16mo, pp. 69.


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4674. 1887. L'Algérie et le budget français. l. c., 15th Jan.

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4686. —— Statistique commerciale de la Province d'Oran, 1885-6. l. c., pp. 35 et seq.

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ON THE

MEASUREMENT OF HEIGHTS

BY THE BAROMETER.

BY JOHN BALL, F.R.S., ETC.
ON THE

MEASUREMENT OF HEIGHTS

BY THE BAROMETER.

By John Ball, F.R.S., etc.

For a knowledge of the form of the earth's crust we are yet mainly dependent on barometric observations. Travellers can rarely employ any other means for the measurement of heights; their results frequently depend upon a single observation; and it is often impossible for them to obtain a simultaneous record of instruments placed at the higher and lower stations, whose relative height is to be ascertained.

It is well known that the results deduced from barometric observations by travellers, even those carefully made with good instruments, are subject to wide limits of error, and it has appeared to me that it might be useful to investigate some points connected with the subject with a view to ascertain the best means for improving the practical application of this indispensable instrument.

The theory of the subject has been discussed by many eminent physicists, especially by Laplace, Ivory, Gauss, and Bessel, who have each proposed formulae by which the difference of the heights of two stations is to be deduced from observations of the barometer with its attached thermometer, the temperature of the air, ascertained by a properly screened thermometer, and the amount of aqueous vapour, ascertained by the wet-bulb thermometer. More recently the subject has been further investigated by other writers in various publications, of which the more important are herein further referred to.

The main difficulty encountered in all these investigations has been that of ascertaining the temperature of the mass of air intervening between the higher and lower stations. If these be not too far apart it is commonly assumed that the problem to be solved is reduced to that of finding the height of a column of air whose weight can be ascertained with great accuracy, and containing a proportion of aqueous vapour whose amount can be calculated with sufficient correctness. The ordinary assumption, recommended by its simplicity rather than by experimental verification, is that the temperature of the column is the arithmetical mean between the temperatures observed at the upper and lower stations.
respectively; and this assumption is embodied in most of the formulæ adopted for the reduction of barometric observations.

It speedily became apparent to practical observers that this assumption is commonly erroneous, and that the amount of error induced in the final result is more considerable than any arising from defects in the instruments, or imperfection in the records of observation.

The first who attempted to investigate the subject systematically was Ramond.* In the course of his explorations and prolonged residence in the Pyrenees he was struck by the fact that observations at different hours of the day gave widely different results, those made at, or soon after, midday giving heights considerably greater than those obtained from morning or evening observations. Misled by the accident that an error in the formula of Laplace, published in the ‘Mécanique Céleste,’ pretty nearly compensated the error resulting from assuming too high a mean temperature for the air between the two stations, Ramond made the mistake of believing that the midday observations are those that give the most accurate results. Ramond attributed the chief cause of the discrepancies between the results of observations at different hours to ascending and descending currents in the atmosphere in mountain countries, and although he recognised in general terms the predominant influence of variations of temperature on the results of comparative observations, he does not appear to have attributed their due importance to the heating of the earth’s surface by radiation from the sun, and the cooling by radiation to the sky, which unduly raise or depress the thermometer observed near the surface. While the latter subject has almost exclusively occupied the attention of modern writers, the former source of error, insisted on by Ramond, has not, in my opinion, been as yet sufficiently investigated.

In 1819 Pictet † called attention to the great differences found in the comparative observations of the barometer made in summer and winter at Geneva and the great St. Bernard, arising, as he rightly suggested, from the greater weight of the air at a low temperature. He found that in January the mean height of the barometer at the Observatory at Geneva was greater than that at the St. Bernard by 75·38 lines (Paris measure) at sunrise, and by 75·12 lines at 2 p.m., while in July the differences of the mean height at the same hours were respectively only 72·02 and 70·90 lines. These facts suggested an inquiry into the effects of the season and the hour on the determination of heights by means of the barometer.

In 1827, Belli,‡ of Turin, published a paper, which seems to have

* Of Ramond’s numerous memoirs, published in the ‘Mémoires de l’Institut’ between the years 1806 and 1815, the most interesting is that contained in the volume for 1806, 2nd semestre, pp. 1 et seq.


been overlooked by subsequent writers, wherein he entered upon a line
of investigation which has been followed by recent inquirers, especially
by Banermfeid and Rühlmann. Taking comparative observations for
twenty-four successive days at the Great St. Bernard, and at the Turin
Observatory, published by Daubuisson, he found that the difference of
height of the two stations deduced from observations varied considerably
according to the hour selected. On the mean of observations at 8 a.m.,
the difference of height was 2196 metres; at noon, 2222 metres; at
4 p.m., 2212 metres.

In this and another similar case examined by Belli it appeared to
him that the chief, if not the only, cause of the discrepancy arose from
the fact that the mean temperature of the stratum of air intervening
between the two stations during the hotter hours is not so great as the
arithmetical mean of the thermometric observations recorded at each of
them. It occurred to Belli that, by taking observations for an entire
year, the discrepancies in barometric observations arising from causes
other than changes of temperature, which he termed accidental variations,
would be compensated, and might be disregarded, and that the true
mean temperature of the stratum of air intervening between two
stations, the difference of whose height is known, may be inferred from
the ordinary barometric formula by treating the temperature instead of
the height as the quantity to be determined. On this supposition
he proceeded to calculate the mean temperature of the air between
Geneva and the St. Bernard from the observations made at sunrise and
at 2 p.m. for the year from February 1824 to January 1825. The general
result deduced from this investigation was that the mean temperature
of the air is but slightly affected by the hourly variations which arise
from the heating or cooling of the air close to the surface at the place
of observation. This conclusion, which has been also enforced by
Rühlmann and others, is doubtless to a great extent correct; but it
appears to me that the reasoning on which it is founded is much open to
question for reasons that may here be stated.

In investigating the problem of the relation between the pressure of
the air at a spot above the earth’s surface, as shown by the barometer,
and its temperature and hygrometric condition, physicists have assumed
that the air is a fluid at rest, or, at least, that, if in motion, the vertical
component of the path of each particle is so slight that it may be
neglected. But it appears to me that this assumption is not correct
in regard to mountain observations, especially when we compare
observations made in the plain with those made at stations in an
adjoining region where great masses are raised to a considerable height.
It might be argued that the effects of those wider disturbances known
as cyclones or anticyclones, and those of variable winds prevailing over
wide areas, neutralise each other when we take long periods of one or
several years, although this is by no means certain; but the effect on
the barometer of the periodic movements which show themselves as ascending currents during the warm seasons and hours, and descending currents at opposite periods, are elements the amount of which it seems impossible to determine, but which must affect the results investigated by Belli and his modern followers. I find various indications that the amount of disturbance from this source is not inconsiderable. In the article referred to above, Pictet points out that the barometer at Geneva, on the mean of monthly observations, was always lower at 2 p.m. than at sunrise, the difference in July being very nearly 1 Paris line; whilst at the St. Bernard the observations at the warm hour show a somewhat higher barometer than those at sunrise.

The objections which may be made to the conclusion here discussed apply with especial force to cases where the comparison is made between stations so distant as Geneva and the Great St. Bernard, more than 50 miles apart in a straight line, and divided by considerable mountain masses. It is unfortunate that, owing to the existence of no other continuous series of observations covering a long period, successive writers have expended much labour on comparisons which could yield no satisfactory result.

M. Plantamour, the late Director of the Geneva Observatory, devoted much attention to this subject, and discussed it in various papers, the more important of which are enumerated in the note.* Following the example of Belli, and basing his investigation on the results of ten years' comparative observations at Geneva and the Great St. Bernard, in the first of the papers referred to M. Plantamour calculated the mean temperature of the air between those stations on the assumption that the difference between the result obtained from the barometric formula and the true interval of height between the two stations was in each case due to the difference between the true mean temperature and the semi-sum of the observed temperatures. In this calculation, M. Plantamour substituted for Laplace's formula a modification of Bessel's formula, which is certainly more nearly correct, and appended hypsometric tables based upon the new formula. Comparing the mean temperatures observed at intervals of two hours' duration each month with the true temperature of the intervening air as calculated, M. Plantamour framed a table of corrections to be applied to the barometric formula for intervals of two hours during each month. In a subsequent paper this table of horary corrections was exhibited in the form of a decimal coefficient, which, when multiplied by the difference of height derived from the barometric formula, would give the positive or negative correction for the result of barometric observations.

Soon after the completion of this laborious task, M. Plantamour,

with the assistance of M. Buriner, carried out a very careful measurement, by means of levelling between Geneva and the Great St. Bernard, from which it appeared that the difference between the height above the sea of those stations previously deduced by him from the barometric observations—2066 metres—was less than the true difference by 4·34 metres. It also became apparent that the barometric observations at both stations, during at least some portion of the period serving for calculation, were subject to corrections which had not been fully applied. The result of these facts is to seriously impair the accuracy of the tables previously published.

About the same period, Lieut. Renny, R.E., communicated to the Royal Irish Academy several papers,* which have not obtained the attention to which they are entitled. In the first paper, dated January 1854, the author correctly pointed out the defects of Laplace's formula, arising from the fact that the mode adopted for correcting the error arising from neglecting the influence of aqueous vapour in the atmosphere is erroneous in principle and actually increases the error when the mean temperature is below the freezing point, and proposed a formula by which the effect of vapour is accurately calculated, in which respect, however, it did not sensibly differ from the formula previously proposed by Bessel, except in being more simple in application.

In 1857, Mr. Renny proceeded to the Lake of Geneva, and with the assistance of M. Morlot, of Lausanne, determined by levelling the exact height of four stations near Montreux, and made observations, the details of which are not published, but which appear to have been continued only for two or three days. The highest station was only 1015 feet above the lower one, and the position, on a steep slope facing the south, in many ways unfortunate, so that no importance can be attached to the results.

In the paper communicated to the R. I. Academy in 1858, Lieut. Renny gave a new table of horary corrections calculated on the same principle as that previously published by M. Plantamour, but based upon the true height of the Great St. Bernard as ascertained by levelling, and extending to each hour of the day and night for every month of the year. This table was not, however, free from errors induced by the instrumental errors of the observations both at Geneva and the St. Bernard during part of the period between 1841 and 1850.

M. Charles Martins, who, in conjunction with M. Bravais, had displayed in the years between 1840 and 1845 remarkable energy and enterprise in carrying out observations at great heights in the Alps, published in 1860 a short paper † in which he further discussed the

* 'Transactions of the Royal Irish Academy,' vol. xxiii. pp. 437-48. A second paper in the same volume, dated June 1858, is found at p. 623, and a supplement to the latter, dated 1859, at p. 663.
† 'Bibliothèque Universelle, Archives des Sciences Physiques,' ix. (1860).
question of the amount of horary corrections to be applied to the results of the barometic measurements of heights in Switzerland and the adjoining countries, and proposed for general use a table of corrections at intervals of two hours from 6 a.m. to 10 p.m. for the months from June to September inclusive. On a comparison of the proposed corrections I find the figures given by M. Martins to agree fairly well with those in Mr. Renny’s more extensive table, but the subtractive corrections for the summer months, and the warm hours, as given by Mr. Renny, are greater by from 10 to 15 per cent.

Since the importance of horary corrections for the results of barometric measurements has been much insisted on of late years, I may here make a few remarks on their significance and their practical value. If we take two stations whereat corresponding observations are regularly made for a period sufficiently long, and the difference of whose height is accurately known, it is clear that irrespective of any theoretical explanation we may infer from a comparison between the mean results obtained by calculation for each hour of the day, and each month of the year, with the known difference of height, tables of corrections which will make these mean results agree with the truth. This may be achieved, whatever may be the barometric formula employed, and however remote the two stations may be. But the conclusion that the differences between the results of calculation and those of actual measurement are solely due to error in estimating the true mean temperature of the air between the two stations, is not justified by sound reasoning, especially when applied to stations so remote as Geneva and the Great St. Bernard, which are those chiefly discussed by modern writers. We are familiar with the fact that even in flat countries the relative height of the barometer at places 50 miles apart is subject to constant variation, showing differences which, if treated by the received formulas, would indicate considerable differences of height, and in mountain regions we are not entitled to assume that these disturbances neutralise each other in the course of one, or even several years. If to these we add the effects on the barometer of ascending and descending currents, and of changes in the amount of aqueous vapour in the air, both of which sources of error probably enter into the mean results from which the horary correction is estimated, we shall place little confidence in the process by which it has been sought to estimate the true temperature of the air in mountain countries.

Subject to these remarks, there can be no doubt that, in general, thermometric observations give temperatures higher or lower than the true temperature of the air, according as the surrounding solid bodies are heated by radiation from the sun, or cooled by radiation to the sky; and, further than this, that under similar conditions the air close to the surface of the earth is commonly much hotter or colder than air at the same height above the sea remote from the surface. It therefore appears
certain that for observations made under a clear sky a large correction should be made, the amount of which would mainly depend on the hour, but which would also vary with the nature of the surface, being greatest where this is of rock or dry earth, less considerable where it is covered with vegetation, and very trifling when it is nearly covered with snow, except for night observations, when the cooling effect is exaggerated.*

It is obvious that observations made under a clouded sky are subject to a much smaller amount of correction for the source of error here discussed, and that its amount must vary according to the density of the clouds. Even if we should admit, with the writers above quoted, that the true mean temperature of the air between two stations could be properly inferred from the differences between the measured interval of height and that resulting from observations of the barometer and thermometer, it would be impossible to derive a table of horary corrections suitable for practical application from the monthly means of observations made at each hour. In the mean results are included those made when the horary correction is a maximum, with others when its amount is insignificant. It is even probable that at some periods of the year the monthly mean results include corrections which should bear an opposite sign, being negative on some days and positive at the same hour on other days.

Being convinced of the small value attaching to results obtained by comparison between stations so ill suited for the purpose as Geneva and the Great St. Bernard, I have not undertaken the labour of comparing the results of the observations on separate days with those of the monthly means, with a view to ascertain the comparative effects of clear and cloudy sky; but I find instructive indications on simple inspection of the tables published in the ‘Archives’ of the Bibliothèque Universelle of Geneva. These are not given in a form admitting of accurate comparison, and as the information given as to the extent to which the sky was overclouded does not state the hours at which clouds prevailed on days marked as partially clear, it is impossible to estimate their effect on the respective temperatures during the warm hours of each day. Confining myself to days on which the sky was almost completely clear of cloud, or almost completely covered, and estimating by an approximation sufficient for the purpose the mean temperatures for each day discussed, and those of the warmest hour at the higher and lower stations, I take the difference between the semi-sum of the mean temperatures and the semi-sum of the highest temperatures of the day to be an approximate measure of the correction for the warmest hour.

* In the Reports of the British Association for the Advancement of Science, for 1862, p. 367, I have given some examples of the extent to which the surface clear of snow, in the Alps and Pyrenees, may be heated during exposure to the sun, at heights varying from 6300 to 10,300 feet. At the latter height the temperature, one inch below the surface exposed to the sun, was found to be 83·1° Fahr., while close at hand, but in the shade, the thermometer similarly placed marked 41·9° Fahr.
which would be required to eliminate the disturbing effect of the diurnal variations of temperature. Taking the warmest period of the year, I find in the tables for 1861, between the 20th June and the 20th August, four days on which the sky was nearly cloudless, and but one which is marked as absolutely cloudless, at both stations. On that day (30th July) the excess of the semi-sum of the maxima over that of mean temperatures was $7^\circ\cdot4$ C. For the four nearly cloudless days the average excess was $5^\circ\cdot55$ C., and for one day, on which the sky was clear at Geneva but partially covered at the St. Bernard, the difference was $5^\circ\cdot34$ C. During the same period but one day (15th July) is marked as having been completely over-clouded at both stations, and on that day the difference, estimated as before, was only $1^\circ\cdot75$ C. On August 20th, when the sky was completely covered at the St. Bernard, and partially so at Geneva, the difference was $3^\circ\cdot23$.

I regard the figures here given as having no value as quantitative measures, but as affording sufficient evidence of the important influence which the variable conditions of the weather exercise in the application of horary corrections to the reduction of barometric observations, so that the amount of the correction required may be three or four times as great on one day as on another at the same season.

It is indeed probable that in cases where it can be applied the suggestion first made by Belli would lead to more accurate results than the use of any table of horary corrections. In place of the mean of the thermometric observations made at the higher and lower stations he recommended the introduction into the formula of the semi-sum of the mean temperatures prevailing at each station during three or four days preceding the barometric observations. Travellers can, however, rarely avail themselves of the results of continuous observations at two stations. For their use it is desirable that tables of horary corrections for different countries and latitudes should be made out. In applying these in practice observers must use their own judgment as to the extent to which the correction should be increased or diminished in each individual case.

In 1862 Dr. C. Bauernfeind* published the results of a very careful and laborious investigation of the results of measurements and observations carried out under his direction in 1857, along with a full discussion of many questions relating to the applications of theory to practice. It is unfortunate that this tract, which contains much valuable matter, is rendered needlessly troublesome to the reader. Three different standards of measure—the Bavarian foot and its subdivisions, the old French (or Paris) measure, and the metrical system—are alternately used. Temperatures are in some places reckoned on the scale of Réaumur, at others on the Centigrade; and further, the same letters

* 'Beobachtungen und Untersuchungen über die Genauigkeit barometrischer Höhenmessungen,' Munich, Cotta, 1862.
or symbols are in different pages used in a quite different signification.

Adopting a plan of investigation which, if carried out continuously, and extended throughout the night as well as the day, would probably lead to valuable results, M. Bauernfeind selected the Miesing, one of the highest summits of the outer range of the Bavarian Alps, determined with great accuracy the level of five nearly equidistant stations between the base and the summit, and carried on simultaneous observations for five days and portions of the preceding and following day. The thermometer and psychrometer were observed at all the stations, and the barometer at the lower, the middle, and the summit station. Extreme care was taken to ensure the accuracy and simultaneity of the observations, and unwearied patience is shown in the discussion of the results. The hours of observation were between 8 a.m. and 6 p.m.

Having speedily satisfied himself that, on the mean of the whole series of observations, the formulas generally in use—those of Gauss, Ohm, and Bessel—gave results for the difference of height of the several stations considerably less than the truth, the author proceeded to investigate the subject, and arrived independently at a formula substantially in near agreement with M. Plantamour's modifications of Bessel's formula, and further computed tables for the application to practice of his own formula, which render it very convenient. He has given tables (pp. 53-58) showing the results of the reduction of 100 sets of simultaneous observations calculated on two different hypotheses—(1) that the mean temperature and amount of aqueous vapour may be represented by the arithmetical mean of the observations made at the higher and lower stations only; or (2) that they should be calculated from the mean of the observations made at the intermediate as well as the extreme stations. On the mean of the entire series the results obtained on both these hypotheses agree very well with the truth, but sometimes differ rather widely from each other if we compare a single result. It appears to me that where such a difference existed the results obtained from the second hypothesis were usually nearer to the true difference of height, but M. Bauernfeind in subsequent discussion has preferred the results obtained by taking the arithmetical mean of the observations at the stations whose height is to be determined.

As in all preceding enquiries, it became evident that the observations at the warmest hours gave results exceeding the true differences of height, while those at 8 a.m. and 6 p.m. fell short of it. Taking the true interval of height between the lower and the summit station to be 1068 metres, I find, on each of the days of observation, a difference of from 15 to more than 22 metres between the barometric results obtained at different hours on the same day.

Recognising the fact that such a table is available only for the particular place, and for the period of the year and conditions of temperature
then prevailing, the author has calculated a table of horary corrections, and has exhibited (pp. 71, 72) the results for forty-five sets of observations as modified by those corrections.

On the mean of the five days the heights resulting from the corrected observations for each hour between 9 a.m. and 5 p.m. inclusively, agree with each other and with the true heights in a very satisfactory manner.* But the author has not drawn attention to the fact that even the corrected results for separate days and hours show considerable discrepancies between the calculated and the true heights. In the interval between the middle and the summit station (528 metres) the corrected observations show for three different hours discrepancies between the results obtained at the same hour on different days amounting to about 12·5 metres, or nearly 2½ per cent., and the discrepancies in the calculated results for the interval between the highest and lowest stations exceed 1½ per cent.

The conclusion to which we are led is that in the present state of our knowledge a small number of observations, and especially single observations, to which travellers are often limited, however carefully made with the best instruments, can lead only to approximate results. A further conclusion to be deduced from M. Bauernfeind’s laborious investigation is that but a very limited value can be set upon the general conclusions derived from a short series of observations. The satisfaction with which he viewed the results shown in the tables referred to above, obtained by the application of the horary corrections, would have been diminished if he had remarked that if he had excluded the observations of August 27th, the mean results for the morning and afternoon hours would have been much below the truth, while by including the observations of the 27th and omitting those of the 26th, the mean results for those hours would have been much increased, the difference on the 10 a.m. observations being just four metres.

Up to the date of M. Bauernfeind’s work all the writers who had discussed this subject had proceeded on the assumption that, in the absence of direct knowledge of a law regulating the fall of temperature with increase of height above the earth’s surface, the arithmetical mean of the temperatures found at a lower and upper give the nearest available measure of the temperature of the intervening stratum. As we have seen, the efforts of modern investigators had been directed to disengage the observed temperatures from the disturbing influence of the adjoining solid surface on the assumption that if this could be effected the mean temperature of the intervening column, or stratum, of air would be ascertained.

* The figures set down for the hours between 11 a.m. and 3 p.m. are not quite correct, as no observations were made at those hours on August 24, and the figures set down are those of the true measured heights, not those resulting from barometric observations.
It was, with apparent reason, believed that the vertical distribution of temperature in ascending from the earth's surface, as well as other phenomena connected with the physics of the atmosphere, might be studied with advantage by means of well-conducted balloon ascents. This was accordingly one of the main objects contemplated by the British Association in promoting the series of balloon ascents which were continued for four successive years, from 1862 to 1865. The observations being free from the disturbing effect of proximity to the surface, and it being possible to extend them to a much greater height than is practicable in mountain ascents, it was expected that the observations would disclose a law regulating the decrement of temperature of the air in ascending above the earth's surface.

In the 'Report of the British Association for 1862,' Mr. Glaisher published a full account of the first series of eight balloon ascents, accomplished by himself with Mr. Coxwell in that year, and as the final result of his observations exhibited two tables (pp. 462, 463) which show a gradual and (with one slight exception) a continuous decline in the rate of decrement of temperature in ascending from the surface to a height of 29,000 English feet above sea-level.

It became apparent that if the results thus obtained were legitimately derived from the observations, it would be impossible to base a formula for barometric measurement on the assumption, hitherto admitted, of an uniform rate of decrement in ascending above the earth's surface.

In February 1864, Count Paul de St. Robert, of Turin, accepting the results published in Mr. Glaisher's first Report, proposed in the 'Philosophical Magazine' a formula for the barometric measurement of heights, based upon the assumption of a gradual diminution in the rate of decrement of temperature, as shown in Mr. Glaisher's tables. The author recognised the fact that we are not authorised to assume that a law of decrement ascertained by means of balloon ascents holds good for observations in mountain countries, and suggested the expediency of making simultaneous comparative observations at points of equal elevation on mountains and in captive balloons.

In the following month of June, M. de St. Robert discussed more fully the application of Mr. Glaisher's results to the measurement of heights by the barometer, and to the determination of the amount of atmospheric refraction. For the former object he obtained a very simple approximate formula which dispenses with the use of logarithmic tables. This very able paper, which has been strangely overlooked by many recent writers, will repay perusal even by those who do not accept the assumption on which it is based.

Inasmuch as Mr. Glaisher's conclusions as to the vertical distribution of temperature in the atmosphere have obtained acceptance in many quarters, while I am not aware that his reports have ever been subjected
to careful scrutiny, I propose in the first place to discuss the processes by which his results were obtained.

I should premise that, while Mr. Glaisher adopted the same system for discussing the observations made in his numerous ascents contained in the Reports of the British Association for four successive years, from 1862 to 1865, he became aware, as appears from his Report of 1864, that it was impossible to reconcile his general conclusions with the observations made in many of the ascents. In his first report he had excluded the results of the ascent of 17th July, 1862, as anomalous, and not reconcilable with the other seven ascents discussed in that report; but in 1864 he excluded the observations made in six out of the nine ascents analysed in the report of that year. In surveying the vast mass of observations made in the course of twenty-five balloon ascents, many of them under conditions of great bodily discomfort and positive danger to life, it is impossible not to feel sincere admiration for the energy, courage, and perseverance displayed by Mr. Glaisher in the performance of his arduous undertaking. Such considerations do not, however, affect the scientific value of his conclusions, and to test their value it is necessary to scrutinise closely the method by which they have been obtained. It is fortunate that by publishing the full record of all his observations he has supplied the materials by which others are enabled to study the question.

In examining Mr. Glaisher's Report, I shall also avail myself of the results of four ascents accomplished by Mr. Welsh, whose observations are recorded in the 'Philosophical Transactions' for 1853. So far as I know, the scientific balloon ascents effected in other countries have not been numerous enough to afford instructive results.

As the method adopted by Mr. Glaisher in discussing the results of his ascents was the same throughout the whole series as that fully described in his Report of 1862, I think it most convenient to give a brief analysis of the contents of that Report, so far as it relates to the question here discussed.

In the first series of tables (I.) all the observations made in the eight ascents are given consecutively, the barometer readings being reduced to 32° Fahr. In the second series (II.) the simultaneous readings for the pressure and temperature of the air and the dew-point are set down against the calculated height for each set of observations. In a few cases, where no corresponding observation of the barometer was available, the height, as deduced by interpolation, is given within brackets.

The next step adopted by Mr. Glaisher was to lay down the corresponding readings for height and temperature, for each ascent and descent, on diagrams, and to cause a curve to pass through, or near to, the points marked on the diagrams. "In all these projected curves," to use Mr. Glaisher's words, "there were parts of evidently the same curve showing a gradual decrease of temperature with increasing elevation, and a gradual increase with decrease of elevation." It was assumed
that, by connecting the parts of the curves in which this correspondence was apparent, approximate values of the *normal variation* of temperature with height would be obtained. Having laid down a curve corresponding to each ascent and descent, it was easy to read off the temperature corresponding to each interval of 1000 feet of elevation, commencing at the sea-level. By this process a fresh set of tables (III.) was obtained. In these tables one column is headed "Observed temperature," and another "Adopted temperature," the latter being that indicated by the curve on the diagram. Another column is headed "Calculated effect of disturbance," showing the difference between the observed and adopted temperatures; it being assumed that the deviation in each case was due to the presence of cloud, or other disturbing cause.

Having obtained, in the manner above described, what he considered a near approximation to the *normal temperature*, in each zone of 1000 feet of elevation, for each of his ascents, Mr. Glaisher had no difficulty in framing a fourth set of tables (IV.), wherein, by taking the differences between the consecutive figures showing the *adopted temperatures* corresponding to each successive zone of 1000 feet in the last tables, he shows the decrease of temperature corresponding to a rise of 1000 feet in each ascent and descent. Finally, by taking the mean of all these, and distinguishing the ascents accomplished in clear weather from those when the sky was overclouded, Mr. Glaisher obtained the results which have since been accepted as exhibiting the relation between temperature and elevation derived from actual observation in balloon ascents.

What first suggests a doubt as to the value of the final result is to observe, in the set of tables III., the very wide divergence between the numbers set down for *observed* and those for *adopted* temperatures; the observed temperatures being sometimes in excess by more than eight degrees, and in other cases less by as much as 17 degrees. Further doubt is induced when we find that the so-called observed temperatures are, in many cases, not properly derived from the original observations, but are obtained from them by processes which must be called purely arbitrary,* numbers being in several cases assigned as having been

---

**Actual Observations.**

<table>
<thead>
<tr>
<th>Height (ft.)</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>490</td>
<td>50.0</td>
</tr>
<tr>
<td>3835</td>
<td>45.0</td>
</tr>
<tr>
<td>4467</td>
<td>43.0</td>
</tr>
<tr>
<td>5802</td>
<td>35.8</td>
</tr>
</tbody>
</table>

**Table III.**

<table>
<thead>
<tr>
<th>Height (ft.)</th>
<th>Observed Temperature</th>
<th>Adopted Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>6000</td>
<td>36.8</td>
<td>42.0</td>
</tr>
<tr>
<td>5000</td>
<td>39.3</td>
<td>45.2</td>
</tr>
<tr>
<td>4000</td>
<td>43.5</td>
<td>50.0</td>
</tr>
<tr>
<td>3000</td>
<td>47.9</td>
<td>54.8</td>
</tr>
<tr>
<td>2000</td>
<td>52.5</td>
<td>59.8</td>
</tr>
<tr>
<td>1000</td>
<td>56.9</td>
<td>64.1</td>
</tr>
<tr>
<td>Sea-level</td>
<td>61.5</td>
<td>70.0</td>
</tr>
</tbody>
</table>

With such an amount of license there is scarcely any limit to the variety of results which may be attained from the data.
observed at or near intervals of 1000 feet, when in point of fact the actual observations were made at intervals of 3000, 4000, or even 6000 feet.

With a view more clearly to judge of the possibility of arriving at definite results, I have followed the example of Mr. Glaisher, by laying down on cross-ruled sheets each of the original observations for temperature, one set of lines corresponding to heights above sea-level, the other to degrees of Fahrenheit scale, and I have connected the points so laid down in such a way that the interval of time between consecutive observations is apparent on inspection.

My remarks apply mainly to the observations made under a clear sky; for those recorded under or amidst cloud are subject to so many different causes of disturbance that it seems a waste of labour to discuss them in detail.

The first result apparent on inspecting diagrams in which all the observations are laid down is the great difference shown in the rate of decrement in each of the higher ascents; and the next is the fact that whenever the balloon remained at, or returned to, nearly the same elevation long enough to allow of numerous observations, the temperature varied to a much greater extent than we find in observations made at or near the earth's surface. The latter remark is so important, from the light that it throws on the condition of the higher strata of the atmosphere, that it is desirable to give some examples.

I give below (see Table next page), from the observations under a clear sky in each of Mr. Glaisher's higher ascents, examples of the sudden changes which were experienced at or about the same elevation, sometimes within very few minutes, sometimes even within a fraction of a minute.

It will be observed that in several cases the thermometer rose rapidly in ascending to a higher level; and after laying down the observations in the manner above described, the only point of agreement which I find between the diagrams for the different ascents is the recurrence at various heights of intervals during which the ordinary rule is reversed, so that the line connecting the successive observations is zigzag, widely differing from any regular curve. It is obvious that on a diagram where the points representing the observations are scattered in a fashion so irregular, it becomes a purely arbitrary matter to draw a curve which, while passing near to some points, departs widely from others. On each diagram numerous different curves may be drawn, no one of which has a just title to preference. As to one or two of the ascents, at least as regards observations above the level of 5000 feet, a straight line, indicating a uniform rate of decrement of temperature, would differ less from the record of the observations than any curve.

In spite of the wide choice thus presented for drawing a curve to represent the variable rate of decrement, Mr. Glaisher, as I have already
## BY THE BAROMETER.

<table>
<thead>
<tr>
<th>Date of Ascent</th>
<th>Hour of Observation</th>
<th>Height above Sea-level</th>
<th>Observed Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>h. m. s.</td>
<td>ft.</td>
<td>deg. Fahr.</td>
</tr>
<tr>
<td>July 17</td>
<td>10 27 0 a.m.</td>
<td>19,374</td>
<td>36.1</td>
</tr>
<tr>
<td></td>
<td>10 35 0</td>
<td>19,415</td>
<td>42.2</td>
</tr>
<tr>
<td></td>
<td>10 44 0</td>
<td>19,336</td>
<td>34.0</td>
</tr>
<tr>
<td>August 18</td>
<td>1 15 0 p.m.</td>
<td>7,706</td>
<td>45.7</td>
</tr>
<tr>
<td></td>
<td>1 27 0</td>
<td>7,736</td>
<td>51.0</td>
</tr>
<tr>
<td></td>
<td>1 20 35</td>
<td>11,399</td>
<td>35.7</td>
</tr>
<tr>
<td></td>
<td>1 21 0</td>
<td>11,470</td>
<td>39.2</td>
</tr>
<tr>
<td></td>
<td>1 22 0</td>
<td>10,840</td>
<td>41.8</td>
</tr>
<tr>
<td></td>
<td>2 17 0</td>
<td>10,864</td>
<td>45.5</td>
</tr>
<tr>
<td></td>
<td>2 20 0</td>
<td>11,748</td>
<td>45.0</td>
</tr>
<tr>
<td></td>
<td>2 59 40</td>
<td>22,762</td>
<td>24.0</td>
</tr>
<tr>
<td></td>
<td>3 13 30</td>
<td>22,000</td>
<td>24.0</td>
</tr>
<tr>
<td>August 21</td>
<td>5 12 0 a.m.</td>
<td>8,406</td>
<td>35.0</td>
</tr>
<tr>
<td></td>
<td>6 23 30</td>
<td>8,196</td>
<td>43.5</td>
</tr>
<tr>
<td></td>
<td>5 22 0</td>
<td>12,254</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>5 24 30</td>
<td>12,571</td>
<td>23.0</td>
</tr>
<tr>
<td></td>
<td>6 12 0</td>
<td>12,774</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>5 30 30</td>
<td>13,665</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>5 34 30</td>
<td>13,875</td>
<td>19.3</td>
</tr>
<tr>
<td></td>
<td>5 35 0</td>
<td>14,027</td>
<td>19.5</td>
</tr>
<tr>
<td></td>
<td>5 47 0</td>
<td>14,355</td>
<td>27.6</td>
</tr>
<tr>
<td>September 5</td>
<td>1 38 0 p.m.</td>
<td>19,335</td>
<td>14.2</td>
</tr>
<tr>
<td></td>
<td>1 38 50</td>
<td>20,315</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>1 40 30</td>
<td>20,903</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>1 41 50</td>
<td>21,403</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>2 3 45</td>
<td>21,650</td>
<td>11.0</td>
</tr>
</tbody>
</table>

Pointed out, has been able to obtain his final results only by a process in which what he terms the adopted temperature differs widely from the data furnished by observation. These adopted temperatures are obtained from curves which differ for each ascent, and even the brief interval between the ascent and descent of the balloon has in each case made it necessary to describe two different curves. To infer that from the average of the results obtained in this fashion we can approximate to a true relation between height and temperature of the atmosphere appears to me quite unwarranted by sound reasoning.

The main fact which emerges from the experience of these balloon ascents, and which gives them value as a substantial contribution to physics, is that, in the region where the observations were made, the higher strata of the atmosphere, even in serene weather, and at all seasons, are traversed by numerous currents of very unequal temperature. No doubt there is a constant tendency in these aerial masses to intermix, and to arrive at a uniform temperature; but it is clear that equilibrium is not very rapidly established, and, as the disturbance is

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constantly renewed, the condition at any given moment is that of a quite irregular distribution of temperature.

A priori it was not unnatural to suppose that under favourable conditions there might be discovered a normal temperature corresponding to successive zones of altitude in ascending to the higher regions of the atmosphere, and to derive as a result a regular rate of decrement for equal intervals of height; but Mr. Glaisher by those remarkable ascents clearly proved that the method which he sought to apply is inapplicable to give the kind of solution which he anticipated. Where a phenomenon is the complex result of many separate and independent agencies, only one of which is known, it is hopeless to seek to express it in terms of the single known agency. On the surface of the earth the temperature at a given spot, and at a given moment, largely depends on the position of that spot with reference to the sun as determined by the annual and diurnal revolutions of the earth; but, knowing how many other causes operate at the same time to modify the result, no physicist would attempt to infer the temperature of the place in question for a given epoch in terms of the latitude, the season, and the hour.

In the above remarks I have referred exclusively to observations made at heights exceeding 5000 feet. With regard to those made in the lower strata of the atmosphere, especially in summer, I think that we have sufficient reason to believe that the decrement of temperature for an equal difference of height is more rapid near to the earth's surface than in the higher regions. Unfortunately it happens that in our climate observations in the lower region are rarely free from the numerous sources of disturbance arising from the total or partial interposition of cloud, and the liberation of heat that arises from condensation of vapour, or its absorption from the contrary process. Out of Mr. Glaisher's twenty-five ascents and descents, but four of each were effected under a clear sky in the zone below 5000 feet, and but four others with a sky partially clear. The observations in the lower region are neither sufficiently numerous nor sufficiently concordant to justify any exact conclusions as to the amount or the rate of decrement of temperature, beyond the general result that observations made in this country in summer, and by day, lead to the belief that the decrement of temperature is more rapid in the strata near the surface, and diminishes up to a height of 4000 or 5000 feet.

In all Mr. Welsh's ascents, intervals likewise occurred where the ordinary phenomenon was reversed, and the thermometer rose instead of falling in ascending from a lower to a higher level; but in the ascents of 21st October and 10th November the amount of these disturbances is very much less considerable than in those made in summer, either by Mr. Welsh or Mr. Glaisher.

I may here remark that these departures from the ordinary course appear to occur under two different conditions, and to have a completely
different origin. The disturbances that are found in passing through, or near to, clouds, which usually are of inconsiderable amount, arise from the condensation of aqueous vapour, causing the evolution of heat, or from the reconversion of cloud to the state of vapour, when the neighbour-
ing mass is cooled to supply the heat consumed in the change. Quite apart from these disturbances are the sudden, and often considerable, changes that are experienced, even under a cloudless sky, in the upper regions of the atmosphere in the latitude of our islands. These evidently arise from the intermixture of currents of relatively dry air of very unequal temperature, and it is owing to their presence that it seems hopeless to expect to discover any law regulating the vertical distribution of temperature by means of balloon ascents in this part of the world.

In estimating the temperature of masses of air through which a balloon may be carried, we must recollect that the variations may be due to the fact that each current has originated at a great distance from the place of observation, having an initial temperature much higher or lower than that proper to the region where it is encountered, or, on the other hand, may be mainly due to vertical displacement, causing expansion or contraction, which is one of the ordinary results of interference between aerial currents.

A mass of dry air descending 1820 feet has its temperature raised by ten degrees of Fahrenheit's scale, while an opposite effect is produced on ascending currents; so that it is easy to understand the existence, in close proximity, of masses of air of very unequal temperature, which apparently tend to arrange themselves in horizontal strata. No doubt, if sufficient time were allowed, equilibrium would be restored, and the distribution of temperature would follow some regular progression; but the masses of air which adjoin each other to-day were hundreds of miles apart yesterday, and will be as widely separated to-morrow.

In connection with this branch of the subject, the observations made during Mr. Glaisher's first ascent, on July 17th, 1862, are especially deserving of attention, being so abnormal that in discussing the general results Mr. Glaisher has sometimes, though not uniformly, excluded them from his tables. On that occasion a dense stratum of cloud was passed through in ascending from a height of about 4000 to that of 8000 feet, and in the descent a stratum of twice that thickness was entered at a height of more than 12,000 feet. But above the clouds the air was serene, the sky of a deep blue, with a breeze from W.S.W., which carried the balloon nearly 100 miles in two hours. During the ascent from Wolverhampton to a height of 9600 feet the thermometer fell continuously and rapidly from 59° Fahr. to 26°.2. During the following ascent of 3400 feet the temperature remained fixed at about the same point; but in the course of the ensuing further ascent of nearly 6000 feet the thermometer rose 11 degrees, from 26°.2 to 37°.2. For the
next 19 or 20 minutes the balloon remained nearly at the same level—about 19,400 feet—and the temperature further rose to $42^\circ \cdot 2$, or nearly the same that had been found at a height of 4500 feet. The thermometer then fell to $34^\circ$, while the balloon remained about the same height. When the ascent was resumed, the temperature fell rapidly from $34^\circ$ to $16^\circ$ in a vertical distance of 4400 feet, and remained at the same point during a further ascent of 1400 feet, followed by a descent of 1200 feet. Still more rapid was the rise of eleven degrees, from $16^\circ$ to $27^\circ$, in descending from the level of 25,000 feet to that of 23,850, while twenty-three minutes earlier the temperature observed at nearly the same level was only $17^\circ \cdot 5$. It seems to me evident that these facts can be explained only by the interference of currents of very different temperature, originating, probably, at great distances from the place of observation.

Although, for the reasons above assigned, I do not believe that the observations made in balloon ascents in the climate of England can lead us to accurate conclusions as to the distribution of temperature in the atmosphere, I have thought it desirable to ascertain as closely as possible what results may legitimately be derived from them. Referring exclusively to the actual observations, and taking the means of those made nearly at the same time and at the same level, I have made out in tabular form the results for each ascent—25 by Mr. Glaisher and four by Mr. Welsh—for successive intervals of 1000 feet from sea-level to 5000 feet, distinguishing between those under the influence of cloud from those obtained under a clear sky. The results thus derived differ widely from those exhibited by Mr. Glaisher, and display such extreme irregularity, there being scarcely any two out of the whole number showing a moderate amount of agreement, that, on taking the mean of the whole series, no approach to uniform results is discernible in the higher regions. So far as these are concerned, I have thought it more advisable to fix upon a wider interval for the successive zones of elevation than that selected by Mr. Glaisher, and in the following table I have shown the mean of the results obtained under a clear sky from the ground up to 4000 feet, and thence at successive intervals of 3000 feet, or nearly 1000 metres.

I have extended the table to the height of 25,000 feet, although, excluding the anomalous results of the ascent of the 17th of July, 1862, the observations between 22,000 and 25,000 feet are limited to those made in the ascent of the 5th September, 1862. As to everything exceeding that height, it is impossible not to notice the grave deficiency in scientific caution displayed by Mr. Glaisher in dealing with the results of that famous ascent, in which he so nearly sacrificed his life in the cause of science. At page 448 of the Report of 1862, we find observed and adopted temperatures between the heights of 25,000 and 29,000 feet, the figures decreasing in regular progression, from $- 1^\circ \cdot 6$ F. at 25,000 feet to $- 5^\circ \cdot 3$ F. at 29,000 feet. On turning to the record of the actual
observations made in that ascent (page 422), we find that two observations at about the level of 25,350 feet gave the temperature — 2° F., and that one observation was made at 26,350 feet, when the thermometer marked — 5°. Above that height, Mr. Glaisher became insensible, and the only fact ascertained was that a delicate minimum thermometer fell to — 12° at a height which it is impossible to determine.

In the table for clear sky observations I have excluded not only the observations made in the midst of, or near to, cloud, but also the anomalous results of the ascent of the 17th of July, 1862. With regard to those made under what Mr. Glaisher denominates a partially clear sky, I am led from close examination to rank most of them under the heading cloudy sky; as even in the condition, so common in these islands, of scattered clouds at a moderate elevation, it is clear that they exercise a disturbing influence on the temperature of the air. In this respect, Mr. Glaisher was very unfortunate. Out of twenty-five ascents there are only five in which the conditions of the higher regions were favourable enough to make it possible to utilise his results. Mr. Welsh's ascents in 1852 were accomplished under far better conditions. That of the 26th of August was almost completely free from clouds, and in those of the 21st of October and 10th of November no clouds were encountered above the level of 5000 feet. I am disposed to attribute to the results of Mr. Welsh's ascents in the higher region a value at least equal to that obtained from Mr. Glaisher's more numerous observations; and I have shown in separate columns, the general means as obtained by giving equal value to the results of each ascent, and by giving equal value to the separate means resulting from Mr. Welsh's and Mr. Glaisher's observations.

With regard to the lower region, within a distance of 4000, or perhaps 5000 feet from the surface, the temperature of the air is directly affected by that of the earth, which contributes a new and important agent to the complex causes already in operation. When the earth receives more heat from the sun than it loses by radiation to the sky, the adjoining air is heated beyond the temperature which it would possess if the earth were a neutral body, and although in such a condition portions of heated air arise and diffuse heat through the overlying strata, this process does not extend very far, and the natural result is that the decrement of temperature is greatest in the lowest zone and diminishes rather rapidly as we rise through the successive zones of equal height. We should expect to find a reverse effect on serene nights, when the earth loses heat rapidly by radiation, and in a more marked degree in winter, especially when the surface is covered with snow. We may infer that, apart from other disturbing causes, the nature and amount of the effect produced by the vicinity of the surface will vary with the season and the hour at which the observation is made. But in our climate one disturbing cause is in frequent operation at all seasons, and
renders the actual results highly complex and irregular. Independently of the effect which clouds produce in the region where they are formed, or where they are dissipated, their presence serves as a screen to diminish the heating effect of solar radiation, but still more lessens the cooling effect of radiation from the earth to the sky.

I have set down in the table for the observations under a clear sky the mean results obtained for each successive zone of 1000 feet from the ground to 5000 feet above the sea; to which I have added a separate table showing the rate of decrement between the same intervals of height derived from all the observations made under a cloudy sky, with a separate column giving the mean result of all the observations. In forming the latter table I have omitted the observations made on 5th April, 1864, when exceptional conditions evidently prevailed, and the interval between the ground and the height of 1000 feet observed on 31st August, 1863, as to the accuracy of which Mr. Glaisher expresses doubt.

In both tables I have taken as the measure of the rate of decrement of temperature the number of degrees of Fahrenheit's scale corresponding to a vertical rise of 1000 feet, and I have carried the computation to two places of decimals, not because I suppose great accuracy to be attainable, but because the resulting figures are more accurately comparable. The figures within brackets prefixed to the mean results indicate the number of ascents from which each has been derived.

I should here remark that, at the best, the results shown in these tables can be regarded merely as rough approximations, as there are many sources of unavoidable error in the records of the observations. Thermometers, however delicate, do not instantly acquire the temperature of the surrounding air; in general the temperatures marked in an ascent are too high; those in the descent are too low. A further difficulty arises from the fact that however carefully the instruments are shaded, the substances used to shade them become sensibly heated by exposure to the sun, and affect the indications of the thermometer. The observations are not usually strictly simultaneous, and if made by a single observer, it is not possible that the temperature should correspond accurately with the calculated height. It may also be remarked that during periods of rapid ascent or descent the motion of the balloon must give rise to local currents in the surrounding air which may probably affect the indications of the barometer. Again, the heights were calculated, both by Mr. Welsh and Mr. Glaisher, by a formula involving an assumed law of decrement of temperature which is probably incorrect. In several of the ascents it can be shown that the law of decrement involved in Laplace's formula deviates widely from the actual conditions prevailing at the time of the observation. At great elevations it is probable that the calculated height exceeds the truth in many cases, especially when the temperature recorded is higher than the true temperature of the air.
I must further add that, after bestowing much labour on the task, I have found great difficulty in utilising Mr. Glashier's observations in the higher ascents, and therefore affix a note of interrogation to the figures expressing the mean results, although the errors cannot be very considerable. Not to speak of minor discrepancies, the figures set down for the calculated heights in many instances do not correspond with the recorded observations of the barometer and thermometer. Whether these discrepancies have arisen from misprints, or from errors of calculation, it is now impossible to determine.

Table I.—Shewing the Mean Rate of Decrement of Temperature found under clear sky in balloon ascents by Messrs. Welsh and Glaisher.

<table>
<thead>
<tr>
<th>Interval of Height</th>
<th>Rate of Decrement — No. of Degrees corresponding to a Difference of 1000 Feet.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean of Mr. Welsh's Ascents.</td>
</tr>
<tr>
<td>Ground to 1,000 feet</td>
<td>2:50</td>
</tr>
<tr>
<td>1,000 to 2,000</td>
<td>2:40</td>
</tr>
<tr>
<td>2,000 to 3,000</td>
<td>1:40</td>
</tr>
<tr>
<td>3,000 to 4,000</td>
<td>3:56</td>
</tr>
<tr>
<td>4,000 to 5,000</td>
<td>2:08</td>
</tr>
<tr>
<td>Ground to 4,000</td>
<td>3:31</td>
</tr>
<tr>
<td>4,000 to 7,000</td>
<td>2:70</td>
</tr>
<tr>
<td>7,000 to 10,000</td>
<td>1:62</td>
</tr>
<tr>
<td>10,000 to 13,000</td>
<td>2:35</td>
</tr>
<tr>
<td>13,000 to 16,000</td>
<td>2:66</td>
</tr>
<tr>
<td>16,000 to 19,000</td>
<td>3:03</td>
</tr>
<tr>
<td>19,000 to 22,000</td>
<td>3:33</td>
</tr>
<tr>
<td>22,000 to 25,000</td>
<td>.</td>
</tr>
</tbody>
</table>

Mean rate of decrement above 4,000 feet... 2:82 2:05 2:25 2:37

Table II.—Shewing the Mean Rate of Decrement of Temperature in successive zones of 1000 feet of elevation from the ground to 5000 feet, derived from balloon ascents by Messrs. Welsh and Glaisher.

<table>
<thead>
<tr>
<th>Intervals of Height</th>
<th>Mean Rate in Observations with Clear Sky.</th>
<th>Mean Rate in Observations with Cloudy Sky.</th>
<th>General Mean Rate of Decrement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground to 1,000 feet</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>1,000 to 2,000</td>
<td>3:53</td>
<td>3:98</td>
<td>3:89</td>
</tr>
<tr>
<td>2,000 to 3,000</td>
<td>3:57</td>
<td>3:29</td>
<td>3:34</td>
</tr>
<tr>
<td>3,000 to 4,000</td>
<td>3:00</td>
<td>3:08</td>
<td>3:06</td>
</tr>
<tr>
<td>4,000 to 5,000</td>
<td>2:95</td>
<td>2:32</td>
<td>2:48</td>
</tr>
</tbody>
</table>

The figures given in Table I. sufficiently dispose of the assertion that balloon observations justify a belief in the gradual and continuous
diminution in the rate of decrement as we ascend to the higher regions of the atmosphere. On the average results of the higher ascents the most rapid fall of temperature is found between 10,000 and 13,000 feet above sea-level; and in general, if we except the lowest zone within 1000 or 1500 feet of the surface, the instances of a very rapid fall of the thermometer occur more frequently at great heights, between 15,000 and 22,000 feet, than they do at intermediate elevations.

The case is different, as clearly appears from Table II., when we consider only the condition of the lower strata of the atmosphere. Although the general result given by me is far less marked than that derived by Mr. Glaisher, it is clear that within a distance extending in our climate to 3000 or 4000 feet from the surface, the rate of decrement of temperature diminished in each successive zone of altitude nearly in the ratio of 8 in the lowest zone to 5 in that between 3000 and 4000 feet. Between 4000 and 5000 feet the average rate, as deduced from all the observations, is nearly the same as that of all the higher zones. Considering the great irregularity of the results obtained in the several ascents, I do not attach importance to the figures shown in Table II. as quantitative results, but the general agreement is sufficient to prove that as regards the lower strata of the atmosphere the assumption of a uniform rate of decrement cannot be adopted as the basis of a formula for the reduction of barometric observations made by day. That assumption would on the average give a mean temperature of the column between the higher and lower stations higher than the true mean temperature, and therefore bring out heights exceeding the true amount.

This statement, however, can be safely applied only to observations made by day in the climate of these islands. I have no doubt that if we could compare the results of an equal number of night ascents, or of ascents made in winter in countries where the sky is frequently clear, and where snow lies on the ground, we should find results not only different, but opposite in character. We might expect to find a very slow rate of decrement near the surface, and even a rise of temperature in the lowest zone.

The wide difference between the results given in Table II. and those exhibited by Mr. Glaisher, must strike the reader who has studied his report. The chief cause of this is to be found in the method adopted by Mr. Glaisher for estimating the decrement of temperature in the lowest zone, which is certainly based on an erroneous principle. Unmindful of the fact that the rapid fall of temperature usually observed in warm weather as the balloon rises through the first few hundred feet is due to the near proximity of the heated surface, he has assumed that an equally rapid, or even more rapid, rate of fall would be found in ascending 1000 feet from the level of the sea. In most of his ascents Mr. Glaisher started from places varying in height from 250 to 500 feet above sea-
level, and he has entered, under the heading *Observed Temperature*, not any temperature actually recorded, but what he inferred as the probable temperature at the sea-level. To give a single instance, but by no means the most glaring that might be selected, I shall take the ascent of 5th September, 1862. Starting from Wolverhampton, at a height of 490 feet above the sea, the observations gave the following readings:

<table>
<thead>
<tr>
<th>Height</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>490 feet</td>
<td>59·5° Fahr.</td>
</tr>
<tr>
<td>720</td>
<td>59</td>
</tr>
<tr>
<td>909</td>
<td>57·2</td>
</tr>
<tr>
<td>1450</td>
<td>55·5</td>
</tr>
</tbody>
</table>

In Mr. Glaisher's Table III. we find the following entries:

<table>
<thead>
<tr>
<th>Height above Sea-level</th>
<th>Observed Temperature</th>
<th>Adopted Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>feet</td>
<td>°</td>
<td>°</td>
</tr>
<tr>
<td>0</td>
<td>62·0</td>
<td>77·2</td>
</tr>
<tr>
<td>1000</td>
<td>57·5</td>
<td>70</td>
</tr>
<tr>
<td>2000</td>
<td>53·0</td>
<td>65</td>
</tr>
</tbody>
</table>

As a result we find in Table IV. the fall of temperature recorded in that ascent entered as follows:

<table>
<thead>
<tr>
<th>Height</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 1000 feet</td>
<td>7·2</td>
</tr>
<tr>
<td>1000 „ 2000</td>
<td>5·0</td>
</tr>
</tbody>
</table>

In framing the table above given by me I estimated the rate of decrement in the lowest zone, from the ground to 1000 feet, at 4°. The reader may judge which best represents the observations.

The general conclusion to which we are led by the discussion of balloon ascents is that the relation between temperature and elevation, in the climate of England and in day observations, is most nearly represented by a hyperbola of which the branches, at heights exceeding 4000 feet, are nearly parallel to the asymptotes, and therefore deviate little from a straight line; always subject to the condition that, owing to the presence of currents of unequal temperatures, the temperature at any given point and given moment of time may differ widely from that represented by the curve, or by any formula based upon it.

I think it probable that balloon ascents executed in the tropics, and especially near the Equator, would show a much nearer approach to regularity in the vertical distribution of temperature than we can expect to find in temperate latitudes, where atmospheric currents differing much in temperature become intermixed. Such ascents, well conducted, in well-selected parts of the earth, are, I venture to think, among the desiderata of physical science.

If it were possible, by means of repeated balloon ascents, to acquire a more accurate knowledge than we now possess of the distribution of
temperature at considerable distances from the earth's surface, the result so obtained would be of much value to the astronomer for the more accurate determination of the amount of atmospheric refraction, but would be of comparatively slight use in the determination of heights by means of the barometer or other instruments for measuring atmospheric pressure. In ascending mountains we are always near to the earth's surface, and the column of air between the summit and the lower station has its temperature largely influenced by radiation from the surface and by convection. Further than this, the slopes of mountains are the highways of ascending and descending currents, which lose heat by expansion, or gain it by contraction. Another agency, which is usually present in mountain countries, is that of aqueous vapour, which gives out heat in condensation, or abstracts it when it resumes the gaseous state. The temperature found on the slope or the summit of a mountain is the momentary result of all these agencies; and, when we consider their complexity, we may be led to despair of the possibility of discovering any general law regulating the vertical distribution of temperature in mountain countries which, when embodied in a formula, might enable us to derive accurate measurements of heights from barometric observations. Nevertheless, as it is from such observations alone that we derive our knowledge of the relief of the surface in the larger part of the world, it is necessary to appeal to the results of observation to guide us to an empirical law to be provisionally adopted for the solution of the problem.

It is unfortunately true that we are as yet very ill supplied with the knowledge which might be acquired by suitable observations conducted with a view to this special object; but the further I have been able to investigate the subject, the more I have been impressed with the conviction that the conditions of different regions of the earth are so different, that no single formula can be even approximately correct, and that in reducing the results of observations supplied by travellers and explorers, different formulae should be adopted according to the region whence they are derived. That is one of the chief practical conclusions to which the present paper is directed.

Deferring some remarks on the results of observations in the north temperate zone, especially in Europe and North America, I desire to direct attention to the available materials supplied by observations in the tropics. It is true that these are not nearly extensive enough to justify positive conclusions; but, as far as they go, they lend no support to the belief that decrement of temperature in that zone is more rapid in the lower strata than in the higher regions. The well-known table given by Humboldt, as the result of his own observations and those of Caldas and Boussingault, which has been copied by many writers on physics, appears at first sight to point to a directly opposite conclusion. The interval of 500 toises corresponds very nearly to one of 3000 English
feet, and it will be seen that the fall of temperature in ascending from 500 to 1000, and from 1000 to 1500 toises, is very much less than in passing from 1500 to 2000, and from 2000 to 2500 toises. I have added a column in the following table to make the results more readily comparable with those obtained in balloon ascents, as above given:

<table>
<thead>
<tr>
<th>Height in Toises.</th>
<th>Mean Temperature</th>
<th>Number of Metres corresponding to a Fall of 1° C. from the Sea-level.</th>
<th>Number of Metres corresponding to a Fall of 1° C. between successive Zones of 500 Toises.</th>
<th>Rate of Decrement in degrees Fahr. corresponding to a difference of Height of 1000 feet in each successive Zone.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea-level</td>
<td>27·5</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>500</td>
<td>21·8</td>
<td>171</td>
<td>171</td>
<td>3·21</td>
</tr>
<tr>
<td>1000</td>
<td>18·4</td>
<td>216</td>
<td>287</td>
<td>1·91</td>
</tr>
<tr>
<td>1500</td>
<td>14·3</td>
<td>221</td>
<td>238</td>
<td>2·30</td>
</tr>
<tr>
<td>2000</td>
<td>7·0</td>
<td>190</td>
<td>133</td>
<td>4·12</td>
</tr>
<tr>
<td>2500</td>
<td>1·5</td>
<td>187</td>
<td>177</td>
<td>3·17</td>
</tr>
</tbody>
</table>

No safe conclusions can, however, be drawn from this table. Irrespective of other causes of error, most of the stations at which observations were taken between 800 and 1500 toises above sea-level were situated on plateaux where, as experience has proved in all parts of the world, the temperature is much higher than on isolated summits, and where in consequence the rate of decrement of temperature is unduly lowered.

Of much greater value are the observations made by Mr. Whymper in the Andes of Ecuador. These, unfortunately, are not yet fully published, and I have seen none but the summary which appeared in the 'Proceedings' of the Royal Geographical Society for 1881, p. 461. I have discussed the results of his observations elsewhere,* and shall here merely give a summary in a form admitting of comparison with those of balloon ascents in the preceding pages. As before, the rate of decrement is shown by the number of degrees of Fahrenheit corresponding to a rise of 1000 feet. Excluding three ascents in which the conditions were manifestly exceptional, I find the following results:

<table>
<thead>
<tr>
<th>Places Compared.</th>
<th>Difference of Mean Height.</th>
<th>Rate of Decrement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea-level and Quito</td>
<td>3344 feet</td>
<td>2·43</td>
</tr>
<tr>
<td>Quito to three lower peaks</td>
<td>6890 feet</td>
<td>2·81</td>
</tr>
<tr>
<td>Mean of three lower and that of two higher peaks</td>
<td>3140 feet</td>
<td>3·77</td>
</tr>
<tr>
<td>Mean of two higher peaks (Cayambe and Cotopaxi) compared with Chimborazo (first ascent)</td>
<td>1143 feet</td>
<td>4·96</td>
</tr>
</tbody>
</table>

It is quite possible that local conditions affecting the moist climate of Ecuador may produce exceptional results, and that observations in

* 'Notes of a Naturalist in South America,' London, Kegan Paul & Co., 1877.
the Andes of Peru and Bolivia may exhibit a different distribution of temperature, and it is also true that Mr. Whymper's observations are not numerous enough to justify positive conclusions; but, so far as they go, they indicate that near the Equator the rate of decrement of temperature becomes more rapid in ascending to great heights, and consequently that a formula based on a different assumption would give, for the higher summits, results less than the true measure.

Some observations made in Peru and Bolivia by Mr. F. Copeland, at intervals between the months of February and June, seem to indicate a very rapid fall in temperature in ascending from the plateau surrounding the Lake of Titicaca, at an elevation of about 12,600 feet, to the ridge dividing this from the coast region of Peru, the height of the station at Vinocaya being 14,360 feet. There is some reason to think that a similar rapid fall of temperature is found at about the same height elsewhere in the Peruvian Andes.

In tropical Asia the available materials are almost limited to the British dominions and to mountain stations of moderate height. Being derived from widely separated stations, they throw little light on the vertical distribution of temperature, but show a near agreement in the general result as to stations between 4000 and 6200 feet above the sea, giving an average rate of decrement varying from 3°·6 to 3°·8 of Fahrenheit for 1000 feet of ascent.

In the subtropical zone, from lat. 23° to lat. 35°, Humboldt's observations in Mexico on mountains near to the tropic show an average decrement of 2°·92 F. per 1000 feet, but do not afford any information as to the comparative rate of decrement. In subtropical Asia we have a valuable series of observations, giving the monthly and yearly means of the temperatures at three hill-stations on the southern declivity of the Himalayas compared with those of stations in the neighbouring plains. These illustrate the important effects of differences of climate and season upon the rate of decrement of temperature. The three stations, as to which I have extracted particulars from the 'Indian Meteorologist's Vade-Mecum,' by H. F. Blanford, are Darjeeling, 6555 feet above Gualpara, which is 386 feet above sea-level, with a moist climate, overlooking the hot and damp plains of Bengal; Chakrata, 6165 feet above Roorkee, which is 886 feet above the sea, near the border of Kumaon in the North-west Himalaya, with a moderately dry climate; and Murree, 5817 feet above Rawul Pindie (1650 feet above the sea), near the northern frontier of the Punjab, with an arid climate, where the sky is usually clear throughout the year.* The mean decrement of temperature per 1000 feet of elevation at the three stations is as follows:

* The results given by Mr. Blanford differ considerably from those contained in Dr. Wolkef's recent work 'Die Klimate der Erde.' In the latter volume the figures set down, in metrical measure, for the decrement of temperature, do not in many cases, agree with the mean temperatures recorded.
Darjeeling, 3°·09 F. *; Chakrata, 2°·94; Murree, 2°·1. In all these observations the influence of season is very marked. At Darjeeling in summer the abundant rains raise the temperature, and the decrement of heat is less than in the comparatively dry winter season. In the three summer months—June, July, and August—the mean rate is 2°·66 per 1000 feet, while in the winter—December, January, and February—the mean rate rises to 3°·4. At Chakrata the conditions are reversed, and the rate is least (2°·16) in winter, and greatest (3°·5) in the early summer. At Murree the contrast between the different seasons is still more marked. In summer the arid plains of the Northern Punjab are comparatively more heated than the hill-country; in winter they are cooled by radiation, and the temperature falls below the normal of the latitude. In July the mean decrement is 3°·5 per 1000 feet; in December it is not more than 1°·13.

By far the most important observations yet made in the Himalaya are those carried on by Sir Joseph Hooker in 1848 and 1849, in the course of his explorations in Sikkim and the adjoining regions of Nepal and Tibet. Although the main object of his journey was the advancement of botanical science, which he enriched by so many important discoveries, the amount of work accomplished by him in meteorology is such as must have fully taxed the energy of an ordinary scientific traveller. In the appendix to his Himalayan Journals he has given in a summary form the results of more than 3000 observations for pressure, temperature, and relative humidity of the air between the plains of Bengal and heights exceeding 18,000 feet, along with a series of observations with the barometer and the boiling-point thermometer. The detailed observations have not been published, but it appears that they were subject to great irregularity, due to local conditions, and that the influence of season was experienced even at great heights. During the dry season the mean rate of decrement between 12,000 and 17,000 feet was 2°·65 per 1000 feet, while during the rainy season the rate between 12,000 and 18,000 feet fell to 2°·4. Sir Joseph Hooker gives the following as the approximate mean results of all his observations:

<table>
<thead>
<tr>
<th>Interval of Height</th>
<th>Rate of Decrement per 1000 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 to 3,000 feet above sea-level</td>
<td>3°·33</td>
</tr>
<tr>
<td>8,000 to 10,000</td>
<td>3°·13</td>
</tr>
<tr>
<td>10,000 to 14,000</td>
<td>2°·87</td>
</tr>
<tr>
<td>14,000 to 18,000</td>
<td>2°·5</td>
</tr>
</tbody>
</table>

The inference to be drawn is that in the region of the Himalaya affected by moist, hot winds, the rate of decrement diminishes as we ascend, and that the formula of St. Robert, based upon that assumption, should be

* The results given by Mr. Blanford agree very well with those of the observations taken at the same height at Darjeeling in 1848 and 1849 by Sir Joseph Hooker. I have preferred the former, because they are based on a longer series of observations.
employed in reducing observations with the barometer made by day, with corrections for the season and the hour which may hereafter be determined. It did not escape the attention of Sir Joseph Hooker that the distribution of temperature at night is probably different from that prevailing by day; and during the rainy season, he made numerous night observations which were compared with those taken at the same hours at Darjeeling. The results were found to be very irregular; but the mean of those at seventeen stations lower than Darjeeling gave for the rate of decrement $2^{\circ}24$, while those at twenty-one stations higher than that place showed the rate of decrement $2^{\circ}87$. So far as they go, these figures indicate a different distribution of temperature by night from that which prevails by day.

It would be unsafe to infer from the observations in the Eastern Himalaya that a similar vertical distribution of temperature prevails throughout the entire range. I am not acquainted with any published observations bearing on the subject, but, through the kindness of General Strachey, I have been enabled to make use of a valuable series of hourly observations made by him in Kumaon, in the Western Himalaya, each set being compared with simultaneous observations recorded at a lower station. The primary object of these observations was to ascertain the horary correction for the determination of heights by the barometer, but incidentally they may throw a little light on the vertical distribution in that region. The following table gives the results, the approximate heights of the stations being given in brackets. I should remark that, although the barometer readings are recorded to the thousandth part of an inch, those of the thermometer are given only in the nearest whole number of Fahrenheit's scale. As I find that the difference of temperature between the higher and lower stations varied widely in amount according to the hour selected for comparison, I have given in separate columns the maximum and minimum rates of decrement, with the hours at which they were observed.

<table>
<thead>
<tr>
<th>Date</th>
<th>Stations Compared</th>
<th>Difference of Mean Temperature</th>
<th>Mean Rate of Decrement</th>
<th>Maximum Rate of Decrement</th>
<th>Minimum Rate of Decrement</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-14 Feb.</td>
<td>Kota (2,320 ft.) to Almora (5,606 ft.)...</td>
<td>0</td>
<td>4.57</td>
<td>5 a.m., 5.48</td>
<td>3 p.m., 3.65</td>
</tr>
<tr>
<td></td>
<td>Almora (5,606 ft.) to Chimar (8,610 ft.)...</td>
<td>15</td>
<td>4.62</td>
<td>3 p.m., 6.27</td>
<td>3 a.m., 2.97</td>
</tr>
<tr>
<td>24 Oct.</td>
<td>Bita (5,550 ft.) to Duttapali (10,140 ft.)...</td>
<td>15</td>
<td>3.27</td>
<td>2-4 p.m., 5.23</td>
<td>7 a.m., 1.52</td>
</tr>
<tr>
<td>Mean July</td>
<td>Joshimath (6,280 ft.) to Nit (11,520 ft.)...</td>
<td>13</td>
<td>2.48</td>
<td>6 p.m., 2.67</td>
<td>9 a.m., 2.1</td>
</tr>
<tr>
<td>7-8 Oct.</td>
<td>Nit (11,520 ft.) to Kogsa (14,680 ft.)...</td>
<td>14</td>
<td>4.4</td>
<td>12 noon, 6.6</td>
<td>4-7 p.m., 3.43</td>
</tr>
<tr>
<td>Mean 17-21 Aug.</td>
<td>Nit (11,520 ft.) to Lanjar Camp (16,440 ft.)...</td>
<td>12</td>
<td>2.44</td>
<td>4-6 a.m., 3.48</td>
<td>noon to ( 3 p.m., 1.63</td>
</tr>
<tr>
<td>22-23 Aug.</td>
<td>Nit (11,520 ft.) to Lanjar Peak (18,405 ft.)...</td>
<td>21</td>
<td>3.05</td>
<td>1 a.m., 3.92</td>
<td>1 p.m., 1.89</td>
</tr>
</tbody>
</table>
Perhaps the chief practical conclusion to be drawn from this table is that little reliance can be placed on the results of observations continued for short periods. It is very improbable—even allowing for local differences—that the rate of decrement in February at the lower stations is widely different from that observed between Roorkee and Chakrata, in the same region, and at no great distance; but the mean decrement between those places at that season is not more than $2.86$ per $1000$ feet. The results obtained from the mean of the month of July and that of five days in August command greater confidence. The circumstance that the greatest difference of temperature and most rapid rate of decrement is found at night or before sunrise at the two very elevated stations is probably due to the increased cooling effect of radiation at heights where it is not diminished by the presence of a sensible amount of dust, or of aqueous vapour. It seems probable that in Kumaon, as well as in the Eastern Himalaya, the rate of decrement diminishes in ascending to the higher region, and that St. Robert’s formula is that which should be adopted.

In the temperate zone of the northern hemisphere, in Europe and North America, we might expect ample materials for forming some general conclusion as to the vertical distribution of temperature in that part of the earth; but, although thousands of observations are annually made and recorded, so little attention has been devoted to this particular subject that no sufficient results are available.

Comparative observations conducted at several well-selected neighbouring stations, on the plan adopted by M. Bauernfeind, but continued throughout the year, and at moderate intervals by night as well as by day, would doubtless largely increase our knowledge, and facilitate the practical application of barometric measurements; but no such systematic observations are as yet available. It cannot as yet be said that mountain observations throw any light on the question, whether, apart from the influence of the season and the hour, the rate of decrement of temperature near the earth’s surface is approximately uniform, or is connected with increasing height by any regular relation.

It is well established that the rate of decrement is modified by the variable conditions which mainly depend on the position of the spot with reference to the sun, and therefore on the latitude and the hour of the day, and to a greater extent on the season of the year. Observations in the Alps, in Auvergne, in the Caucasus, on Mount Washington in Eastern North America, and on Pike’s Peak near the centre of that continent, agree in showing a much slower rate of decrement in winter than in summer. The proportion varies from about 5:10 in dry climates, where the sky is usually clear; to 9:10 in maritime stations, where the presence of vapour tends to equalise the seasons.

The most recent important contribution to the discussion of this
subject is an able tract by Dr. Rühlmann. He has prefaced a careful historical sketch, along with a copious catalogue of the bibliography, neither of which, however, contains any reference to the memoirs of Belli and of St. Robert, to which I have above directed attention. The author has chiefly occupied himself with the discussion of the discrepancies between the results of barometric measurements depending on the hour and the season of observation. Using the observations made at the five stations on the Miesing by Bauernfeind, as well as the tables giving six years' observations at Geneva and the St. Bernard, he has sought to distinguish the amount of error in the results due to the variations of the barometric pressure, from that resulting from the difference at each period of observation between the true mean temperature of the intervening air, and the mean derived from the thermometric observations. Assuming that the true weight of the column of air between the two stations is given by the difference of barometric pressure at the upper and lower stations, he has, like his predecessors, taken it for granted that the true mean temperature of the intervening air is that which, if used in his own formula, will give the true difference of height. Putting aside the observations at Geneva and the St. Bernard, which, as I have already shown, can furnish no safe conclusions, I have carefully examined the results of Bauernfeind's observations on the Miesing as treated by M. Rühlmann, with the results shown in Tables XII. and XIII. of his work. I speedily found numerous errors of transcription in the figures given in his twelfth table, and deemed it safer to recalculate the results from Bauernfeind's original observations. In so doing I have preferred to take the heights derived from using the mean temperatures and pressure of aqueous vapour resulting from the observations at all the five stations (given in the seventh column of Bauernfeind's Table XXVII., pp. 57, 58) rather than from those made only at the upper and lower station.

I have confined myself to the comparison between the lower station, 2794 Bavarian feet above sea-level, and the summit station, 6454 feet above the sea, differing in height by 3660 feet, and have found it sufficient to compare the observations at 9 and 10 a.m., at noon, and at 4 and 5 p.m. Following the example of M. Rühlmann I have neglected, as unimportant, the trifling differences in the mean amount of aqueous vapour at each observation, and have not attempted to attain extreme accuracy. Closer calculation would give results differing from mine in the second place of decimals. Omitting as misleading the observations made during the morning hours only on the 20th August, the following table gives the mean results from five days' complete observations, excepting that there is no noon observation for 24th August. The second column gives for the mean of the period the difference in Paris

lines between the barometers at the two stations; the third gives, in Bavarian feet, the mean error in the calculated height as compared with the true difference—3660 feet; the fourth column gives the mean of the thermometric observations at all the stations for each of the hours included in the table in degrees of Réaumur's scale, and not Centigrade, as erroneously entered by Rühlmann; finally, the fifth column gives the calculated mean temperature of the intervening air on Réaumur's scale.

**Results of Comparison between Observations at the Higher and Lower Stations on the Miesing.**

<table>
<thead>
<tr>
<th>Hours of Observation</th>
<th>Mean Difference between Barometers Corrected.</th>
<th>Mean Error in the Calculated Height.</th>
<th>Mean of Thermometric Observations.</th>
<th>Calculated True Mean Temperature of the Intervening Air.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 a.m.</td>
<td>36·13</td>
<td>- 8</td>
<td>13·99 R.</td>
<td>13·25 R.</td>
</tr>
<tr>
<td>10 a.m.</td>
<td>36·11</td>
<td>+ 4</td>
<td>14·90</td>
<td>13·50</td>
</tr>
<tr>
<td>Noon</td>
<td>36·22</td>
<td>+ 19</td>
<td>14·50</td>
<td>13·78</td>
</tr>
<tr>
<td>4 p.m.</td>
<td>36·32</td>
<td>- 4</td>
<td>13·80</td>
<td>13·18</td>
</tr>
<tr>
<td>5 p.m.</td>
<td>36·03</td>
<td>- 23</td>
<td>12·69</td>
<td>13·08</td>
</tr>
</tbody>
</table>

At the first sight these figures appear to confirm the conclusion that the discrepancies between the results of observation and those of actual measurements may be fully explained by the difference between the true temperature of the air and the mean of thermometric observations. The temperatures assigned for the different hours are pretty nearly what might have been expected, and are far more probable than those obtained by Rühlmann, who makes what he terms the *true* mean temperature increase by 1°·8 R. (or over 4 degrees of Fahrenheit) between 9 a.m. and 5 p.m. They undoubtedly go to show, what is in itself highly probable, that the true temperature of the air is affected only to a moderate extent by the diurnal changes which are exhibited by the thermometer near the earth's surface. If we suppose the figures above set down to indicate correctly the true mean temperature of the air at the hours named, it will be seen that the amplitude of the daily oscillations is less than one-half of that shown by the thermometric observations. Between 9 a.m. and noon the increase is about half a degree Réaumur, corresponding to an increase of 1°·4 in the thermometer column; and between noon and 5 p.m. the decrease is 0°·7 R., corresponding to a fall in the thermometric observations of 1°·8 R.

While the results obtained by taking the mean of many observations are much to be preferred for most practical purposes, they frequently lead to serious error when the object is to trace the causes of physical phenomena, and this remark applies especially in meteorology. When, in the present instance, we come to examine separately the results obtained on the assumption that the true mean temperature is ascertainable by the process here described, we find many results so improbable that we are forced to doubt of the validity of the reasoning on which they are...
based. I do not venture to give at length the grounds upon which I arrive at this negative result, but I find that I can give sufficient proof by exhibiting the mean results of the same set of observations comparing those for successive days instead of those for different hours of the same day. I should premise that no observations were recorded for noon on 24th August, and that none whatever were made on the 25th. It will be remarked that the temperature fell considerably (on the average more than 3° Réaumur at all the stations) between the 24th and 26th August.

**Results of Five Days' Comparative Observations at the Higher and Lower Stations on the Miesing.**

<table>
<thead>
<tr>
<th>Date</th>
<th>Mean Difference between Barometers Corrected</th>
<th>Mean Error in the Calculated Height</th>
<th>Mean of Thermometric Observations at Five Stations</th>
<th>Mean of Thermometric Observations at the Higher and Lower Stations</th>
<th>Calculated True Mean Temperature of the Intervening Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>22nd Aug.</td>
<td>m</td>
<td>feet</td>
<td>o R.</td>
<td>o R.</td>
<td>o R.</td>
</tr>
<tr>
<td>23rd &quot;</td>
<td>36·68</td>
<td>- 3</td>
<td>12·96</td>
<td>13·07</td>
<td>12·64</td>
</tr>
<tr>
<td>24th &quot;</td>
<td>35·68</td>
<td>- 2</td>
<td>15·29</td>
<td>15·25</td>
<td>12·80</td>
</tr>
<tr>
<td>26th &quot;</td>
<td>35·71</td>
<td>± 0</td>
<td>14·97</td>
<td>14·36</td>
<td>12·45</td>
</tr>
<tr>
<td>27th &quot;</td>
<td>36·32</td>
<td>- 13</td>
<td>11·57</td>
<td>11·25</td>
<td>14·08</td>
</tr>
<tr>
<td></td>
<td>36·39</td>
<td>+ 3</td>
<td>13·40</td>
<td>13·35</td>
<td>14·11</td>
</tr>
</tbody>
</table>

It will be seen that on the first two days the calculated true temperature was below the thermometric mean—notably so on the 23rd—and, allowing for the absence of noon observations on the 24th, the proportion was about the same on that day. Though the difference is greater than might be anticipated, it may be considered not altogether improbable. But when we compare the figures given for the 24th and 26th August, we find that the calculated mean temperature of the air rose by 1°·6 Réaumur (or 3°·6 Fahr.) at the same time that the mean of the temperatures recorded by the thermometer fell 3°·4 R., or about 7°·6 Fahr., while on the following day (27th) the calculated mean temperature continued to rise, and remained at 1° R. above the thermometric mean.*

To my mind, these anomalous results prove that some important element in the problem has been omitted from consideration, and that the difference of pressure recorded by the barometers at two stations does not at all times give a true measure of the weight of the column of air corresponding to the height of the lower and upper stations, and therefore that the true temperature of the intervening air cannot be correctly inferred from the observations. I have no doubt that the chief cause of the anomalies here discussed is the effect of ascending

* It will be seen that in the above table I have added a column for the mean temperature of the thermometers observed at the higher and lower stations for comparison with that giving the mean of observations at five nearly equidistant stations. The results are nearly concordant on three days, and the differences do not affect the argument here advanced.
or descending currents on the indications of the barometer, and that Ramond's suggestion, though he exaggerated its importance, has been unduly neglected by subsequent investigators.

Rühlmann has attempted to deduce from his calculations as to the true mean temperature of the air, results showing the law regulating the vertical decrement of temperature by a process which must be described as a glaring instance of the petio principii. Having assumed in page 77 that the relation between height and temperature may be expressed by a linear equation, or, in other words, that the decrement is directly proportional to the height, he has given in his Table XIII. a series of figures showing for each hour between 8 a.m. and 6 p.m. the true mean temperature at each of Baurnfeind's intermediate stations, and the number of metres of ascent corresponding to a fall of 1° C. Having assumed that the true mean temperature of a stratum of air is found at the middle point between its upper and lower surfaces, he naturally has no difficulty in showing that the rate of decrement at different heights is approximately uniform. It is not too much to say that this portion of Rühlmann's work is altogether misleading. I think that I have shown that the process by which the true mean temperature of the air is calculated is unsound in principle. If it were otherwise, the results obtained by him are not correctly derived from the observations, and the inferences drawn from them are obtained by assuming as a basis of calculation the very point which is the object of inquiry. Finally, the figures set down in the 5th, 6th and 7th columns correspond to degrees of Réaumur, and not to the Centigrade scale, as there stated.

I cannot leave this branch of the subject without reference to the views of M. M. D. Mendeleef, which were published in the 'Archives des Sciences Physiques,' of Geneva, for 1876, and which have been to a great extent adopted by M. Woikef in his important work, * 'Die Klimate der Erde.' Starting from the belief that the distribution of temperature in the atmosphere is mainly determined by the amount of expansion in ascending to a higher level, which is inversely proportional to the pressure, M. Mendeleef believes that (apart from disturbances) there must be, in fact as well as in theory, a simple and direct relation between temperature and pressure. The only disturbances which he considers important are those caused by the condensation of aqueous vapour, or its return to the gaseous condition. He was led by this train of reasoning to examine the records of Mr. Glaisher's balloon ascents, and to deduce as an empirical result the simple formula \( t = C + A H \)

\( t \) being the temperature, \( H \) the height of the barometer, \( C \) the temperature at the superior limit of the atmosphere where the pressure disappears, and \( A \) a constant varying with the season and the position, and mainly depending on the temperature at the lower station. M. Mendeleef

concludes that the limiting temperature $C$ remains the same at all seasons and at all parts of the earth from the equator to the poles; and the value deduced by him is $-36^\circ$ of the Centigrade scale.

In his recently published work M. Woiekofof attaches much importance to M. Mendeleef's theory, but, on a review of the results of balloon ascents and mountain observations, estimates the value of $C$ at $-42^\circ C$. He has calculated the temperature which should result at various places from the mean of continuous observations made at a higher as well as a lower station in the same vicinity, and where it may be supposed that the effects of occasional disturbances are eliminated, on the supposition that the simple relation between temperature and pressure suggested by M. Mendeleef holds good; and has set the figures down in a column beside those that give the mean results of the actual observations. The comparison shows that if we look to the means of separate months the temperature varies widely from that indicated by M. Mendeleef's formula, but that the means derived from the entire year show a fair amount of agreement. I find, indeed, on referring to Mr. Glaisher's observations in balloon ascents, upon which M. Mendeleef especially relied in confirmation of his views, that, while the observed temperatures at the higher elevations approximate to those derived from M. Mendeleef's formula, they deviate widely from that formula when the comparison is extended to the lower zone, within 4000 or 5000 feet of the surface; and that this remark applies to the winter ascents, as well as to those made in summer.

It appears to me that, to whatever extent M. Mendeleef's formula is applicable as a rough approximation to the law of decrement of temperature within a moderate distance from the earth's surface, it is impossible, in the present state of our knowledge, to accept the supposition that the temperature at the superior limit of the atmosphere can be nearly so high as that which follows from his theory. It is, indeed, impossible to form a definite conception of the physical condition of the outermost stratum, but, whatever else may exist there, it does not seem permissible to suppose that the temperature can be maintained at a point greatly superior to that of interplanetary space. Well-known investigations concur in assigning to this a temperature of from 100 to $142^\circ$ Cent., or from 180 to $256^\circ$ Fahr., below the freezing-point.

Notwithstanding the reasons given by M. Woiekofof for a contrary conclusion, it also seems to me inconceivable that the temperature at the earth's surface should remain for a considerable time lower than that of the superior limit of the atmosphere, of which the lower estimate is $-42^\circ C$. We know that the mean winter temperature of a large tract of Eastern Siberia is below that figure, and that the observations at Werchojansk give the mean temperature of January $-49^\circ C$.

Taking $t$ and $t'$ to denote the temperature, and $p$ and $p'$ the pressure, as indicated by the barometer at the lower and higher stations re-
spectively, M. Mendeleef arrives at the formula \( t' = C + \frac{t^0 - C}{p^0 - p'} \). It is obvious that this leads to the inference that the higher the temperature of the lower station the greater must be the fall of temperature, and the more rapid the rate of decrement in ascending to the higher station. Adopting M. Woikeof's value of \( C (-42^\circ\text{C}) \), we should have the following results for a barometric pressure at the higher station of 24 inches. I give the amount of fall of temperature between the sea-level and the higher station corresponding to different temperatures at the sea-level and the approximate rate of decrement in degrees of Fahrenheit per 1000 feet.

<table>
<thead>
<tr>
<th>Barometric Pressure at Upper Station.</th>
<th>Temperature at Sea-level.</th>
<th>Temperature at Upper Station.</th>
<th>Rate of Decrement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td>°F.</td>
<td>°</td>
<td>°F.</td>
</tr>
<tr>
<td>24</td>
<td>86</td>
<td>60.08</td>
<td>4.57</td>
</tr>
<tr>
<td>&quot;</td>
<td>59</td>
<td>38.48</td>
<td>3.82</td>
</tr>
<tr>
<td>&quot;</td>
<td>32</td>
<td>16.88</td>
<td>2.83</td>
</tr>
</tbody>
</table>

This corresponds fairly well with the differences observed at many stations in the temperate zone between the rate of decrement in summer and winter respectively; but by no means agrees with observations in the tropics compared with those in the temperate zone. Not to speak of the Andes, which may be subject to exceptional conditions, I find on comparing the observations at seven pairs of stations in Southern Asia, where the mean annual temperature at the lower station is about 78°F., with eight pairs of stations in the north temperate zone, where the lower stations have a mean temperature rather below 48°F., that the mean annual rate of decrement between the upper and lower stations is as nearly as possible equal, whereas M. Mendeleef's formula would give the ratio of decrement in the hotter region compared to that of the cooler stations nearly as 3:2.

Finding that the empirical formula thus recommended involves a hypothesis as to the physical constitution of the atmosphere which is in itself highly improbable, and that, while it agrees fairly well with some of the results of observation, it differs widely from others, I do not think that in the present state of our knowledge it can be accepted as even approximately correct.

Little attention seems to have been given to an ingenious suggestion of M. de St. Robert, first published in the Paris journal 'Les Mondes' in 1864. Observing that the velocity of sound depends upon the density of the air through which it travels, he pointed out that by measuring the time employed in the passage of sound between an upper and a lower station—that is, the interval between the appearance of the flash and the perception of the sound of a firearm or other explosive sub-
stance—we should obtain an accurate measure of the mean density of the intervening strata of air, as affected by variations of temperature and elasticity of aqueous vapour.

Denoting by $\tau$ the time in seconds observed for the interval of time, by $\phi$ the angle between the line joining the upper and lower station and the vertical, by $p^o$ and $p^i$ the height of the barometer at the lower and upper stations respectively, and by $x$ the difference of height in metres between the two stations, M. de St. Robert arrived at the simple formula

$$x = 6\cdot005 \frac{\tau^2 \cos^3 \phi}{\log \frac{p^o}{p^i}}.$$ 

The difficulty of employing this method for a traveller is that of measuring the interval of time between the report and the flash and the angle $\phi$ with the requisite accuracy. The author found, in applying the method in practice, that it is possible to measure the interval of time to fifths of a second, and he has shown that where the distance between the stations is considerable an error of one-fifth of a second would not seriously affect the result.

It is scarcely probable that this method will be extensively employed by travellers, but I wish to point out that at fixed stations placed within sight of each other it would give very valuable results, supplementary to those derived from the observation of the thermometer. With small bombs constructed to give a loud report the sound would travel over considerable distances. Among other advantages, the observations might be frequently repeated, and would be even more easily made by night than by day. In order to avoid the error arising from wind or air-currents the observations should be made simultaneously at both stations, the mean of the two being taken as the measure of the velocity of transmission.

It very frequently happens that travellers in uncivilised countries are unable to compare their barometric observations on mountains with those made at any lower station, and they are reduced to a comparison with the assumed height of the barometer at the sea-level, which is taken by English travellers to be 30 inches, and is estimated by most Europeans at the not quite equivalent height of 760 millimetres. It is now well known that in various parts of the world the pressure of the air at maritime stations varies widely from the general mean, being highest in warm temperate latitudes, and declining thence towards the equator, and still more towards the poles. Further than this, the average pressure at such stations varies with the seasons; but in most parts of the world the non-periodic variations caused by cyclones and anticyclones are of rare occurrence. In the zones of variable winds, where such disturbances are common, it may be impossible to estimate

* In calculating the constant, the force of gravity at lat. 45° was assumed as the basis. The error, even for places at the equator, is comparatively insignificant.
with any accuracy the mean pressure at coast stations for any season of
the year; but one considerable source of error in the determination of
heights would be much diminished if travellers were furnished with a
table showing the mean pressure of the air at different seasons of the
year for coast stations in tropical and subtropical latitudes.

I desire to add a few remarks relating to the aneroid barometer, an
instrument the use of which for measuring heights has been discounte-
nanced by several writers of authority. It may be freely conceded that the
inferior instruments commonly sold are nearly worthless for this purpose;
but out of a large number a few are found superior to the rest in accuracy
and stability, and such may usually be obtained from the best makers.

One defect common to all, even the superior aneroids, is that, owing to
the imperfect elasticity of the metal, the index does not rapidly return
to the same point after exposure to diminished pressure. Observations
with the aneroid on a mountain should therefore always be made during
the ascent, and no reliance placed on the indications given during the
descent. It is further true that these instruments are liable to derange-
ment from accidents, such as a slight blow or severe shake, and that it is
necessary from time to time to test the accuracy of the indications by
comparison with a standard barometer, or, if that be impracticable, with
the boiling-point thermometer. Subject to these remarks, I think it
very undesirable that travellers in little known countries, who are
unable to carry a mercurial barometer, should be discouraged from using
an instrument which, with proper precautions, may give a fair approxi-
mation to the true elevation of the places visited.

I may mention that I have found, on comparison at the Geneva
Observatory of an aneroid by Sécrétan of Paris, which had served for
several seasons in the Alps, an index error of rather less than one
millimetre. There are many regions of the earth where a much less
accurate instrument would increase our knowledge of the relief of the
surface.

Observations with the boiling-point thermometer are free from some
of the objections to which those with the aneroid are liable, and can be
made with little trouble at the traveller's lower station, whether in a
house or in camp, but are often difficult to carry out on an exposed
mountain. As few travellers will take the trouble to carry a delicate
thermometer of much length, it is necessary to assume a possible error
of observation of a tenth of a degree Centigrade or a fifth of a degree
Fahrenheit, corresponding on a mountain of moderate height to more
than 100 feet of elevation. It is nevertheless much to be desired that
travellers should carry with them two boiling-point thermometers, serving as they do to check the errors of the aneroid, as well as to give
an independent measure of altitude.

It is scarcely needful to remark that, inasmuch as both these instru-
ments are employed to measure the pressure of the atmosphere at the
place of observation, the results obtained from them are subject, in addition to the sources of error peculiar to each of them, to those that affect all measurements of height by the mercurial barometer.

I have, in the foregoing pages, abstained from discussing the various formulae which have been proposed for the reduction of observations for the measurement of heights, because in this department theory has so far outrun observation, that it seems needless to discuss the comparatively minute differences arising from the use of different formulae, while we are still unable to ascertain with accuracy the data from which the final result is to be obtained. In the treatise above quoted Rühlmann has given all the more noteworthy formulae, excepting that of St. Robert, the most recent being those proposed by Bauernfeind and by Rühlmann himself. The differences between the results given by these are of trifling amount; but it appears to me that Rühlmann’s formula, with the tables supplied by him, is the more convenient in practice.

For mountains of moderate height, especially in reducing observations made in summer and in temperate latitudes, I prefer St. Robert’s formula, which, with the short tables printed by that author, is extremely convenient in practice. In countries where tables of corrections for temperature for the month and the hour of observation have been made out from comparison between well-chosen stations, whose difference of height is accurately known, I think that travellers should be recommended to apply the correction. Unfortunately no such tables of corrections exist, excepting for the Alpine region of Central Europe, and those proposed by Plantamour, Renny, C. Martins, and Bauernfeind, are open to the objections stated in the preceding pages. Nevertheless, until a more satisfactory table shall be constructed, a nearer approach to accuracy would be attained by the use of Plantamour’s table. Where it is possible to do so, I should recommend the adoption of Belli’s suggestion—to substitute for the demi-sum of the temperatures observed at the same time as the barometers, the demi-sum of the mean temperatures prevailing at the upper and lower stations during the forty-eight hours preceding the observation—as preferable to the use of an uncertain table of corrections.

To sum up the conclusions to which I have been led by this inquiry, I would in the first place point out that we are as yet deficient in materials from which to infer with any probability, the law connecting the decrement of temperature of the atmosphere with increased height above the sea-level, and that it is even doubtful whether such a law is discoverable. In other words, that we have reason to doubt whether the constant disturbances created by aerial currents do not render the conditions of temperature at different heights too irregular to be reducible to any regular sequence.

Whatever may be the conditions of temperature in the atmosphere at a distance from the earth’s surface, it appears certain that these pre-
vailing at the surface, which are those concerned in the determination of heights by the barometer, are altogether different from those of the free atmosphere; and it is only by the multiplication of observations directed to this especial object in various parts of the world that we can hope to attain to approximate accuracy in this mode of ascertaining the form of the earth's surface. I regard it as further proved that while the difficulty of ascertaining the true temperature of the air is the chief cause of the errors incident to barometrical observations, there are other sources of error, doubtless arising from the action of ascending or descending currents on the indications of the barometer, which cannot be accurately measured, but which may cause considerable error in the results of computation.

Although they may not contribute much to improve the methods for the measurements of heights on the earth's surface by the barometer, there can be no doubt that our knowledge of the physics of the atmosphere may be materially advanced by scientific balloon ascents. These have hitherto been confined to a small portion of the north temperate zone. If extended to other regions of the earth, and especially to the equatorial zone, they would furnish valuable results. They cannot well be attempted in countries covered with forest, such as the greater part of tropical Brazil; but in tropical Australia, some parts of British India, the llanos of Venezuela, and many parts of Africa, they may hereafter be accomplished.

For these we may, however, have to await a distant future; but in the meantime results of greater practical value may be obtained by suitable arrangements for observations in mountain countries. Instead of carrying on observations at two fixed stations only, it would not entail a serious increase of labour or expense to obtain regular observations at two or three stations intermediate between higher and lower stations. At most places where mountain observatories now exist, daily communication is kept up between the base and the summit station; and observations at intermediate stations might be recorded, and simultaneous readings secured by signals at the lower and higher permanent stations. In addition to the ordinary observations, a continuous series of observations on the velocity of sound, as proposed by St. Robert, might give very valuable results. By the concurrent action of civilised governments, observing-stations might be established in many parts of the world, and results obtained which would throw fresh light upon many problems in meteorology.

The stations selected for this object should include places having a maritime as well as a continental climate. Mount Etna, the peak of Tenerife, Mouna Kea in Hawaii, and the Piton de Neige in the island of Réunion are examples of the former class; and these enjoy the advantage of being isolated summits, where the conditions are not complicated by the vicinity of other elevated land-surfaces. Of continental stations
now existing, those on Pike's Peak in Colorado, and at Darjeeling, Chakrata and Murree, in British India, may be specified, and the establishment of intermediate stations would probably be effected without difficulty. Of the many other places that may hereafter be selected, I may mention as especially desirable Mount Whitney, in the Sierra Nevada of California, which on other grounds has been recommended by the eminent physicist Mr. Langley, and a well-chosen station in the Caucasian region. The Austrian Meteorological Society, which has taken a leading part in the advancement of this branch of physics, might with advantage promote the establishment of observing-stations on one of the prominent summits of the Eastern Carpathians. For this purpose the Buceces seems well adapted, and might be conveniently connected by intermediate stations on the one side with Törzburg, or on the other with Sinaia, in Roumania.

Apart from special observing-stations, hereafter to be established, it would be comparatively easy to obtain valuable connected series of continuous observations, at points whose elevation is accurately known, in countries where railways have been carried to a great height above the sea. This remark applies especially to the railways that extend from the west coast of South America to considerable heights in the Andes. The most important of these are the line running from Callao and Lima to Chicla, which is 12,220 feet above the sea, and that from Mollendo to Puno on the Lake of Titicaca, which crosses a ridge 14,360 feet above sea-level. In the present unfortunate condition of Peru the opportunities presented by these railway lines may not speedily be utilised, but a more hopeful prospect is presented by the railway now in course of construction between Mendoza in Argentaria and the Chilian coast at Valparaiso, crossing the Uspallata Pass. Observations regularly made at the stations on that line would be the more interesting, as they would connect together two regions on the opposite sides of the Andean chain, whose meteorological conditions are comparatively well known, and which possess very different climates.

P.S.—In the preceding pages I have not discussed the effect, on the relative indications of the barometer at two stations of unequal height, of the prevalence, at the time of observation, of a cyclone or anticyclone of any intensity. It may be considered certain, that in the case of a mountain of moderate height the difference between the readings of the instruments at the two stations will be less during the prevalence of a cyclone than in that of an anticyclone; but it is doubtful whether the same conclusion holds where the upper station is at a great height above sea-level. Future observations will doubtless throw light on this question, but, in the meantime, it must be reckoned among the unavoidable sources of error in the determination of heights by the barometer.

J. B.
RIVER ENTRANCES.

BY

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Much attention has been bestowed in recent years on the submarine geography of the great oceans; and the hydrography of river-systems has been studied almost from time immemorial. It appears strange that the region connecting the two should have remained to this day, if not entirely unexplored, at least very inadequately investigated; yet this is the case.

The entrances of rivers are of great importance practically, and this has been recognised; in fact, almost all the researches hitherto made on them have been carried out by engineers in the course of surveys and of operations for improving the channels for navigation or constructing harbours. The intermingling of salt sea-water with the fresh water of rivers presents, from a purely physical point of view, many interesting problems which vary in each individual case. Chemical processes of diffusion, double decomposition and precipitation occur, and in immediate association with these, biological questions come into prominence. Diatoms, for instance, abound in estuaries, for the large influx of "fresh" water is much richer in dissolved silica than is that of the sea. In geology the importance of estuarine processes is fully apparent; the gradation of deposits determined by distance from shore, and the modifications produced by the action of animal and vegetable life show us in actual process of formation the shallow-sea sediments, which are the richest depositaries of organic fossil remains.

Perhaps the most puzzling question with regard to river-entrances is the geographical one concerning the exact point at which the river ends and the sea begins. Disputes concerning this have given rise to much litigation in connection with salmon-fishing and the disposal of sewage from towns situated on tidal streams; and no attempts to settle the matter by topographical or tidal definitions have been, so far as I know, satisfactory.

The forms of river-entrance are extremely various; but if, with our present knowledge, a classification can be attempted, it might be based in the first place on the physical conditions of the sea entered; and then on the relation between the volume of fresh water carried down by the river, and the area and configuration of the inlet into which it flows.

Rivers flowing into inland seas, or those in which the tidal range is small, are usually characterised by deltas, wide and traversed with
numerous channels, like that of the Nile, or long and narrow with fewer mouths, like that of the Mississippi. The opposite extreme to this is presented by a river entering the head of a gradually widening and deepening sea-inlet of great size, which is subject to strong tides.

From observations made on the Firth of Forth * in some detail, and on other river-systems † to a less extent, and from a few records of scientific researches by various investigators, ‡ and the comparatively abundant data supplied more or less incidentally in the course of engineering operations, § it would appear that no precise geographical meaning can be given to the terms river, estuary, firth, inlet, unless the physical conditions of the water are taken into account. The curve of salinity, with position, remains so nearly constant throughout the year that salinity even in tidal streams appears to be almost as permanent a geographical feature as topography.

I divide a river-system, connected with a tidal sea, into the following parts, which correspond to some extent with Stevenson’s river “compartments”:—

1. The river proper, a stream of fresh water with its tributaries.

2. The estuary where tide produces more or less tumultuous mixing of salt, or brackish with fresh water, where the increase in amount of dissolved salts per mile is extremely rapid, and the change of temperature also considerable. Here there is a marked difference of temperature, and salinity, between surface and bottom, and most of the sediment of muddy rivers settles down. Topographically the estuary may change in position with meteorological conditions, in exceptionally dry weather it may retreat up stream and become shorter, in exceptionally rainy weather it may extend downwards into what is usually the firth and increase in length, but it appears to have a mean position which is practically constant.

3. The firth, or sea-inlet, extends from the end of the estuary to the open sea. In it tidal changes are small, the water is a nearly uniform brackish mixture, increasing in salinity steadily, but more and more slowly as the sea is approached, and the change of temperature with position, although uniform, is slight.

To illustrate these divisions we may refer to the Firth of Forth, a sketch-map of which, given in the accompanying figure, has the curves of density of the water at 60° F. (representing salinity) drawn above it,

‡ Macadam on the Clyde, Brit. Assoc. Rep., 1855 (ii.) p. 64; Kyle on the Plate (pamphlet).
and the curves of temperature drawn beneath. The light continuous line shows surface salinity at low tide in the upper diagram, and surface summer-temperature in the lower; the light broken line represents the salinity at the bottom at low tide, and the bottom summer-temperature.

**Fig. 1.**

Diagram to illustrate typical divisions of a River Entrance.

The heavy, continuous and broken lines indicate the surface and bottom salinity at high tide and temperature in winter.

The four divisions of river, firth, estuary, sea, are marked out by a thin double line running through the three figures of the diagram.

The 25 miles between Inchkeith and May Island are characterised by gradual and slight increase of salinity seaward, gradual and slight change of temperature in a direction dependent on the time of year, and a nearly uniform vertical distribution of both salinity and temperature at all states of tide. This region is the Firth proper; to the east the curves become horizontal, those of density at about 1.026, and this may
be viewed as the open sea. Between Inchkeith and Alloa (27 miles) at low water, and between Inchkeith and Cambus (30 miles) at high tide, in ordinary circumstances the salinity decreases more and more rapidly, and the difference between surface and bottom increases. This region is characterised by a similarly rapid change of temperature, and constitutes the estuary; but sufficient observations have not yet been made to determine precisely where the maximum difference of salinity and temperature between surface and bottom takes place. West of Cambus, although the tide rises and falls, no salt appears to penetrate, and the river proper commences, represented in the figure by a horizontal density-curve at 0.999.

Every river-system does not appear to contain all these regions. The Amazon, for instance, carries fresh water right out to sea, and there appears to be no estuary, in our meaning of the word. The Plate, to take as example another large river of South America, has a very long and shallow estuary, but apparently no firth. It will probably be shown, when more data are obtained, that all rivers have the three divisions enumerated, but that in some cases the firth or even the estuary is out at sea, the limits being defined solely by change of salinity. By taking these facts into consideration it is possible to make a provisional classification of rivers entering a tidal sea.

Examples may be found in the British Islands of three typical varieties of river-entrance, and although, compared with great continental rivers, these may appear like mere laboratory illustrations, the conditions are so much of the same kind, that in default of better knowledge the differences may be taken as of degree alone.

The Forth exhibits, as we have said, all the divisions in a very perfect manner; its wide open firth, gradually narrowing and shallowing as it proceeds inland, leads to an estuary and then to the unusual feature of a river with no bar. The Clyde has a much shallower estuary, but is similar to the Forth, as regards the firth in its physical conditions at least, although the extraordinary manner in which the western sea-area is broken up by islands and prolonged into narrow, deep sea-lochs produces some interesting and special features.*

The Thames appears to have a long estuary expanding into a comparatively short firth, if we can judge from Mr. Birch's observations,† which it would be well to extend and supplement. The Tay entrance in its geographical features resembles that of the Thames; both are shallow and much obstructed by bars and sandbanks; and the similarity extends to the physical conditions of the water also, for the Tay has a long estuary and scarcely any firth.

No better instance than the rapid running Spey could be given of a river possessing no estuary at low tide, and only one quarter of a mile

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long at high water. Here the fresh stream shoots out across the bar over the surface of the sea, and when discoloured by floods, the track of the river may be followed, as a brown stripe running through the clear green water for many miles.

To summarise the foregoing, it will suffice to name the three classes of river-entrances defined by their conditions as to salinity—condition which depend directly, but in a manner not yet precisely ascertained, on the ratio between the volume of the non-tidal and that of the tidal portion of the river-system:

1st. Rivers which enter directly, remaining in all cases fresh on the surface, and freshening the surface of the sea, even at high tide, e.g. the Spey.

2nd. Rivers in which the salinity increases very rapidly as the sea is entered, which render the surface water of the sea brackish to a considerable distance. These have an Estuary, e.g. the Tay.

3rd. Rivers which after a rapid increase of salinity mix gradually, uniformly, and completely with sea water, and produce a slight but marked freshening of the sea throughout its whole depth at their junction. These have an Estuary and a Firth, e.g. the Forth.

What has been said so far is intended to illustrate how physical definitions of river, estuary, and firth may extend and give accuracy to the geographical usage of these words, and how those definitions may be used to classify river-entrances, although this classification, being made from the consideration of a small number of cases, must be viewed as provisional only.

It may be well now to describe briefly what observations should be made in order to gain a knowledge of other river-systems, such as we are at present endeavouring to acquire for those in Scotland. One might point to the Bristol Channel as a region of very peculiar interest in this respect; and also to the Mersey, the Ribble, the Humber, the streams entering the Wash in England, and to the Shannon in Ireland, as hardly inferior to the Severn in interest, and equally unknown.

In order to study a river-entrance, one must have a chart, correct topographically, and as full as possible of bathymetrical details. In a river which is entirely unexplored it will be necessary to construct such a chart in the first place. The volume and velocity of the river should be determined at some definite point before marine influences begin to affect it, and an accurate knowledge of the tidal currents obtained.

A trip along the middle of the channel, from what is undoubtedly river, to what is unquestionably sea, taking observations at intervals of every 2½ or 5 miles, will usually be found sufficient to give a general idea as to the physical conditions of the water, and the boundaries of its natural divisions. A small steamer is the most suitable vessel for this purpose. At each stopping-place, samples of water should be taken from the surface, bottom, and various intermediate depths,
temperature being observed at the same places. The density of the water should be observed on the spot by a pocket hydrometer, and the results plotted in a curve to enable the observer to see clearly the rate of change from point to point. Such trips should be repeated in different states of the weather, after long drought and after unusual rain, and then certain points can be selected at which samples of water can be drawn and set aside for more exact chemical and physical analysis. The transparency and amount of suspended and transported matter should also be noted. In tidal rivers several stations should be fixed on where observations of temperature and salinity might be made at short intervals of depth, and repeated at all phases of the tide.

Four years' experience at the Scottish Marine Station enables me to describe the following methods for research in rivers and river-entrances.

Collection of Water Samples.—When one is working from a small boat in shallow places, less than 10 fathoms, the most convenient means of collecting water is a stoppered bottle lashed to a sounding-line, which is marked at every foot and provided with a lead heavy enough to sink the empty bottle rapidly. The stopper can be pulled out by a cord, and a sample flows in from one definite plane. No perceptible mixing takes place through the narrow neck while the bottle is being hauled up. For work in water more than 10 fathoms deep a slip water-bottle should be employed, preferably one to be closed by a weight running down the line, and the parts of which lock automatically.*

Salinity, or the amount of salt in solution, is best observed by means of the hydrometer. On account of chemical action during evaporation it is not an accurate method to boil down a portion of the water sample and weigh the residue. Tables have been drawn up from which the amount of sea-salt dissolved in water can be obtained when its density is known; but for all practical purposes the figures representing density at a constant temperature may be viewed as measuring salinity. In an estuary pretty good results may be got by using a small directly graduated hydrometer, reading from 1·000 (pure water) to 1·030 (a density greater than that of the strongest sea water); but to be of permanent value and comparable, a more delicate instrument must be used, one capable of giving results quite accurate to the fourth decimal place, e.g. 1·0234, either by direct reading or by calculation.

The amount of suspended matter at different parts of an estuary, very important from some points of view, can be determined best by taking a measured sample of water, filtering it carefully through a weighed filter-paper, washing the residue with distilled water, drying at the temperature of 100° C. and weighing again. This operation is certainly rather tedious, and of course it must be performed in a laboratory.

Although the dissolved salts of river water are insignificant in amount compared with those in the sea, they differ considerably in character, chiefly by the predominance of silica and calcium carbonate, and these influence estuary water to a marked extent. The latter quantity admits of easy determination by Tornöe's *Alkalinity* method, which may be practised after a little training by any one. It consists of measuring the amount of a standard solution of acid required to decompose the carbonates present in a measured sample of sea-water. The necessary apparatus comprises two burettes with stand, filtering stand, funnel and papers, standard acid and alkali solutions, an indicator solution, a porcelain basin, and spirit-lamp.

*Temperature* observations are extremely important, and in some cases they may even supersede observations of salinity.* A thermometer which admits of being read to one-tenth of a degree Fahrenheit should be used, and for the purpose Fahrenheit graduation is more convenient than Centigrade.

Surface warmth may be observed by any good thermometer. If the instrument can be occasionally verified, it is unnecessary to use an expensive form. A common German paper-scale thermometer, reading from 20° to 140° F., and mounted in a japanned tin case like a bath thermometer, costs about 2s., and acts well enough for ordinary purposes.

For depths beneath the surface there is no doubt as to the best instrument. Thermometers constructed on Sixe's self-registering principle, however valuable for work at great depths, are unsuited for use in shallow water, where rapidity of working and considerable delicacy are desiderata. Messrs. Negretti & Zambra's Patent Standard Deep-sea Thermometer, an outflow instrument, which is made to turn over, and so register the temperature at a definite time and place, has now been subjected to severe trials for many years, and has proved worthy of confidence. It should, however, be mounted in a frame which admits of the instrument being reversed at a perfectly definite depth; this is not the case with the original loaded float, nor with Magnaghii's reversing gear, the forms usually supplied by the makers. Rung's frame has the merit of being very simple and cheap; but although it has given admirable results in the hands of its inventor, I cannot speak from experience regarding it. The American frame used by the Coast Survey and Fish Commission ships, appears to be defective in not clamping the thermometer after it reverses. The Scottish frame, which was devised at the Scottish Marine Station, has been tested for nearly four years in shallow water where there are strong currents, in somewhat rough seas, and to a depth of 180 fathoms; it has proved completely successful in all these cases. The thermometer is reversed by a lever, actuated by a brass weight slipping down the line, and any number of them may be

used simultaneously along with a water-bottle, the weight for setting off each instrument being clasped to the line and hung to the thermometer above, from which it is released as the instrument reverses. The frame is attached to the line by a vice-shaped clamp and spiral wire so that no lashing is required. Mr. Frazer, Lothian Street, Edinburgh, has made these frames under my direction.

It has been found that as a rule river temperature differs very notably from sea temperature, being either higher or lower, according to the season, and following atmospheric changes much more rapidly.

Knowing the temperature of river water and of sea water at any definite time, the manner in which they mix may often be traced out with the thermometer alone. Two instances of this are given in the accompanying figures. The first represents a series of temperature and salinity soundings, in the estuary of the Forth, the temperature and salinity being determined at several depths at short intervals of time, and the accompanying curves of vertical distribution (fig. 2)

**FIG. 2.—VARIATION OF SALINITY AND TEMPERATURE WITH DEPTH. FIRTH OF FORTH, APRIL 1886. TIDE FLOWING.**

![Diagram of salinity and temperature variation with depth](image)

drawn. The depth in this instance is reckoned from the bottom upwards. The second (fig. 3) shows the surface and bottom temperature, and salinity as observed at intervals of one hour during a whole tide in the Dornoch Firth. It will be seen that the movements of the water can be traced equally from fall of salinity and rise of temperature. It is, however, only at those seasons when river and sea water show

considerable difference in temperature that this mode of observing can be carried on successfully.

The transparency and colour of water at different parts of the course of a river-entrance are due partly to the different colours of sea and river water, but perhaps chiefly to the varying amount of suspended matter. Transparency is to be measured by observing the depth to which a disc of iron, enameled white, remains visible from the deck, and colour, by the tint it assumes when sunk to a position of easy visibility, say three feet. These observations will of course depend to a considerable extent on the height of the sun and the nature of the weather.

If all the conditions which have been referred to were ascertained for the principal river-entrances, a great increase would ensue in our knowledge of the physical geography of river-systems, and of the sea, and of the origin of such geographical features as deltas and sea-inlets. I have attached more weight to the conditions of the water as regards saltiness and warmth, not because these are more important than the direction and force of currents, or than the processes of deposit and formation of bars; but because the latter questions have been often studied, and their importance is fully realised, while the consideration of the former has been neglected. Except on special expeditions, or in connection with scientific institutions near the river to be examined, it would probably be found impossible to observe all the properties of the water referred to above. Yet with little expenditure of time or trouble a very useful preliminary idea as to the class to which a river-entrance belongs could be ascertained by using the thermometer and small hydrometer, or even the thermometer alone.
It appears from what we know at present that the physical changes in the water of river-entrances are chiefly regulated by the configuration of the surrounding land. When a sea-inlet is wide and deep, or very long, and the river is relatively small, the full development of estuary and firth takes place; when the sea-inlet is shallow, or narrow and short, and the river is of great volume, only an estuary is found; and where there is no inlet at all, the river running across the bar into the sea, has neither definite firth nor estuary.
MR. J. F. NEEDHAM'S JOURNEY

ALONG

THE LOHIT BRAHMAPUTRA,

BETWEEN SADIYA IN UPPER ASSAM AND RIMA IN SOUTH-EASTERN TIBET.

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MR. J. F. NEEDHAM'S JOURNEY

ALONG

THE LOHIT BRAHMAPUTRA,

BETWEEN SADIYA IN UPPER ASSAM AND RIMA IN SOUTH-EASTERN TIBET.

Map, p. 556.

INTRODUCTION.

The 'Proceedings of the R.G.S.' for February 1885 contain a paper by General Walker, entitled "Four Years' Journeyings through Great Tibet, by one of the Trans-Himalayan Explorers of the Survey of India." The explorer, Pandit A—k, had, in 1879–82, travelled from Lhasa northwards across the elevated and far-stretching plateau of Tibet which is known as the Chantang, and beyond it to the Chinese town of Saitu, which is situated on the southern confines of the Gobi Desert; he then turned south-eastwards, and proceeded as far as the town of Darchendo (Ta-tsien-lu), on the boundary between Tibet and China; then he travelled westwards, in order to return to India; he made his way to the Zayul district of South-eastern Tibet, with the object of proceeding into Upper Assam through the Mishmi country; but finding it undesirable to travel across that region without protection—placing himself at the mercy of a barbarous hill-tribe—he turned northwards and followed the route from Zayul to Lhasa, until he reached the town of Giamda, when he turned southwards once more and proceeded via Chetang and Sikkim back to India. He brought information to the effect that the river of Zayul flows into Upper Assam, and is the principal source of the Lohit Brahmaputra, thus corroborating the information in 1826 by Wilcox, when he ascended the Lohit Brahmaputra for a considerable distance beyond the plains of Assam, but was stopped while still at some distance from the country of the Lamas. This corroboration was of considerable geographical importance, for it showed that the Yaro-tsampo river of Tibet could not possibly be the source of the Irawadi, as had long been maintained by French geographers, and recently reasserted with great pertinacity by Mr. Robert Gordon, a civil engineer employed on the Lower Irawadi by the Government of India.

The 'Proceedings' for May 1885 contain a paper by Mr. Robert
Gordon, in which he endeavours to prove that the distance of the town of Rima in Zayul, visited by the Pandit, from the easternmost point reached by Wilcox, is very considerably greater than is shown on either Wilcox's map or the Pandit's, and that it leaves room for the Yaro-tsanpo to flow southwards into Burma, taking the Zayul river with it. A few months after the publication of this paper Mr. Needham, a political officer in Upper Assam, determined to test the accuracy of Mr. Gordon's theory by travelling from Assam to Rima through the Mishmi country. Accompanied by Captain Molesworth, three policemen, and a few natives, he performed the double journey to Rima and back in December 1885 and January 1886; he travelled both ways in more or less close vicinity to the Lohit Brahmaputra, and ascertained that the Zayul river is positively identical with the Lohit Brahmaputra.

The 'Proceedings' for June 1887 contain a paper by General Walker on the Lu river of Tibet, showing it to be the only possible Tibetan affluent of the Irawadi; a Note, No. 3, is added on "Needham's corroboration of Wilcox and the Pandit," in which the distance actually travelled by Needham is compared with the estimated distances which were employed in the construction of Wilcox's map and the Pandit's.

Mr. Needham's diary, and the review of his operations in a letter dated 21st June, 1886, from the Secretary to the Chief Commissioner in Assam to the Secretary to the Government of India in the Foreign Department, contain much interesting information; extracts from the former, and the latter in extenso, are now given in the following pages.

**LETTER FROM THE SECRETARY TO THE CHIEF COMMISSIONER OF ASSAM, TO THE SECRETARY TO THE GOVERNMENT OF INDIA.**

**SHILLONG, 21st June, 1886.**

I am desired to forward, for the information of His Excellency the Governor-General in Council, the documents containing an account of an expedition made by the Assistant Political Officer at Sadiya, Mr. J. F. Needham, from Sadiya to the Zayul valley of Eastern Tibet, in December 1885 and January 1886. Mr. Needham succeeded in crossing the frontier and advancing twenty-six miles into Tibetan territory; but on approaching the village of Rima, where the Governor of the province is believed to reside, he was met by a demonstration of force, and after having vainly endeavoured to enter into communication with the local authorities, he was obliged to turn back and retrace his steps to Assam. Mr. Needham did not take any armed escort with him, whether of military or police, but only three men of the frontier police as orderlies. He was accompanied by Captain E. H. Molesworth, Commandant of the Lakhimpur frontier police battalion, and these two officers are the only Europeans who have ever penetrated into Tibet by the route of the Brahmaputra, with the
exception of the two French missionaries Messrs. Krick and Boury, who were killed by Mishmis after they had entered the Zayul valley in the year 1854. Mr. Needham’s report has been supplemented by a map prepared in this office, on which the course of his route is laid down with approximate accuracy, and an abstract statement is also appended, giving a general view of the number of marches, their length, and the character of the country traversed.

The existence of a route into Tibet by the upper waters of the Brahmaputra has been known to the Indian Government ever since the British occupation of Assam. A list of the stages from Sadiya, numbering twenty altogether, was obtained by Lieut. Neufville in 1825, and published in the ‘ Asiatic Researches.’ In 1826, Captain Wilcox succeeded in advancing three-quarters of the way to Rima, along the southern or left bank of the Brahmaputra, but was then stopped by the refusal of the Miju Mishmis to allow him to pass through their country. Ten years later, in October-November 1836, Dr. Griffith followed the same route to a point about half-way between Sadiya and Rima, and then crossed the Brahmaputra, and visited some Mishmi villages on the northern side; but he, too, was deterred from attempting further progress by the refusal of the easterly Mishmi chiefs to give him a safe-conduct. Lieut. E. A. Rowlatt, in November-December 1844, was the first explorer who took the route which Mr. Needham has now followed, along the right or north bank of the Brahmaputra. He got as far as the river Du (or Mdaun), within sixty miles of the Tibetan border, and turned back on being told that the intervening country was destitute of inhabitants, a state of things which does not exist now, whatever may have been the case forty years ago. In 1851, the French missionary M. Krick succeeded in entering Tibet by the same route, and in returning to Assam with safety; and in 1854 he penetrated into the Zayul valley a second time, in the company of M. Boury; but both the travellers were barbarously murdered by the Mishmi chief Kaisha, while sojourning in the Zayul valley within a short distance of the frontier. For this offence, Kaisha’s village was attacked in February 1855 by Lieut. Eden, with a party of the 1st Assam Light Infantry, who carried off Kaisha a prisoner to Dibrugarh, where he was subsequently hanged. In December 1869 and January 1870, Mr. J. T. Cooper attempted the journey towards Tibet by the route along the southern or left bank of the Brahmaputra, but was prevented from proceeding by the refusal of the Miju chiefs to admit him into their country. His furthest point was several marches short of that attained by Wilcox in 1826. In 1879, the Khâmti chief Chowsa, who accompanied Mr. Needham on his expedition, got as far as the borders of Zayul by the northerly route (Lieut. Rowlatt’s), but was prevented by the Tibetan authorities from entering the valley.

The route taken by Mr. Needham had thus been traversed by
Lieutenant Rowlatt in 1844, as far as the Du or Mdaun river, while Captain Wilcox in 1826, travelling along the south bank, had reached a point considerably further eastward. This southern track is frequented by the Mishmis of the left bank in their communications with British territory, but as a route towards Rima it compares disadvantageously with the more direct line along the right or northern bank of the river. The southern road leaves the Brahmaputra soon after passing the Brahmakund, and strikes across the chord of an arc which the river forms by a bend towards the north; for several marches the track climbs up and down, dipping into deep ravines and scaling precipitous ridges, which rise occasionally to elevations of 5000 feet; and upon meeting the river again, 'it shortly goes over to the right bank, and thenceforward coincides with the route followed by Mr. Needham. The length of Mr. Needham's route, which lies wholly along the north bank, and keeps close to the Brahmaputra all the way, is estimated by that officer to be 187 miles from Sadiya to Rima, and a good general idea of it can be obtained by dividing it into five sections, according to the natural characteristics of the country traversed.

The first section is one of 46 miles, extending from Sadiya to the mouth of the Táme river (Támemukh), and was traversed by Mr. Needham's party in five marches. This part of the road lies entirely through the plains. The first stage, Sonpura, or Chunpura,* 18 miles from Sadiya, is the easternmost outpost held by the frontier police upon the Inner Line, and is connected with Sadiya by a patrol-path cut through the jungle. In the next four marches, the Digáru, Dora, and Táme rivers, affluents of the Brahmaputra from the northern hills, are successively crossed. Here the route passes partly among the boulders in the bed of the Brahmaputra, and partly through the dense jungle of the bank. A good cold-weather track the whole way to Támemukh could probably be cleared without much difficulty. Támemukh is the last stage of travelling in the plain country, and the farthest point which can be reached by elephants. Boats can ascend the Brahmaputra as far as the mouth of the Dora,† but the current beyond that point is too strong for navigation in ordinary circumstances.

The next section is one of 24 miles, from Támemukh to Chose's village, beyond the river Tedeng. This contains the only piece of high mountain marching on the whole route. The country traversed is a lofty spur which runs down to the Brahmaputra from the great mass of the northern mountains, and forms the watershed between the Dora and Táme on the west and the Tedeng on the east. The first

* So called from the lime (chum) which is collected here from boulders rolled down by the stream of the Brahmaputra. The local name of the Brahmaputra above Sadiya is Lohit.

† Lieutenant Rowlatt went up by boat nearly as far as Doramukh, and Mr. Needham's party came down the river from that point on their return in a single day, thus saving three marches overland.
march from Tāmēnmukh ascends the hills by the gorge of an affluent of that river, and leads to a camping-place at an elevation of 3200 feet. The next march ascends 1300 feet in the first four miles, crosses the ridge at 4500 feet, and descends again to Hai-imsong's village at a height of 1800 feet, overlooking the Tedeng valley. The third march descends to and crosses the Tedeng* at an elevation of 600 feet, and then ascends 1000 feet to Choše's village. This section of the route, therefore, includes the greatest ascents and descents met with in the whole journey, and attains the highest elevation, viz. 4500 feet, at the point where the ridge is crossed. The track was precisely that which was followed by Lieut. Rowlett in 1844, and Hai-imsong's village appears to have been in the same situation then as it is now. Lieut. Rowlett calls it Saloomgon, a name which Mr. Needham mentions as the local title of its site. The name of the Gam or headman in 1844 was Abasons. The Tedeng is a considerable river, and its valley is occupied by Mishmi villages to the distance of several days' journey above Hai-imsong's.

After leaving the Tedeng, the route continues in the immediate vicinity of the Brahmaputra, until it ascends to Choše's village. This village, or one near it, seems to have been one of Lieut. Rowlett's stages also, the name of the chief then being Heasong. He is probably the Kaysong (Keasong) who was one of Lieut. Eden's allies. In 1838 Dr. Griffith found a chief called Premsong living near the site of Choše's present village.

The third section of the route comprises the country traversed between Choše's village and the Dalei. This river is the largest affluent which the Brahmaputra receives on its right bank eastwards of the Digāru. This part of the route presents much difficult marching, with sharp ascents and declivities. There is a descent of 900 feet from Choše's to the Paini (a small tributary of the Brahmaputra visited by Griffith on a botanising excursion in November 1836), and a corresponding ascent of 800 feet to Prongsong's village on the other side; the path then descends gradually to the bed of the Brahmaputra, crossing the hill-streams Mum and Tālua, and follows the bank of the river to the mouth of a larger stream called Um, which joins the Brahmaputra at an elevation of 950 feet. From this point there is a steep ascent of 650 feet to Tákulong's village at a height of 1600 feet. On leaving Tákulong's, the path taken by Mr. Needham and Captain Molesworth goes along the face of a precipice rising immediately from the bed of the Brahmaputra, but there is a cattle-path higher up, which was followed by the servants and Khāmtis of the party. The next step is a descent of 700 feet, succeeded by an ascent to Misong's village at an altitude of 1300 feet. The

* The story told of this river, that it rises from a mountain which shines like gold when lighted by the sun in summer, resembles the circumstance recorded by Humboldt of a peak near the Upper Orinoco; and the cause is probably the same in both cases, viz. the fact that micaceous granite enters largely into the composition of the mountains which feed the affluents of the Orinoco and the Brahmaputra.
path then improves until the last part of the descent to the Dalei, which is difficult by reason of its steepness.

Lieutenant Rowlatt seems to have made a single march of this section of the route, from Chose’s village, or its vicinity, to Lumling’s* village near the Dalei.* He mentions the crossing of the Tálua river, as well as the dangerous piece of road along the face of the precipice, “from which,” he says, “had any one fallen, he would have been precipitated some thousand feet into the boiling stream of the Burhampootoor, the noise of whose waters was just audible from the height we were passing.” Lumling’s village, which consisted of a single house of vast dimensions, is said by Lieutenant Rowlatt to have been situated a short distance westward of the Dalei, and this accords with the locality pointed out to Mr. Needham as the old site of the house. After Lumling’s death his son Tákulong moved farther westward to his present village. The causes of this migration were connected with the capture of Kaisha, and will be alluded to again hereafter.

“The Dalei river,” says Lieutenant Rowlatt, “is a stream of considerable size, having its rise in the snowy range bordering the Lama country, along whose banks a path to that country exists,” emerging at a Tibetan village called Glee.† The Mishmi chief Prempong offered to take Dr. Griffith into Tibet by this route in November 1836. These facts correspond with the information gathered by Mr. Needham. He was told that the Dalei had its source in “the snowy mountains bordering on Tibet,” that Mishmi villages are numerous in its valley, and that the most northerly of them are situated within a short distance of the Tibetan border. A list of twenty of these villages is given in Captain Beresford’s note on the north-eastern frontier of Assam, printed in 1880. Kaisha’s village was situated on one of the hills upon the eastern side of the valley, and Lieutenant Eden’s night-march to surprise it on the 7th-8th February, 1855, is described as one continuous ascent of 10 hours after crossing the Dalei. Lieutenant Eden’s party had rested during the previous day at Lumling’s village, which then occupied its old site on the western bank of that river. They made five marches from Doramukh to this point.

At Tákulong’s village, Mr. Needham obtained Mishmi porters, who replaced the Duñiyā ‡ coolies he had brought with him from Sadiya, some of whom he had already been obliged to part with at Choke’s village on the Dora, as being unequal to the fatigues of the journey. In the next march he again exchanged some of Tákulong’s men for Mishmis from adjoining villages. The men thus engaged accompanied

* Lieutenant Rowlatt writes these names as Rumling and Diree.
† The name Glee does not occur in the Pandit A—k’s enumeration of villages in the Zayul valley.
‡ Duñiyas are half-breeds between Assamese and Singphos, so called from their value as interpreters, duñá being the Assamese word for language.
Mr. Needham to Rima, and back again to Tákulong’s, and five of their number went on with the party from Tákulong’s to the Dora, where the land route was exchanged for boats.

The fourth section of the route comprises the country traversed between the Dalei and the frontier of Zayul. The first three marches include some considerable ascents and descents, which are generally steep and difficult. The path first ascends 200 feet from the Dalei, and then descends 300 feet to the Mdaun or Du, rising as high again on the opposite side; further on, it descends abruptly to the Brahmaputra, rises 200 feet again, passes a hill-stream called the Tini, and ultimately comes down to a halting-place upon a sandbank in the bed of the Brahmaputra. The next march crosses the Oi river at an elevation of 1250 feet, and continues along a winding and uneven path, sometimes descending into the bed of the Brahmaputra, and rising at one point to 1700 feet. The camping-place was a waste spot above the Brahmaputra, after crossing a hill-stream called Hálong. In the third stage the changes of elevation are considerably greater. After passing along the face of a dangerous precipice, the path descends gradually 700 feet, and rises again 900 feet; then descends 900 feet to the Háialai river, which is crossed at an elevation of 1300 feet; the path then climbs 800 feet up a spur, crosses the Námti, and reaches a camping-place on the hill-side at the height of 1800 feet. In the next two marches the average elevation gradually rises; the Sá rivulet is crossed at 1850 feet, and subsequently the Chuá, and the altitude of the bed of the Brahmaputra is now 1700 feet. The second of these two marches was one of two miles only. The camping-places at the end of both marches were level spots above the Brahmaputra. The sixth stage crosses the hill-stream Máti, passes the embouchure of the Lu Ti on the left bank of the Brahmaputra, and subsequently that of the Ghalum or Kálang Ti; crosses the hill-stream Chura, and ends at Luse’s house at an elevation of 2200 feet. The seventh stage crosses the hill-streams Kámtí and Chungtí, and ends in Krongdong’s village, at 2600 feet. The eighth stage, from Krongdong’s to a camping-place in the jungle adjoining the Tibetan border, attains an elevation of 2800 feet at one point, and includes a dangerous piece of road across the face of a precipitous spur. The hill-streams Sáti and Sikki are crossed in this stage. These last three stages contain no great ascents and declivities, but the road is generally uneven and difficult, and occasionally descends among the boulders of the Brahmaputra at elevations of 1800, 2000, and latterly 2500 feet.

In general, throughout this section of the route, the path traverses steep stony undulations, or passes under overarching jungle, where progress must be made in a stooping posture. Mr. Needham reiterates Dr. Griffith’s complaint that “it is one of the characteristics of Meeshmees that they would sooner risk their necks than take the trouble of cutting down underwood.” But another feature of this section of the
route is the alternation of these difficult places with level terraces which are under cultivation, or bear recent traces of having been cultivated. Between the Dalei and the Lu Ti, the valley of the Brahmaputra may be said, comparatively speaking, to be pretty thickly settled. Wilcox found well-built villages, with abundance of cattle, covering the open and undulating country upon the southern side of the Brahmaputra, above the embouchure of the Hálaí. Cooper also mentions the fact that the lower hills on the southern side are “dotted with Mishmi dwellings, surrounded by patches of cultivated land,” and Mr. Needham’s diary bears witness to the frequency of cultivation on both sides of the river along this part of the route. The valley of the Brahmaputra is here half a mile wide, and the breadth of the stream does not exceed 20 yards in the narrowest places; it is impetuous and full of rapids, and Mr. Needham found flood-marks 20 feet above its cold-weather level. It is crossed by numerous cane bridges. Another feature of this section of the route is the change in the character of the vegetation which is observed after crossing the Hálaí. Pines here begin to clothe the hill-sides, and oak forests also occur. At Luse’s village peach trees were found.

These changes in the scenery and vegetation of the valley were remarked by Wilcox in 1826. Beyond the Hálaí river, on the north bank of the Brahmaputra, he saw “a new succession of hills of a totally different character. These green grass-covered hills have many firs growing singly, even near the level of the water, and they are striped sometimes from the summit to the base with fir forest.” Going further eastwards, the information which Wilcox has left on record about the Ghalum or Kálang Ti also agrees with the particulars collected by Mr. Needham. This river takes its rise in the snowy mountains which give birth to the western sources of the Irawadi, and appears to be the most considerable affluent of the Brahmaputra on its southern side, eastward of the Tengapáni. Its valley, where it joins the Brahmaputra, is nearly as wide as that of the great river itself, and is occupied by Mishmi villages, which carry on a trade with the Bor Khámí country. Beyond the Ghalum Ti, the route along the southern bank of the Brahmaputra comes to an end, and travellers bound for Tibet have to cross to the right or northern bank. This fact is alluded to by Wilcox, who mentions that if he had insisted on advancing, the hostile Miju chiefs were prepared to attack him upon the division of his party “at the crossing-place of the great river.” Wilcox’s farthest point was a few miles short of the embouchure of the Lu Ti, and would correspond to a point on Mr. Needham’s route about 57 miles short of Rima, and 130 miles from Sadiya along the right bank of the Brahmaputra.

Cooper also seems to have turned back from about the same point. The village which he mentions as that of “Bowsong, the head of the Prun clan,” was pointed out to Mr. Needham while he was still to the west-
ward of the embouchure of the Lu Ti, and Bowson’s sons came across the Brahmaputra to visit his camp. The position of this village (Cooper’s farthest) is wrongly marked on all the maps, being shown a long way to the eastward of the Ghalum Ti, and much nearer to the frontier of Zayul than it really is. Cooper never crossed the Lu Ti or the Ghalum Ti, and indeed does not mention either of them, though Wilcox does.

Lieut. Rowlatt’s farthest point along the right bank of the Brahmaputra was a village which he calls Tuppang, situated on “the Dagoom range of mountains,” which form the eastern boundary of the valley of the Mdaun or Du. Lieut. Rowlatt was informed that the Lama country (Tibet) could be reached from Tuppang in three days, and in fact he met some Tibetans there, who “had come across the snowy range for the purpose of trading with the Misimis for teeta.” M. Krick’s servant who was carried off by Kaisha, told Lieutenant Eden that the journey from Sámé in Zayul to Kaisha’s village, by the head-waters of the Du, across the snow, occupied five days.

The fifth and last section of Mr. Needham’s route consists of the twenty-six miles marched by the party within Tibetan territory in the space of three days, from the point where they crossed the border to a spot closely adjoining Rima, the village where the Governor of Zayul is believed to reside. Here there were no physical difficulties to encounter, the path being generally good, though steep and slippery in some places, and the altitude gradually rises from 2600 to 3600 feet. The first stage, after passing the border-line on a piece of open grassy country called Má-nekre, crosses the hill-stream Yepuk, and passes the embouchure of a considerable stream called Ding-ti, which comes from the mountains of Bor Khámti, and falls into the Brahmaputra on its left bank. Two villages, one of which is called Tini, are passed on this stage, as also the deserted sites of two others. One of these latter was the village Wálong, in which M. Krick found shelter in 1851, before its inhabitants fled from Tibetan oppression. The next stage crosses the hill-streams Krupti and Kochu, and passes the villages of Kanđe and Kanan. The final stage was one of six miles, past the village of Sámé, across the stream Sá-chu, and through the lands of the village Sang-gu, up to the outskirts of Rima.

The Zayul valley, into which Mr. Needham and Captain Molesworth thus succeeded in penetrating, is known to us by the accounts of M. Krick in 1851, and of the Pandit A—k in 1882. M. Krick is said to describe the valley as a tract cultivated as far as the eye can reach, abounding in herds of oxen, asses, horses, and mules, and in groves of bamboo, laurel, orange, citron, and peach-trees. The Pandit A—k, who lived in Zayul from the 23rd May to the 9th July, 1882, describes the winter crops as rice, millets, and pulses, and the spring crops as wheat, barley, and mustard; the domestic animals being oxen, half-bred yaks, horses, pigs, and fowls. The lower end of the valley, which was the
part first traversed by Mr. Needham, is less open and cultivated than the portion to which these descriptions refer; but immediately beyond Sâmé it expands into a level tract 2½ miles long, by a mile broad, and largely occupied by terrace cultivation. Mr. Needham saw fields of rice and pobra (a species of cleusine), and traces of the use of the plough, a circumstance noticed by Lieut. Rowllatt in 1845, who observed marks of the yoke on the necks of cattle brought by the Mishmis from the Lama valley. Some grazing mules were also met with, and a grove of lime trees was passed soon after crossing the border. The village of Sâmé, where Mr. Needham halted for a few minutes, is that where Messrs. Krick and Boury were murdered by the Mishmi Kaîshâ, and it was the farthest point reached by the Pandit A—k on his way down the valley in the direction of Assam. Another village, Sangu or Singu, situated between Sâmé and Rima, is mentioned both by the Pandit and Mr. Needham. According to the Pandit's measurements, Sangu is 5½ miles from Rima, and the distance from Sangu to a small stream, which is evidently Mr. Needham's Sâ-chu, is three-quarters of a mile farther in the same direction, while Sâmé, again, lies three-quarters of a mile beyond the Sâ-chu, or 6½ miles from Rima. The elevation of Rima was calculated by the Pandit, from the boiling-point of water, to be 4650 feet; but the highest point marked by Mr. Needham's aneroid barometer in the Zayul valley was 3600 feet only.

The name which the Pandit assigns to the whole district is Záyul. Mr. Needham was prevented from holding any converse with the inhabitants of the valley, and his only source of information was a native of Sâmé whom he had ransomed from durance in Tâkulong's village. This man was desirous of accompanying Mr. Needham back to Assam with his whole family, but was detained by the Tibetan authorities. His name for the valley appears to be Zai-wá. Mr. Needham found that the country for some distance on the Tibetan side of the border was known as Wá-long. Zai-wá seems to be a compound of the two first syllables of Za-yul and Wá-long.* The second syllable of Za-yul is certainly the Tibetan word yul, signifying "country," and the first syllable may perhaps be the local equivalent of the Tibetan word thsa, meaning "hot."† The Pandit tells us that the Zayul district is regarded by the Tibetans as the warmest place in their country, and is therefore used as a penal settlement for transported prisoners. The name Zayul would thus be analogous in signification to the Garmāsr of southern Persia. Bishop Mazure, Vicar Apostolic of Tibet in 1861,

* The facility with which part of a word is dropped in composition is a characteristic of monosyllabic languages. The compound Zai-wá is analogous to the name of the Corean province of Phyong-an, which is compounded of the two first syllables of Phyong-yong and An-ju, names of its principal cities.

† It seems certain, at least, that this is the etymology of the district immediately to the east of Zayul, viz. Tsa-rong, which means literally "the hot ravine," rong being the Tibetan name for a region of deep river-valleys.
gives the name of the district as Zain.* His village of "Oua, the last Tibetan village in the direction of the Mishmis," is evidently Wá-long, the last syllable of this word being either a Mishmi suffix, or the Tibetan log (צ), which signifies a district. The Digáru name for the whole valley is simply Láma, i.e. Tibetan territory.

The governing authorities of Zayul are stated by the Pandit to be a Jong Pon and a Shian-u, the former being a military governor, while the latter † is the civil magistrate. The official capital of the district is said by the Pandit to be called Shikha, but the government buildings are situated in the lands of the village of Rima. The only official personage whose title was heard by Mr. Needham, was an officer whom the inhabitants of the valley called the Jén. ‡ The forces at his disposal appear to have consisted of genuine Tibetans, as distinguished from the natives of the district. These latter are said by the Pandit to resemble the Tibetans in dress (a circumstance verified by Mr. Needham), but to have a language of their own, different from the Tibetan, which latter, however, they understand. Tibetan is probably the official language of the district.

It seems to be an open question how far the Tibetan boundary extends towards the Mishmi country. Wá-long was regarded as a Tibetan village in 1851. But some miles to the east of Wá-long, Mr. Needham passed a deserted village whose former inhabitants had refused to pay taxes to the Zayul authorities. Little is known of the relations between the Tibetan authorities and the Mishmis in former years. In 1836, a Tibetan force of 70 men went down the Brahmaputra valley as far as the neighbourhood of the Hálai, in response to the invitation of a Míju chief for aid against the Digárus, whom they defeated. A later quarrel between the Digárus and the Tibetans is mentioned in Mr. Needham's diary of the 20th December, and it was perhaps in connection with these hostilities that a rumour of the sack of Rima by the Digárus reached Dibrugarh in November 1879. In the absence of any strongly-marked geographical division, it seems probable that Tibetan authority in the south-western extremity of the Zayul valley

* Dr. Griffith (1836) says that the Mishmis of the Tedeng and its neighbourhood used the name dái for the Zayul valley, and that the word means "plain." It may, however, be a corruption of the name dánia. In a recent paper in the Nineteenth Century, Mr. C. Lepper (writing apparently from accounts given by Chinese or Tibetan travellers) calls the district Dzá you, where you evidently stands for yul, final l being mute in some dialects of Tibetan.

† John Pon, or in exact orthography, rdzong-pon, signifies "lord of the castle." The word Shian-u literally signifies "treasurer." Mr. Lepper gives Shian-ze as the title of the treasurer of a monastery. Dr. A. Campbell (1855) says that the state treasurer of Lhasa is assisted by "two sub-treasurers styled Shang-jot-ças." In this latter form the word is nearest to its correct Tibetan spelling, phyug-mi-xod; the combination phy in Tibetan is commutable into soft ẓh, which again interchanges with šh.

‡ Tibetan (צ) je, "ruler"; the final n is apparently a provincialism, as also in Zain for Zo or Za as the name of the district.
depends rather on the casual exertion of force than upon any recognised distinction between the natives of Zayul and their Mishmi neighbours. The Pandit was told that the Tibetan boundary was at the hamlet of Zayulmed, 16 miles on the further side of Sámé from Rima. Mr. Needham does not mention any such village, and it would seem that Zayulmed * is simply the Tibetan name for the place called Wálong in the native dialect. Again, Mr. Needham's ransomed native of Sámé seems to have been but imperfectly acquainted with Tibetan, while he spoke the Digáru language well, a circumstance which suggests some affinity between the Mishmi dialects and the indigenous language of Zayul. † It is much to be regretted that Mr. Needham was unable to make those observations regarding the speech and ethnology of the natives of Zayul which he undoubtedly would have made if he had been permitted to remain a short time in the valley.

The geographical information gathered by Mr. Needham regarding the source of the Brahmaputra corresponds exactly with the report of the Pandit A—k, who actually visited the head-waters of both its branches, which unite together close to Rima. From the last spot where he halted, Mr. Needham was able to see the gorges of both these streams. The easterly one is called the Zayul Chu by the Pandit and Lá Ti by Mr. Needham's ransomed native of Sámé, and the westerly one is that which the Pandit calls the Rong Thod Chu, and to which Mr. Needham's man gave the name Mí Chu. The source of this latter stream was assigned by Mr. Needham's Mishmis (on Tibetan report) to the same range of snowy mountains whence another river flowing westward takes its rise, and the distance of this spot from Rima was said to be fifteen days' journey. The Pandit's diary records fifteen marches made by him from Rima to the glacier whence both the Rong Thod Chu and the Nagong Chu take their rise. The latter river is that which, according to Mr. Needham's Mishmis, "flows away west into the Abo country." It is, in fact, that easterly affluent of the Dihong which is marked as the Nagong Chu on the map accompanying the printed narrative of the Pandit's explorations. The existence of this river was known to Captain Wilcox in 1826, who was told by a Mishmi chief that the Dihong had two branches, "one from or passing Lhassa, and the other, the smaller of the two, rising near the heads of the Brahmaputra," adding that "the Lhassa people, on their way to the Lama valley" (i.e. Zayul), "go up the lesser Dihong and cross over snowy mountains from its source to that of the Brahmaputra," i.e. the Pandit's Rong Thod Chu. This lesser Dihong was described also by the Pasi Meyong Abors to Captain Beresford in 1879 as "the Kálapáňi, which falls into the

* Zayulmed means "lower Zayul."
† This man's name for the eastern branch of the Brahmaputra above Rima (the Pandit's Zayul Chu) was Lá Ti, which plainly seems to be Mishmi. Ti is the Mishmi word for water.
Dihong some distance in the interior of the hills,” and they also mentioned a route into the Lama country by following up the Kalapâni and crossing the snowy ranges. The identity of the Kalapâni with the Nagong Chu appears from the fact that the Assamese name is merely a translation of the Tibetan one, Nagong Chu signifying literally “black water.” Again, Lumling told Lieutenant Rowlatt in 1845 that the Tibetan village highest up the Brahmaputra was named Lisko (perhaps the Pandit’s Lasi and Sugü), “where the Bhurampooter is said to be but a mountain rivulet; and on the west side of the same mountain from which this issues likewise proceeds the Dehong.” We have thus a chain of concurrent testimony to the fact that the main stream of the Brahmaputra takes its rise in a glacier of Tibet, about fifteen days’ journey northwards from the Zayul valley; and that the same glacier gives birth also to a large easterly affluent of the Dihong. This geographical fact is evidently familiar to all the hill tribes inhabiting the mountains above the Upper Brahmaputra.

Here it may be remarked that Mr. Needham’s expedition has rendered an important service to geographical science, by filling up a gap which was left unexplored by the Pandit A—k. The identity of the Sanpo with the Dihong has hitherto been open to question. A great deal of evidence against it, and in favour of the identity of the Sanpo and the Irawadi, will be found marshalled in the ‘Gazetteer of Burma,’ Part I, pp. 115–118; and Mr. Robert Gordon has maintained the same view in an ingenious paper recorded in the ‘Proceedings of the Royal Geographical Society’ for May 1885. If the river of Rima be assumed to be identical with the Brahmaputra, it is obvious that the Sanpo in its supposed course from Tibet to Burma must pass round to the north of the head-waters of that river. But if the Sanpo really did pass that way, the Pandit must have crossed it twice on his journey into the Zayul valley from Upper Tibet and back again. In travelling from Bathang to the source of the eastern branch of the Brahmaputra, which he calls the Zayul Chut, he must have crossed from the left bank of the Sanpo to the right; and in returning to Upper Tibet by the sources of the Rongthod Chu, or western branch of the Brahmaputra, he must have crossed the Sanpo again from the right bank to the left. The Pandit’s diary shows that in these parts of his journey he did not thus cross the Sanpo, and Mr. Gordon does not dispute its correctness. The passage of the Sanpo into Burma round the sources of the Rima river being thus disproved, the only alternative supposition, on the hypothesis of the identity of the Sanpo and the Irawadi, is that the river of Rima is not the Brahmaputra, but itself an affluent of the Sanpo, and that the Sanpo finds its way towards Burma somewhere between the frontier of Assam and the furthest point reached by the Pandit in the Zayul valley, viz. the village of Sâmé. This, therefore, was the theory advanced in Mr. Gordon’s paper above mentioned, and in his map
illustrating it the river of Rima is shown as turning southwards and falling into the Sanpo on its left bank, while Rima itself, and the whole Zayul valley, are pushed further eastward than the Pandit placed them, thus leaving a broad interval between the western end of the Zayul valley and the limit of exploration from the Assam frontier eastwards; and through this unknown country flows the imaginary Sanpo on its way to Burma. Mr. Needham's expedition has left this theory no ground to stand on. It has vindicated the position assigned to Rima by the Pandit, and has proved conclusively that the Rima river is one and the same with the Brahmaputra, which was followed up by Mr. Needham the whole way from Sadiya to that place. The unexplored country, with its imaginary Sanpo, disappears altogether. The Sanpo being thus denied an outlet towards Burma in any direction, the only alternative is to fall back upon the belief in its identity with the Dihong, for which we have the positive evidence of the Mishmi report which has been quoted above. Mr. Needham has been asked to make further enquiries into Abor and Mishmi traditions upon this subject.

Another important result of Mr. Needham's expedition is the assurance which it has given us of the friendly disposition of the Mishmi tribes which separate Assam from the Zayul valley. Some of the chiefs mentioned by him are the descendants of chiefs who aided or opposed Wilcox and Griffith in their attempts to penetrate eastwards, or who assisted Lieutenant Eden to capture Kaisha. The whole country between Sonpura and the Zayul border is divided between two tribes of Mishmis speaking different dialects, viz. the Digárus* and the Mijus. On the northern bank of the river the Digárus occupy as far eastward as the Mdau or Du, and the Mijus inhabit from that river eastwards to Zanul. A similar line of division is drawn on the south bank also.† The Digárus again are divided into two principal clans, the Táin or Taieng from Sonpura to the Dalei, and the Mánvó between the Dalei and the Mdau. Each of these clans is subdivided into a number of sections or houses, after the manner common to most of the hill tribes in the sub-Himalayan region of Assam. The Taieng clan have always been well disposed towards us. In Captain Wilcox's time their principal chiefs were three brothers, Krisong, Ghalmum, and Krosa. These chiefs showed the utmost friendliness in welcoming Wilcox in 1826 and Griffith ten years later, and if these officers failed to get farther, it was only because the brothers were unable to arrange for their safe passage through the Miyu country. Krosa was the sole survivor of the three brothers in 1855, but Krisong left a son Lumling, and it was entirely

* So called by the Assamese because they trade with the plains of Assam by the way of the Digáru river. They call themselves Tároon.
† In former times the Digárus were settled on the north and the Mijus on the south bank exclusively, but this distinction, which is now no longer observed, can have held good only in the country from the Ghalmum Ti westwards towards Assam.
owing to the hearty co-operation of Krosa and Lumling (who placed their families in Sadiya as hostages) that Lieutenant Eden was able to surprise and apprehend Kaisha, after killing three of his sons. The misfortunes which overtook Lumling in consequence of this action will be noticed subsequently. Lumling had a younger brother, Kinosa, whose son Busong or Poso (deceased) seems to have been the man who entertained Cooper in December 1869, and is described by him as the head of the Tain clan.

Coming down to the date of the present expedition, we find that Krosa also has disappeared, leaving a son Chuno, who accompanied Mr. Needham.* Krosa's brother Hai-imsong accorded a friendly welcome to the party, and supplied them with coolies. Similar treatment was met with from all the Tain chiefs living between the Tedeng and the Dalei. The Dalei, however, was a critical point, for here live Takulong and Brumsong, the son and the nephew of Lumling, who lost his life in consequence of espousing our cause against Kaisha; and it was doubtful how these chiefs would receive the expedition. In the end they also proved friendly, and Brumsong's son joined Mr. Needham's party. On crossing the river, Mr. Needham was waited upon not only by the chiefs of the Manyo clan (which was Kaisha's), but also by four of Kaisha's sons. A practical proof of goodwill was afforded by these people in supplying Mishmi porters to replace Mr. Needham's worn-out Duaniya coolies. One of the Manyo chiefs accompanied the party to Rima. The same friendly spirit was shown by the Mijus, who have hitherto refused to let any English officer enter their country. One chief sent his son with Mr. Needham, and another gave him the present of a yak in addition to the customary supplies. This latter was Tongson, the brother of Bosong, from whose village Cooper had been turned back sixteen years before. Kroongdong, who lives next to the Tibetan border, rendered a still more important service in stopping the messengers whom Tongson had sent to advise the Rima Governor of Mr. Needham's approach. Kroongdong thus saved the whole party from being stopped on the border. The same chief took charge of Mr. Needham's sick servant, and sent him safely back to Sadiya after his recovery.

This universal spirit of friendliness, if not of hearty welcome, is the more gratifying because the troubles which followed the capture of Kaisha are still held in lively remembrance. The account given to Mr. Needham of Kaisha's real and imaginary grievances,—his bringing a Tibetan into Sadiya at Captain Dalton's request, the drowning of his

* Chuno came from Choke's village on the Dora, a long way westward of the residence of his father Krosa, whose village was situated beyond the Tedeng when it was visited by Griffith in 1836. It appears that Premson, who was a neighbour and perhaps a relative of Krosa, moved westwards to the Dora about 1842, where he was found by Lieutenant Rowlett. Choke is probably one of his family, and his connection with Krosa's son Chuno can thus be understood.
son in the Dibru, and the refusal of Messrs. Krick and Boury to bribe him as they passed through the hills,—tallies exactly with the information recorded by Lieutenant Eden in 1855. Krosa and Lumling had helped the missionaries through to Tibet, and subsequently assisted Lieutenant Eden in avenging their murder. Krosa was able to do this with impunity, because he lived far westward of the Mánjy country, in the neighbourhood of the Tédong, where his village was visited by Griffith in 1836.* But Lumling, who lived on the Dalei, was attacked in 1864 by Kaisha’s relations, who had called to their aid some of the Chulikàtas and of the Dinda clan from the upper Dalei, and he and thirty-three members of his family were killed. His descendants were subsequently compelled to move westwards from the Dalei to the present site of Tákulong’s village. Lumling and Krosa had been rewarded in 1855 with a present of 150 rupees each, together with cloths and ornaments, but the subsequent sufferings of the family outweighed these considerations, and it was but natural that Tákulong and Brumsong should profess themselves aggrieved. The feud with Kaisha’s people has since been made up by intermarriage, but the quarrel with the Chulikàtas and the Dinda clan still continues.

The Chulikata† or crop-haired Mishmis, who speak a dialect differing from those of the Digárus and Mijus, live in the upper basin of the Dibong, i.e. in the mountains to the north of the western part of the Digáru country. The nearest northerly neighbours of the Digárus, however, appear to be the Bebejias,‡ whose villages lie two or three days’ journey from the Digáru villages on the Dora and Tédong. This name is used by the Assamese to designate the wild inhabitants of the high mountains surrounding the basin of the upper Dibong, and separating it from Tibet on one side and from the basin of the upper Brahmaputra on the other. Farther east, there is the Gáméng country on the upper Dalei, which apparently reaches as far back as the Chulikatas, and is occupied by the Dinda clan, a branch of the Mánjy. All these northerly tribes, living at greater altitudes than the Digárus, are fiercer and stronger than they, and occasionally raid upon their southern neighbours. Wilcox found one of the Táïeng chiefs engaged in assisting to repel an incursion made against a Táïeng village on the Dalei by the Mishmis of the Dibong, i.e. the Chulikatas. The Chulikatas have repeatedly invaded British territory, and are at present

* It was some little distance east of the Painí, and seems to have corresponded closely with the site of Prongsong’s village mentioned by Mr. Needham in his diary of the 21st December. The name of the hill on which Krosa’s old village was situated is said by Mr. Needham to have been Kap-pui-lang, but no such hill is mentioned by Dr. Griffith.

† They cut their front hair (chhali) in a fringe across their foreheads. Their own name for themselves is said to be Nedu.

‡ The name is an Assamese one, signifying “degenerate” or “outcast,” and probably has reference to their savage and unsocial character.
excluded from trading with the plains, for shooting a man to death with arrows near the Assamese village of Dikrang above Sadiya in May 1884. Mr. Needham points out that the Chulikatas can still get salt (which is their principal necessity) through the medium of the Bebejias trading with the Khámti and Singpho country, and the Chief Commissioner sees no way of preventing this commerce, which does not pass within the Inner Line. The Bebejias have not given any trouble since 1878–79, when they raided upon some villages in the Sadiya circle.

Notwithstanding their internal feuds, the Mishmis find time to do a good deal of trade both with the Zayul valley and with Assam. Wilcox was struck with the mercantile propensity of these people. “Every man among them,” he wrote, “is a petty merchant.” Lieutenant Rowlett describes them as divided into two classes, who trade respectively with Assam and Tibet (i.e. the Digárus and Mijus); the latter “have nothing to offer in barter but the Mishmee teeta and poison, which is only to be found on the mountains near the limit of perpetual snow;* being in great request with the people of Tibet, they are enabled to exchange it for cattle, gongs, swords, and copper vessels.” He adds that they also do a great deal of barter among themselves. The Pandit A—k tells us that the Zayul valley “is much frequented by traders from the Mishmi or Nahong † tribe,” who bring jungle products (grass, bark and dye-stuffs), deerskins, and cloth and money from Assam, and exchange them for salt and horned cattle. Mr. Needham met several parties of Mijus returning from Zayul with the cattle which they had brought, and he noticed that one of the Tibetans in the party which blocked his way to Rima had on a dress of Assamese muga silk. To the articles enumerated by the Pandit, he adds musk-pods on the part of the Mishmis, and woollen coats, brass and iron vessels, swords, beads, silver amulets, and ammunition, supplied by the Tibetans. Similarly Wilcox says that the Táieng chiefs “are seen wrapped in long cloaks of Tibetan woollens, or in handsome jackets of the same,” and that their wives wear a profusion of beads of white porcelain, or of colourless glass mixed with oblong pieces of coarse cornelian, and all of Tibetan or Chinese manufacture. Besides the Zayul valley, another rendezvous for trade is the Mdann river, to which the Tibetans can resort either by way of the Brahmaputra, or by the Mdann valley route.

* The teeta is valued as a febrifuge. Dr. Griffith, who was shown specimens of it, calls it coptis teeta, and describes it as yielding, when chewed, a yellow sap of a pure intense bitter of some permanence, but without aroma. The Mishmi poison is said to be a plant with a small white flower, causing irritation when touched. Both plants are found on high hills, which are covered with snow in winter. It is strange that teeta does not occupy a prominent place in our latest reports of Mishmi trade with Tibet. It is still imported into Sadiya.

† This word is not the name of any Miju clan as given to Mr. Needham, nor does it seem to be a recognised Tibetan word. The Pandit’s Lhobas, who bring the ordinary Mishmi staples to Sonling, 37 miles up the Rong Thod Chu, and get salt in exchange, are probably one of the tribes whom the Assamese call Bebejia.
which has been mentioned above. The Mijus and the Digáru Mánvo clan keep the Tibetan trade in their own hands, while the Digáru Táiángs similarly engross the trade with Assam. This monopoly on the part of the Táiángs is felt as a grievance by the eastern section of the Digárus, and the Mánvo clan begged Mr. Needham to persuade their westerly kinsmen to admit them also to a share of it.

The Mijus trade likewise with the Khám-tis of the Bor Khám-ti country, beyond the sources of the Dihing. Wilcox heard of this commerce while he was at the Miju chief Jingsha’s village, on the south side of the Brahmaputra, not far from Ghalum Ti. He calls the chief trader Lamat Thao, and places his village two days to the south-east of Jingsha’s. “This chief,” he writes, “is in the habit of trading with the Khamtí country on the Irawadi.” The route which this commerce follows was ascertained by Wilcox on his visit to Bor Khám-ti in the following year, when he was shown a bridge over the Námlang by which the Mishmis descend into the Khám-tí country, the Námlang being an affluent of the western Irawadi, which is the river Bor Khám-ti. Colonel Woodthorpe, again, while following Wilcox’s route towards Bor Khám-tí in March 1885, met with some Miju settlements near the upper Dihing, and verified the fact of commercial intercourse between the valley of the upper Brahmaputra and that of the western branch of the upper Irawadi. While Cooper was at Bosong’s village near the Lu Ti, he saw two Khám-tis who had been plundered by the Lamat clan in coming across the mountains. The length of the journey was said to be fifteen days. Their stock-in-trade consisted of knives *(daos)*, which the Mishmis bought in exchange for slaves. The Lamat clan of Mijus are said by Mr. Needham to live in the upper part of the valley of the Ghalum Ti (i.e. in the direction indicated by Wilcox), and to purchase daos and slaves from the Khám-tis, in exchange for cloth, musk-pods, and opium. The cloth is brought by the Mijus from Sadiya, and the musk from Tibet, but they grow the opium in their own country, as well as large quantities of cotton for home consumption. The Mijus get to Bor Khám-tí by ascending the valley of the Ghalum Ti, and crossing the snow-covered mountains of the watershed into the basin of the western Irawadi.

These extensive trading enterprises suggest the possibility of encouraging the commercial intercourse of the Mishmis of the Brahmaputra with Assam. Mr. Needham is of opinion that if the Digárus were not so jealous in guarding their monopoly, large numbers of Mijus, and likewise Tibetans, would come into Sadiya yearly to trade. The Tibetans, however (or the inhabitants of Zayul), are hindered also by

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* These knives or bill-hooks are made by the Kanangas, who are dependent upon the Khám-tís, and inhabit a mountain tract to the north of Bor Khám-tí, where iron and silver are found. The bill-hooks are brought down in the rough, and sold first to the Singphos, who fit them with handles and sheaths, and pass them on.
the exclusiveness of their own Government, which has hitherto prevented them from entering British territory. The two Tibetans whom Lieutenant Rowllatt met at Tuppang on the Mdua told him that they were not allowed to visit the plains of Assam. Cooper was assured by the Miju chiefs that all intercourse with Assam was forbidden by the Lamas on pain of death. The only native of the Zayul valley whom we know to have entered Sadiya seems to have been the man whom Kaisha brought to Captain Dalton in 1852, on the ill-omened expedition out of which his quarrel with the white men arose.

**Abstract Statement of the Route from Sadiya to Rima.**

<table>
<thead>
<tr>
<th>Date</th>
<th>From</th>
<th>To</th>
<th>Elevation in Feet</th>
<th>Distance in Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1885</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec. 12</td>
<td>Sadiya</td>
<td>Sonpura</td>
<td>3,200</td>
<td>5</td>
</tr>
<tr>
<td>13</td>
<td>Sonpura</td>
<td>Spot on Brahmaputra</td>
<td>1,800</td>
<td>10</td>
</tr>
<tr>
<td>14</td>
<td>Spot on Brahmaputra</td>
<td>Sam Kam on Brahmaputra</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Sam Kam</td>
<td>Spot on Dorá river</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Spot on Dorá</td>
<td>Tamémukh</td>
<td>450</td>
<td>5</td>
</tr>
<tr>
<td>17</td>
<td>Tamémukh</td>
<td>Härcling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Härcling</td>
<td>Hai-imsong (Digáru) Mishmi village</td>
<td>1,600</td>
<td>9</td>
</tr>
<tr>
<td>19</td>
<td>Hai-imsong's village.</td>
<td>Chóše's (Digáru) village.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Halted at Chóše's village.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Chóše's village</td>
<td>Nará (a beautiful miniature bay alongside of Brahmaputra)</td>
<td>1,600</td>
<td>4</td>
</tr>
<tr>
<td>22</td>
<td>Nará</td>
<td>Tákúlong's (Digáru)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Halted at Tákúlong's village.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Tákúlong's village</td>
<td>Spot in jungle close to left bank of Dalei river, a short distance above Brahmaputra</td>
<td>1,100</td>
<td>5</td>
</tr>
<tr>
<td>25</td>
<td>Spot on left bank of Dalei.</td>
<td>Spot close alongside of Brahmaputra, called Harangi (a nice sandy bay similar to where we camped on December 21)</td>
<td>1,250</td>
<td>12</td>
</tr>
</tbody>
</table>

Remarks:
- The going was very difficult (for elephants especially), owing to the numerous boulders, and on account of one's having to push one's way through dense jungle on the banks of Brahmaputra, and cross and recross rapids.
- Steep climb, but path on the whole good.
- Another steep climb, and then a steep descent; path good.
- Crossed Tedéng, fairly large river coming down from north-east; path rough and stony, and in places difficult.
- Very difficult march.
- Last part of march difficult, and climb up to village from Um very steep.
- Path very bad at first, descent to Dalei steep. This river forms boundary between Taïeng and Manyô clan of Digárus.
- Path on whole good, but difficult in places, and likewise very jungly overhead, often necessitating one's going in a stooping position. Crossed M'daun, large river forming boundary between Manyô clan of Digárus and Mijés.
<table>
<thead>
<tr>
<th>Date</th>
<th>From</th>
<th>To</th>
<th>Elevation in Feet</th>
<th>Distance</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 26</td>
<td>Harangi</td>
<td>Spot in jungle below Sambup Hill</td>
<td>1,900</td>
<td>8</td>
<td>Path bad, and very jungly in places.</td>
</tr>
<tr>
<td></td>
<td>Spot below Sambup Hill.</td>
<td>Spot below Gongsha’s village.</td>
<td>1,800</td>
<td>10</td>
<td>Path very bad in places; very stony and jungly.</td>
</tr>
<tr>
<td></td>
<td>Spot below Gongsha’s village.</td>
<td>Phing, close to Brahmaputra and a little to eastward of Tonsong’s (Mijü) village.</td>
<td>1,850</td>
<td>12</td>
<td>Crossed large hill-stream called Halai, running down from north-east.</td>
</tr>
<tr>
<td></td>
<td>Phing</td>
<td>A recently cultivated field, some 2 miles east of Phing.</td>
<td>1,850</td>
<td>2</td>
<td>Path very bad in places, crossed two large hill-streams called Sa and Chun, both running down from north-east. This is Cooper’s farthest.</td>
</tr>
<tr>
<td></td>
<td>Old field to eastward of Phing.</td>
<td>Lüsé’s (Mijü) village.</td>
<td>2,200</td>
<td></td>
<td>Crossed a fairly large hill-stream, called the Mati, coming down from north-north-east; path often very rough, uneven and jungly. Passed the embouchure of the Lu Ti and Kalang Ti on the right.</td>
</tr>
<tr>
<td></td>
<td>Lüsé’s village</td>
<td>Krondong’s (Mijü) village</td>
<td>2,600</td>
<td>10</td>
<td>Path often very stony, up and down, and jungly; crossed large hill-stream called Kamti, coming down from west-north-west, and another called the Chungti, coming down from westward.</td>
</tr>
<tr>
<td>Jan. 1</td>
<td>Krondong’s village</td>
<td>Spot alongside Brahmaputra close to Tibetan border.</td>
<td>2,600</td>
<td>8</td>
<td>Crossed a large hill-stream, called the Sati, coming down from westward. Path rough and jungly in places, also very slippery on account of pine needles lying about. Crossed two other hill-streams, called Sikkim and Monggla, coming down from north and north-north-west.</td>
</tr>
<tr>
<td></td>
<td>Spot close to Tibetan border.</td>
<td>Spot in jungle</td>
<td>2,900</td>
<td>11</td>
<td>Path very good during greater portion of distance.</td>
</tr>
<tr>
<td></td>
<td>Spot in jungle</td>
<td>Spot in jungle</td>
<td>3,100</td>
<td>9</td>
<td>Crossed two large hill-streams, one called the Krupti, coming down from the westward, and the other the Kouchi, coming down from the north-west. Path on whole very good.</td>
</tr>
<tr>
<td></td>
<td>Ditto</td>
<td>Spot in sight of, but one mile south of, Rima.</td>
<td>3,600</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
## Abstract Statement of the Route from Sadiya to Rima—continued.

<table>
<thead>
<tr>
<th>Date</th>
<th>From</th>
<th>To</th>
<th>Elevation in Feet</th>
<th>Distance</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1886</td>
<td><strong>RETURN JOURNEY.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan. 5</td>
<td>Spot in sight of Rima</td>
<td>Spot on right bank of Kechu.</td>
<td>3,000</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Spot close to right bank of Kechu.</td>
<td>Tibetan hamlet of Walong.</td>
<td>3,200</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Tibetan hamlet of Walong.</td>
<td>Krondong’s village.</td>
<td>2,600</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Krondong’s village.</td>
<td>Spot in jungle close to Lüči’s house.</td>
<td>2,300</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Spot in jungle close to Lüči’s house.</td>
<td>Spot 2 miles east of Tonsong’s village.</td>
<td>1,850</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Spot 2 miles east of Tonsong’s village.</td>
<td>Phing</td>
<td>1,850</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Phing</td>
<td>Spot below Gongsha’s village.</td>
<td>1,800</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Spot below Gongsha’s village.</td>
<td>Grassy flat spot close to a little spring called Däkänû.</td>
<td>2,000</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Däkänû</td>
<td>Sandy spot alongside Brahmaputra, a little to southeast of where we camped on Dec. 24, 1885.</td>
<td>1,100</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Sandy spot alongside Brahmaputra.</td>
<td>Spot in jungle a little east of Dali river.</td>
<td>1,300</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Spot in jungle a little east of Dali.</td>
<td>Täkülông’s house</td>
<td>1,600</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Täkülông’s house</td>
<td>Spot in jungle southwest of Chöšä’s village.</td>
<td>900</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Spot in jungle southwest of Chöšä’s village.</td>
<td>Hai-imsong’s village</td>
<td>1,800</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Hai-imsong’s village</td>
<td>Täménukh</td>
<td>450</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>Täménukh</td>
<td>Sandy spot alongside Dora river.</td>
<td></td>
<td>5</td>
<td>Not taken.</td>
</tr>
<tr>
<td>&quot;</td>
<td>Sandy spot alongside Dora river.</td>
<td>Sadiya</td>
<td></td>
<td>41</td>
<td></td>
</tr>
</tbody>
</table>

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**Extracts from Mr. Needham’s Diary.**

*Saturday, December 12th, 1885.—My party is composed as follows:—Sixteen Dowanyas, under charge of a chowkidar, as porters; three frontier police Sepoys as orderlies; two servants; Chowsâ Khamtî Gohain (who accompanies me as interpreter), with eleven men from his village.*

I reached Sonpura in the afternoon with Captain Molesworth, and pitched camp close to the stockade. I was met there by Sonirang Khamtî Gohain, whose village is about a quarter of a mile to the east of the stockade.

*Sunday, December 13th.—Had everything packed by 7.30 and left Sonpura a few minutes afterwards. Our path led us constantly over boulders, which made the*
going very difficult for elephants. Sometimes we were travelling close to the brink of the main stream of the Brahmaputra, at others up “sutis” of it, and when not so going we had to force our way through the dense jungle growing along its bank or were crossing rapids, some deep, others shallow, but one and all full of slippery boulders, in order to avoid making long detours. It came on to rain too at 11 a.m., and continued so all the remainder of the day, which made the going for elephants even worse than it would otherwise have been, besides wetting us all through and through.

I pitched camp at 4 p.m., close alongside the Brahmaputra. Although we were marching for some seven hours, exclusive of halts, I do not think we did more than nine miles. The rain ceased about 6 p.m., and the night was a fine one.

Monday, December 14th.—Lovely morning. Left camp at 8 a.m. and proceeded over country similar to yesterday, except that we had more jungle to push through. This delayed the elephants terribly, for the mahouts (aided by the Dowanyas) had to hack their way through the greater portion of it. I pitched camp at 4 p.m., at a spot (called Sāmkam) on the Brahmaputra, and calculate the distance marched today 7 miles only.

Molesworth arrived in camp about 8.30 p.m. He (as I had done also) missed the path somewhere in the vicinity of the Dīgāro river, and had marched several miles up a wrong one before he found the right one again. He has brought a Fakir with him who wishes to visit the Brahmakund, and who even asks to be permitted to accompany me to Rimā!

Tuesday, December 15th.—Up early and left camp a little before 8 a.m. Followed path usually used by Mishmis, a very bad one, and in places scarcely discernible. Going over boulders, lying in the partially dried up “sutis” of the Brahmaputra, nearly three parts of the time we were marching. When not so going, we were wading across rapids or pushing our way, as yesterday, and the day previous, through dense jungle, growing on the bank of the river, and so were constantly getting wet through and then dry again; very unpleasant work. At 11 a.m., met a party of Dīgāros of the Taieng clan trapping fish. Chūnō (Krōsā’s (deceased) son) was with them. I sent him off to Chōkē village, which lies about a day’s journey from this, high up the Dōrāpāni, to inform him that I shall be at Tāmēmūkh tomorrow and shall require a few porters.

I had to pitch camp at 2 p.m., to-day on a spot on the Dōrā river, as the Mishmis declared that it was too far on to the next camping ground. I reckon we only did about seven miles again to-day, as the going was very difficult, and consequently the elephants went very slowly.

Wednesday, December 16th.—Commenced marching at 7.30 a.m., and after loitering about en route, looking for deer, reached Tāmēmūkh, at 11.30 a.m., distance from last night’s camp about 4½ miles. The elephants and Dowanya porters didn’t come in till 1 p.m. The whole distance lay over large boulders, or through dense jungle; hence the slowness of the marching. Our plains journey ends here. I was busy all the afternoon rearranging my loads, as the elephants will return to Sadiya from this.

The Brahmakund hill can be seen from our camp, and bears about north-east, and just above it lie the recently-cultivated khetts belonging to the Dīgāro Mishmi villages called Brāhmō and Teton. The former is said to have six, and the latter thirteen houses. Brāhmō, by-the-bye, is not the name of a clan, as stated by Cooper (vide Appendix to his book), but the name of the site on which the village stands.

There is a raft made of bamboo at Tāmēmūkh by means of which Dīgāros cross from one side of the river to the other, and I am told that the Chulkattas occasion-
ally come down here, and, crossing the river, go to the Khamti and Singpho villages on the Tengâpâni in quest of salt. There are a few Bêbêjîâ villages within an easy two days' march of Chôkê (Digâro) village (which, as I have already said, is situated on the Dörâpûni about half a day's journey from this place). It is one of the most westerly Digâro villages in the hills, and Chôkê and his people (as also those belonging to two other Digâro villages in close proximity to it) live on friendly terms with the Bêbêjîâs. Chôkê used to reside many miles farther to the eastward, but removed to his present site a few years ago because he was pressed for cultivable land.

*Thursday, December 17th.*—Chôkê came into camp about 9 a.m. and informed me that a rumour had come from Lâma, to the effect that the Rimâ officials, having heard that a party from Bengal (?) was about to proceed to Rimâ in order to attack the place, had sent to Lhassâ for reinforcements; that the same had been supplied to them, and that they had remained at Rimâ for about a month, during which time they had devoured all the procurable grain and cattle, and then, finding that no one from Bengal was coming, they had departed again for Lhassâ, greatly incensed at having been sent for when there was no real occasion to do so. By 10 a.m. I had arranged with Chôkê for one man, ten women, and two boys, as porters, and as this was all he could possibly give me, I had to weed out five of my Dowanya coolies, who had sore feet and were otherwise unfit for hill work.

By 10.30 a.m. I commenced to march. Our path lay up the Tâmê (which is a fairly large hill stream, full of huge boulders and with a fair amount of water in it, even at this time of the year) for about a mile or so in a north-westerly direction, after which we struck a damp and jungly path, full of leeches, on its left bank, and proceeded in a more northerly direction for an hour, and then got out into the dry bed of another hill-stream, and, proceeding up it for a short distance, we commenced to ascend a spur containing numerous ridges, so that we were sometimes on one side of it and sometimes on the other, until at 3 p.m. my aneroid registered 2900 feet. After this we ascended another 500 feet up a steep hill and at 4 p.m. reached a tolerably level spot called Hârêling by the Digâros (elevation 3200 feet), and I pitched camp there for the night. There is a small spring not far off, and the spot is regularly used as a camping-ground by Mishmis when taking up cattle to their villages from Tâmêmûkh. We were marching from 10.30 a.m. till 4 p.m. with the exception of half an hour's halt for lunch, but the Dowanyas crawled along so slowly up-hill that I do not think we did more than one mile per hour all through, so that the distance travelled from Tâmêmûkh would be about five miles only. To-day's march, in fact, convinces me that Dowanyas will be useless to me in the hills, and that therefore if I am ever to get to Rimâ and back I must change them for Mishmis. Our general direction to-day was north. I did not get even a glimpse of the surrounding country on my way up to this spot, owing to the dense tree jungle through which the path lay. I noticed some very fine tree ferns, as also some very fine tree cactuses.

*Friday, December 18th.*—Commenced at a quarter to 8 a.m., and after proceeding up-hill in an E.S.E. direction (varying occasionally a point or so more or less easterly) for about 40 minutes, we reached the top of a ridge, which my aneroid showed to be 3600 feet high, and after crossing it we ascended another 100 feet or so in a north-easterly direction and came upon a second ridge, or saddle-back, from which we got a glimpse of the hills to the north and north-west and also those to the south-east, as also a portion of the Brahmaputra valley to the southward. This was the first glimpse I had had of the surrounding country since leaving Tâmêmûkh. After this, continuing to ascend in a north-easterly direction another 500 feet, we reached a rocky ridge called Pûjîar (elevation 4200 feet) and got a glorious view of the country from the southward right round to the north-west. We could see the Dihong, and
Dibang, Brahmaputra, Diğārū, and Kamlāng rivers; the low range of hills called Bālīa porbōt by the Assamese and Monābām by the Singphos; the Brāhmā and Tétōn Mishmi village cultivation to the south-east across the Brahmaputra; Chōkē village cultivation to the westward, and a short bend of the Brahmaputra just above the sacred Kund. It was altogether a beautiful view, undisturbed by fog or low clouds.

After halting here for a quarter of an hour or so, we again ascended our path, cork-screwing round the spur, until by 10.30 a.m. we had reached an elevation of 4500 feet. We had thus ascended about 1300 feet in about four miles, and the last 200 or 300 were very steep, though the path was on the whole a very good one up to this point.

After this we descended and again ascended some 200 feet or so, but by 11.10 a.m. we commenced descending for good. At 12.10 we arrived at a mountain stream called Āhārōkā, and I halted for 40 minutes to lunch and rest the porters. Elevation 3800 feet. After lunch we again gradually descended along a very good, though occasionally broken, path, and at 4 p.m. reached Hai-imsong Diğārū Mishmi's house. Elevation 1800 feet. Our path from Hārelang was on the whole a good one, though here and there very broken and stony, and with many large fallen trees across it. It was also very jungly in places and so tangled overhead as to necessitate one proceeding in a stooping position, which was very tiring, and it was likewise steep and slippery, owing to the fallen leaves and shingle lying about. We were marching for seven hours exclusive of halts, but I do not think we did more than 10 miles.

We passed through a forest of bamboos to-day something between the Assamese Čākwā, and Jātt. The Khamtis, as also my Dowanya, porters declare that they have not seen any like them before.

Hai-imsong is a man of about 45 or 46 years. His village has only seven houses, which are scattered and miserable-looking abodes, compared to Abor houses or such Chulikatta houses as I have seen. Hai-imsong's own house is 135 by 12 feet, and it is divided into nine compartments, each of which has its fireplace, as also a door in the side wall for exit in case of fire. The front compartment is generally the largest, and is invariably used as a guest-room. There is a passage up the whole length of the house close to one of the side walls, which has a slope outwards at the top in order to afford space for suspending the heads of all animals killed at feasts, &c., by the owner, and thus keep them clear of people passing up and down the passage to the several rooms in the house. The houses are all on "changs," and are built entirely of bamboo, so that there is nothing massive or substantial-looking about them. The bamboo mat floor is made wide enough to project a couple of feet or so outside the main walls, and this outside space is used as a receptacle for household goods. Some are thatched with grass, others with the stuff which the Assamese call jēŋūpāt (Diğārū name is laka), and as all the houses are protected from the force of the high winds by the surrounding hills the eaves do not come down low. They have a small verandah in front, which is likewise covered in overhead, the roofing of the main building being brought sufficiently forward for this purpose, and as the front portion is rounded off, the roofing over the verandah is shaped like the front of a Swiss cottage tent. The houses are not uncomfortable places inside, and they are lofty enough to admit of one's standing upright, at any rate near the side walls, where there are no hanging trays or other receptacles for household goods to knock one's head against. The pigs are kept underneath the houses, a wooden fence being erected all round to keep them in.

On arriving at the village, Chowsā and his Khamtis occupied the guest-room in Hai-imsong's houses, while the Dowanyas enconced themselves underneath an adjoining granary, and Molesworth and myself had our beds spread inside a couple
of similar places, partially filled with grain, and we had tea and dinner underneath
one of them, as the ground was very wet and uneven for pitching a tent on. Hai-
imsong killed a pig in honour of my visit, and he gave the Khamtis and Dowanyas
heaps of Pobosá liquor besides.

Saturday, December 19th.—It was 10 a.m. before I was able to make a start, and
the morning was very rainy-looking. Soon after leaving the village we saw the
Brahmaputra flowing from north by west, some distance below us, and we descended
a steep zigzag path in a north-westerly direction to the Tedeng, a fairly large river
running down into the Brahmaputra from the north-west. It is not fordable even at
this time of the year, but we all crossed it easily enough on a very strongly made
fishing weir. There are numerous Digāro Mishmi villages on both banks up the
gorge of this river, and Chowşā tells me that a Chulikatta and also a Digāro Mishmi
informed him that the mountain from which it takes its rise is covered with gold,
and that in the hot weather when the sun is shining the whole hill appears like a
red-hot furnace. It is covered with snow just now. Chowşā tells me that he
intends paying it a visit later on, in order to test the correctness of his informant's
story, and he has promised to communicate the result of his journey to me in due
course. Such Digāro villages as lie high up the gorge of this river are within a two
days' journey of some of the Chulikatta villages. My aneroid registered the elevation
at the weir on which I crossed at 600 feet. A small bend of the Brahmaputra can
be seen a few yards lower down, the river apparently running down slightly east of
north. Just before reaching the Tedeng river we crossed a small hill stream coming
down from the westward. The Tedeng has quite a little valley of its own on its right
bank close to where we crossed it, and Hai-imsong's people appear to cultivate here
regularly. Its left bank (in the vicinity of the weir I crossed on) is precipitous
and rocky.

After leaving the Tedeng we ascended some 200 feet, and crossing the edge of a
spur running down into it we descended about the same distance, and then continued
in a northerly (sometimes in a north-westerly) direction, along a rough stony path,
on the right bank of the Brahmaputra (which is running here from north-west to
south-east) some couple of hundred feet, sometimes more, sometimes less above it,
for about 11 miles, when we found the Brahmaputra running from the north-east
and from nearly due north a little further ahead. About 3 p.m. it came on to
drizzle, and just about this time our path turned to the north-west, and we had a
steep and slippery climb of 1000 feet, and arrived at Chōše's village about a quarter to
4 p.m. wet through. We were marching to-day for six hours exclusive of halts, and
I reckon that we did about eight or nine miles. General direction north. The path
was nowhere what could be called very bad, though in places the going was difficult,
as also very stony, and up and down. On reaching the village Chowşa and his
Khamtis enconced themselves in the guest-room of Chōše's house, and my Dowanya
porters found shelter in that of another villager living close by, while Molesworth
and myself took up our quarters (as at Hai-imsong's village) in two partially
full granaries, and my servants and our orderlies found accommodation below a
third one.

Sunday, December 20th.—Up at daylight and found it raining slightly, and the
morning foggy and very raw. Packed up everything ready for a start, but Chōše
informed me that unless it cleared up he would be unable to get me any porters, as
no Mishmis could be got to travel on such a nasty day, especially as we shall have
to camp out in the jungle for a night, the distance to Tákołong, the next Digāro
village through which we pass, being too great to accomplish it in one day from this.
The Digāro tribe call themselves Tāroan, and I am informed that in years gone by

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they occupied the whole of the country on the right bank, and the Mijûs that on the left bank, of the Brahmaputra, and that both tribes were then at war with one another, but that for some years past both tribes having been at peace, villages belonging to either are now to be met with on either bank of the Brahmaputra, though even now there are more Mijûs living on the left than there are on the right bank.

The Digâros and Mijûs, who live on the right bank, keep as close as possible to the Brahmaputra, so that, speaking generally, the greater portion of the country to the north of the river is uninhabited, probably because the hills in that direction being steeper, it is more difficult to cultivate or more likely because the population is not yet sufficiently large to require more land than is to be found in the immediate vicinity of the Brahmaputra, where comparatively large tracts of flat country are to be met with here and there. There are also numerous hamlets up the gorges of the chief rivers which run down into the Brahmaputra, so that there also the country is no doubt flatter and easier to cultivate. All the Digâro villages are, I am informed, small ones, the largest scarcely ever having more than twelve or fourteen houses. This is of course owing to the difficulties which any large community would experience in finding sufficient easily cultivable land close by. Such few houses, too, as each so-called village contains, instead of being in a cluster, are generally scattered about here and there, and each is so hidden by dense jungle as not to be seen until one is right up alongside of it.

The staple food grains of both Digâros and Mijûs are Pobosâ and Indian-corn, though a little rice, of a coarse and not very tasty description, is likewise grown. The Digâros declare, and I believe rightly so, that there is much more stamina in Pobosâ and Indian-corn than in rice. Their liquor is made principally of Pobosâ. The process appears to be a very simple one. The Pobosâ having been boiled it is put by for several days and allowed to ferment. When sufficiently fermented, it is put into partially warm water, and well stirred about over a fire, after which it is ladled out in its then saturated state into a sieve, and having been well squeezed about by hand, such liquid (and Pobosâ) as works its way through the sieve is then ready for consumption. The stuff is put back from the sieve into more warm water, along with some fresh fermented Pobosâ, and the process of partially boiling and straining goes on time after time, until in fact every one who is drinking has become thoroughly satiated. The Digâros have no cultivating implements of any kind: hence new land or such as has been lying fallow for six or eight years, is required yearly for the production of anything like a good crop. Their system of jhuming is similar to that followed by all the other tribes on this frontier, except that in many instances they do not take the trouble to clear away any portion of such trees as they may have occasion to fell. All jungle, &c., having been dried and set fire to, the burning of the fallen trees is left to chance, and the crops are then sown in between any fallen logs or branches that may be left lying about. Pobosâ, Indian-corn, dhân, and cotton are sown about Phâlgoon (March), called "taji" by the Digâros, the first broadcast and the last three in holes. The Indian-corn, dhân, and cotton crops have only recently been gathered, and in places there is still a little Pobosâ (though the majority has been gathered) to be cut. So that the Digâro harvesting time is a long way behind that of the plains in point of time. The Digâros grow a sufficiency of cotton, of an unusually fine description too, for home consumption.

They can make their own dyes, but often get them from Lâmâ. The women weave all their clothes and cloths with hand-loomos similar to those used by Abors and Mîris. They make no warm coverings (such as Fûris, &c., of any sort). The Taing clan of Digâros is numerically the largest and consequently the most powerful.
in these hills at present. The principal Digâro villages, on the right bank of the Brahmaputra, commencing from the westward and proceeding east, are—

<table>
<thead>
<tr>
<th>Name of Headman</th>
<th>Clan</th>
<th>Name of Place where situated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chôkê</td>
<td>Taieng</td>
<td>Há-ringgom.</td>
</tr>
<tr>
<td>Hai-imsong</td>
<td>&quot;</td>
<td>Sá-longom.</td>
</tr>
<tr>
<td>Á'hangson</td>
<td>Thele</td>
<td>Tâ-jûpom.</td>
</tr>
<tr>
<td>Chôsê</td>
<td>Taieng</td>
<td>Kâp-puilang.</td>
</tr>
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<td>Prânsong</td>
<td>&quot;</td>
<td>Sâ-lógom.</td>
</tr>
<tr>
<td>Titon</td>
<td>Taieng mâro</td>
<td>Amleng.</td>
</tr>
<tr>
<td>Tûkûlomg</td>
<td>&quot;</td>
<td>Âkûpû.</td>
</tr>
<tr>
<td>Mishong</td>
<td>&quot;</td>
<td>M'taleng.</td>
</tr>
<tr>
<td>Mâ-kûson</td>
<td>Manyô</td>
<td>Hai-yûgom.</td>
</tr>
<tr>
<td>Kâjûlí</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mâ-brûson</td>
<td>Manyô</td>
<td>Hai-yûgom.</td>
</tr>
<tr>
<td>Sênô</td>
<td>Tûshû</td>
<td>Há-gungleng.</td>
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<tr>
<td>Brem</td>
<td>Mali.</td>
<td></td>
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<tr>
<td>Tâgrûson</td>
<td>T'sei</td>
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<td>Semas</td>
<td>Mêpû</td>
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<td>Hai-ânson</td>
<td>T'sei</td>
<td>Tilâ.</td>
</tr>
<tr>
<td>Gonghâî</td>
<td>Nâlî</td>
<td>Mûng.</td>
</tr>
<tr>
<td>Tâkon</td>
<td>Manyô</td>
<td>Chêrâ.</td>
</tr>
</tbody>
</table>

I tried to get the names of every Digâro village, or cluster of houses, on both banks, but my informant seemed to think I was too inquisitive, for, after having pertinently asked me why I wanted the names of all the hamlets in the hills declared that he could not (I fancy he meant “would not”) give them to me.

The Digâro villages have no house set apart especially for bachelors or for the discussion of public business and other matters, such as the Abor “Moship” for instance. Here, however, as elsewhere on this frontier, each clan has one or more recognised headmen whose advice is solicited and counsel taken on all momentous occasions, and when such have been “squared” no real difficulties need be apprehended by any stranger visiting their hills.

It would be impossible for me to assess even approximately the number of this tribe, even if I were giving the number of houses in every hamlet, unless I actually visited each house, for it is impossible to assess even approximately the number in each house. In Chôsê’s house I counted a family party of 15 (adults and children), but in one house in Hai-imson’s village which I entered I found a man with his wife and one child only. The impression, however, left in my mind already is that the Digâros are a numerous tribe. One noteworthy point about them is that they appear to have no system of village defence. The two villages I have as yet seen, and Chowsâ tells me they are all the same, have no artificially made trenches, or palisades anywhere, and no “panjî” fixed in easily accessible places, so as to prevent their being rushed, and yet a sudden attack by Chulikattas, or even by Tibetans, is a possible, and not an altogether unknown contingency even as far west as this.

Chôkê, also Hai-imsong, and their people, are at peace with the Bêbêjîas, but not so the other Digâros of the Taieng clan. Chôsê informed me that years ago a large party of Bêbêjîas came across the hills lying to the north and north-west to attack a certain Digâro village close to this vicinity, but suffered grievously for their temerity. The journey, it appears, is a very difficult and arduous one, occupying about 20 days, and the story goes that just as the Bêbêjîas had succeeded in getting close to the village they desired to attack an unusually heavy snowstorm occurred, which
made retreat impossible, and that owing to the excessive cold they were unable to move, and so ran short of provisions; and, as their presence was discovered by the Digâros, the latter gathered together in large numbers and, proceeding to attack them, slaughtered nearly every soul.

The Bâbâjîâs have not since attempted a raid so far west, though they have attacked Digâro villages lying further east, but the Digâros appear to feel that another visit from them is not an impossible contingency. The whole of the Taing clan is also at war with the Tibetans, and the origin of their dispute was thus related to me.

Many years ago an influential Digâro of the T'sei clan called Tem was taken suddenly very ill soon after his return home from a trip to Rimâ, and believing that he had been bewitched by some Tibetan, he called his relations and friends around him and told them of his suspicions. He declared also that he was about to die, and exhorted them to avenge his death should his prophecy prove correct, and he specially exhorted some of the head chiefs of the Taing clan who were present to avenge him, insomuch as his own people were, he said, numerically too weak to do so satisfactorily. Soon after this Tem died, and in due course a powerful chief of the Taing clan, called Kâ-no'-sâ, collected a party of followers and proceeded to attack a certain Tibetan village close to the border of the Mijû country. This act exercised the minds of the Rimâ officials considerably, for they could not comprehend why Kânösâ had thus acted, for they were ignorant of his having any grievance against any Tibetans, and they were of course unaware of Tem's dying exhortations to him, and so they sent Kânösâ a polite message, asking him to go to Rimâ and discuss any grievance he might consider he had with a view to its being, if possible, amicably settled. On receipt of this message Kânösâ proceeded to Rimâ, accompanied by 30 followers, and upon his explaining why he had acted as he had done in attacking the Tibetan village, the Rimâ officials signified to be greatly distressed about Tem's death and dying exhortation. They expressed a wish to make Tem's relations a handsome present as a peace offering, and they persuaded Kânösâ to loiter about Rimâ on the plea that the same would be given in a few days' time. Instead of collecting presents, however, they were maturing a plot for the annihilation of Kânösâ and his followers, and as soon as everything was ready Kânösâ was suddenly, rudely, and peremptorily ordered to leave Rimâ, and when he had got some distance on his return journey he and his followers were suddenly surrounded by a large body of Tibetans, who were lying in wait for him, and the whole of them were cruelly slaughtered.

After this Bûson, Kânösâ's son, determined to avenge his father's death, and according collecting some 70 followers he divided them into two parties, and suddenly attacking simultaneously two villages called Sânggau and Sommên, situated in the border of the Mijû country, he burnt them to the ground, and succeeded in killing 70 men, women, and children. Bûson died (a natural death) some two years later, and since that time no overt act of any importance has been attempted by either party until some few months ago Bûson's (deceased) son Klîmâ seized a Tibetan while he was on his way to some Mijû village to trade, and sold him to Tákñlon for a gun worth Rs. 30, two swords, three large "tow," one small mithon, and the man is, I am informed, still detained in Tákñlon's village as a prisoner.

Monday, December 21st.—Proceeding for half an hour in a north-easterly (varying occasionally a little more easterly) direction we descended 800 feet down a steep incline and crossed a good-sized hill stream called the Painî, running down very strongly from the north into the Brahmaputra. After crossing the Painî we ascended some 800 feet up the centre of a spur called Sâ-lôgom, where Pronsong's (the man alluded to in diary of 19th instant) village, consisting of three houses, is situated.
The path from Chosé to the Paini, and up the spur on which Pronsong's village is situated, was very slippery after the late rain. Close to Pronsong's son's house I saw the first Digáro grave (that of a female) I have seen to date. Molesworth made a drawing of it, and, as he has promised me one, there is no occasion for me to describe it here. I will merely add that Digáros (and also Mijás) sometimes bury, at others burn, their dead. The latter is, I am informed, the favourite plan. The rule seems to be this. If deceased's relations are well off and have a lot of labour available in the shape of slaves, the body is burnt; if not, it is buried, with the head to the westward. Slaves are generally thrown into the river after death. After a person dies his or her relations send for the N'gwai (who is equivalent to the Assamese Déódai), a sort of Mishmi priest, and get him to say a few words over the corpse, exhorting the soul of the departed to flee away underground to the spot where all others have gone before, and when this has been done and the body has been made away with, a feast in proportion to the wealth of the deceased's relations is given. No ceremonies are performed after this feast. It is considered unlucky, in fact dangerous, to have anything to do with the dead once they have been burnt, or buried, lest their spirits should be disturbed and get offended. Digáros do not appear to believe in the transmigration of the soul, but (notwithstanding that the priest exhorts the soul of the deceased to go away and remain under the "mali," they believe that dead people move about in the air in the shape of invisible spirits.

After reaching the top of Pronsong spur we descended some 200 feet, and then continued along a tolerably good, though very up and down, path, skirting the several spurs coming down from the westward into the Brahmaputra. General direction up to 11.20 a.m. north, slightly east.

At 12.30 p.m. we had a smart shower, which wet us all through (direction for past hour north-east, slightly north), and soon afterwards we came upon a huge mass of rock immediately above the Brahmaputra called Erampo. Between 12.30 and 1 p.m. we were going N.N.W., north-west, and occasionally west, but after that we turned gradually to the north-east, again the path running 100 feet or so above the Brahmaputra. At 1.15 we crossed the Múm, a hill stream running down into the Brahmaputra from the south from afar, and from the south-west nearer us. Just before crossing it we saw a fine waterfall bearing south-west, but our path turning to the north-east soon afterwards, and being very jungly, we lost sight of it almost immediately.

After crossing the Múm I halted for three-quarters of an hour to lunch. Then proceeding again we continued for half an hour in a N.N.W. direction, and after crossing the dry beds of four mountain streams, which, when in flood, run down from the north-west into the Brahmaputra, we turned gradually to the northward and crossed the dry beds of three other mountain streams, which in flood also flow into the Brahmaputra from the north-west, and soon afterwards a path leading to the north-west to the Sa-gam-ná Digáro village.

When turning a little more easterly we descended at 3.30 p.m. some 250 feet or so, and crossed a large mountain stream, full of huge boulders, called Talá, running down from the north-west into the Brahmaputra. Elevation, where we crossed, 900 feet. This stream is easily forded at this time of the year. There is an old, and at present, unsafe wooden bridge of the ordinary kind across it. I was struck by the male portion of the Digáro porters helping the women over this river, and, when necessary, relieving them of their loads.

After crossing the Talá we proceeded in a north-easterly direction, and ascending some 50 feet or so up a steep path on the edge of a spur falling into the Brahmaputra we found ourselves at 4 p.m. in a recently cultivated knot belonging to Kalikson of the Tálon clan, a couple of hundred feet or so only above the Brahmap-
putra, which is running from the north-east, and bends away south of south-west as it passes where we are standing. Then, after crossing several other dry mountain watercourses, we descended at 4.30 p.m. close to the Brahmputra, and I pitched camp on a beautifully sandy spot known as Narâ, a miniature bay, close to it. There is an enormous quantity of driftwood about, and as grass and plantain leaves are also plentiful and close by, our porters and the Khantis were soon comfortably housed. The last 100 feet or so down to this place was very steep and difficult for laden coolies. The Brahmputra, which is running from E.N.E., is roaring and foaming past our camp. It is scarcely 60 yards across in places. Just below our camp it turns suddenly south of south-west. There is a Digâro village of 8 houses on the hill, called Ámíleng, to the north immediately above us, but not in sight. The headman's name is Titon, and he is of the Mârô Taieng clan. We had two or three nasty showers between noon and 4.30 p.m., which wet us through and made the marching, often through dense jungle, very unpleasant, and the path generally very slippery. Rain also fell after we had pitched camp, and continued till 7.30 p.m., after which we had a fine night. We were marching for 6½ hours to-day, exclusive of halts, and I reckon that we did about eight miles; it was the most difficult march we have had to date.

Tuesday, December 22nd.—Up at daylight and had everything packed by 7.30 a.m., but, as we are only a couple of hours' march from Tâkâlông's village, which is on a hill called A-kûpâ, our Mishmi porters were in no hurry to be off, and as Chowa wished me to halt for a while in order to allow old Titon (alluded to above) to come in and pay his respects to me, I amused myself after chotahazari examining a cane bridge (the first I have been close to) across the Brahmputra, a few hundred yards above where we are camped. The Brahmputra is very narrow, not more than 50 yards broad, just where the bridge is. The narrowest places are, in fact, chosen for their construction, not so much to economise cane, or through fear that the cane is not sufficiently strong to form a long span, but to facilitate the initial process of manufacture, viz. getting the canes across from one side to the other. This is done by tying a stone to a thin cane, and then slinging the latter across by means of it. Of course, when this has been done the process of dragging the thick canes over is an easy matter. The bridge has a platform on either side of the river to land on or take off; from and above each of these a strong cross-bar is fixed. The canes (three, four, or five are used) having been firmly tied to a tree on one side, they are led over the cross-bars alluded to, and then hauled sufficiently tight from the opposite bank and fastened to other trees, after which they are guyed down tightly towards the ground, a short distance from the cross-bars, so as to keep them from swinging about too much. Just above either platform several stout cane hoops are to be seen strung on to the canes which run across the river, and it is by means of these hoops that the Mishmis cross the river.

A Mishmi wishing to cross adjusts one of them six inches or so above his rump, and having fastened a piece of thin cane, which is to be found attached to each hoop, under the nape of his neck, he cocks his legs in the air, and catching hold of the hoop on either side (below the cane ropes), away he slides towards the centre of the span, where, on arriving, he transfers his hands from the hoop to the cane-ropes, and works his way up the other side hand over hand, using his bare feet likewise in a manner which would make many an old sailor stare were he present to see it. Sometimes the hoop does not glide far of its own accord, although each one is provided with a piece of jungle stuff called Tâbbîlê, by the Digâros, a sort of creeper from which a very slippery sap exudes, so attached that it rests between the hoop and the cane ropes, for the latter have joints in them which often bring the hoops up short, and then hands and feet have to be used all the way across, and the exer-
tion is very severe. If it is desired to cross a load likewise, the basket containing the same is fixed on to the lower portion of the hook below where the owner lies, and it, as also a spear, if necessary, stuck in, so as to balance itself, is taken across with him. This particular bridge is about 120 feet from platform to platform. Molesworth has promised me a drawing of it to go in with my report.

Returning to camp about 8.30 a.m., I found that old Titon had arrived there. He is a pleasant-looking, though very old man, with long white hair, very thick eye-brows, and is very weak on his legs. He speaks Assamese. His first question was, "Saheb! what have you come here for, and where are you going to?" I explained that I was on my way to Rimâ, and wished all influential Mishmis to help me through their country. Titon replied, "The Mishmi country is a very difficult one, and the journey to Rimâ a very long one. The Rimâ officials too are brutes, and they will be sure to insult you if you go there with no sepoys. As soon as ever they hear of your being in their vicinity they will turn out in force to stop you. If you are desirous of going there, take a large number of sepoys with you." I explained that I had no fear regarding the length of the journey or the difficulties of the road, and that I was prepared to run my chance of being well received or otherwise at Rimâ, that all I now asked for was that the head Digâro men would favour my presence amongst them, and help me to push on towards Rimâ by giving me rations and porters. Leaving the Brahmaputra, and proceeding in an east-south-easterly direction through some recently cultivated fields for a short time, we struck it again a little further on, coming down a little north of east-north-east, and then turning due east, we could see it coming down from a similar direction. After proceeding thus for a few minutes we left the Brahmaputra again, and turned a little to the north of east, but at a quarter to 11 a.m. came out on it again, and our path lay for half a mile or more over the huge boulders lying just above it, which the Dowanyas didn't seem to relish at all. The reach here is long and straight, and the river flows from north-east by east.

Then leaving the Brahmaputra, we got on to a high bank, and continuing along a jungly path, we crossed a good-sized stream called Um, running down very strongly from the north into the Brahmaputra. We crossed the Um on a fishing weir close to where it empties itself into the Brahmaputra (elevation 950 feet), as it was scarcely fordable, and we then proceeded for a few hundred yards up its left bank over some huge boulders (very difficult going for laden coolies). We reached Tâkûlong's village (elevation 1600 feet) at 1.30 p.m.; having risen some 700 feet in about half a mile. The village has ten houses, all of which are very much scattered, and one and all are surrounded by dense jungle, so that one does not see a house until one is right on top of it.

I asked Tâkûlong where Brûmson was (for I had heard that this man, who is one of the most influential chiefs among the Taieng (Digâro) clan, was in the village, as also that he has a grievance of very old standing, and is alleged to have given out that he will oppose my being allowed to proceed through the Digâro country), and he replied sulkily, "I don't know. He is somewhere in the village." I had heard that this man Tâkûlong, who is Brûmson's cousin, has also a grievance, and that he likewise is inclined to prevent my proceeding on through his country. I asked if I might be permitted to see a Tibetan prisoner whom I believed was in the village, and the man was immediately called upon to appear. He is a strongly built, fine-looking man, about forty-five years of age, and is dressed in the usual coarse slate-coloured Tibetan blanketting stuff, made like a large loose dressing-gown, with very open sleeves, and tied round the waist by a string, so that it bags considerably in the vicinity of the stomach, and only reaches as far as the knee. He is also wearing the typical Tibetan felt billycock hat, with a broad turned-up brim to it. His hair is
short, and he has no pig-tail, the same having been cut off soon after he was seized, and his left foot is secured in a heavy wooden stock, about two feet or so long by ten inches broad, the weight of which he keeps off his ankle when moving about by means of a piece of cane attached to each end of it, and carried in his hand. He saluted us by doffing his hat, and then sat down on the ground. I was informed that he had been seized some months ago by Kilmá, a relation of Büson (deceased), and some other Dígáros, while he was on his way, with two other Tibetans (who managed to make good their escape), to Mákūson’s village, which is across the Da’lei (ei like ei in “either”) river (vide diary of 20th instant, in which origin of row between Tibetans and Dígáros is given). I asked to whom the man belonged, and I was told that Tákúlon had purchased him from Klímá, and that he intended selling him to the Chulikattas or to any one else who would give a good price for him. The Tibetan speaks Dígáro well, so I had no difficulty in conversing with him through Chowása, who also speaks it fluently. I told him I intended, if possible, to ransom him, and take him on to his home with me, and this news he received with much joy, to judge from his countenance. I then asked Tákúlon what he would take for the man, as I had all along—that is, ever since I had first heard of his being a prisoner here—made up my mind to try and ransom him, believing he might be instrumental in getting me into Rimá, but he would not give any definite reply, so I allowed the matter to remain in abeyance for that night. The Mishmis alluded to above is an ingenious contrivance. A hole having been cut in a piece of very hard wood, large enough to admit with difficulty a man’s foot, the same is forced through it, and an iron pin is then driven through both sides of the hole close to the ankle, so that it is impossible to withdraw the foot.

Wednesday, December 23rd.—Up early and found it very cold and raw. The thermometer registered 49° at 9 a.m. I saw Tákúlon about this time, and I told him that I was very anxious to push on, and said I hoped he would give me porters. He replied, “You cannot get any porters from my village. I and Brúmson have a deal to talk to you about too, so you will have to remain here”; and upon my asking why he and Brúmson were so dilatory about the matter, he replied, “What we have to speak to you about is not a matter which can be talked over quickly, besides Brúmson is not ready to talk to you yet. He is here on urgent and special business of his own, and as soon as he has finished it he will probably come and speak with you.”

I was quite prepared for this speech, as Chowása had previously informed me that I should be compelled to halt here to-day, as also that both Tákúlon and Brúmson have a very old and grave grievance against our Government to talk to me about. Tákúlon, after delivering himself thus, killed a pig, which he presented me with, and he likewise brought us a fowl or two and a little rice, which looks as if he intended to keep friendly after all. I occupied myself in collecting Dígáro words, and in listening to the following story, which a Mishmi gave me to account for Brúmson’s long absence—:

“Many years ago Tákúlon lived where his forefathers had lived before him, farther to the eastward, on a hill called Kápulon, but he was driven thence by Kaşhás’s (deceased) sons and relations, who were aided by the Chulikattas, and the men from Gāming, in revenge for his (Tákúlon’s) father having assisted the British Government in capturing Kaşhás, and it subsequently came to the ears of Tákúlon, Brúmson, and other chiefs of the Taieng clan, that the Chulikattas had been shown the way into Tákúlon’s part of the country by a Mishmi belonging to the Dindá, Gám, and Hàró clans. When this discovery was first made nothing was done, but the chiefs of the Taieng clan set about making secret inquiries about the matter, so as to be able to fix the guilt on the suspected parties; and as soon as they had got sufficient evidence against them, they ordered the men to appear before them at
Tâkâlong's village to answer to the charge. The three suspected men, accompanied by numerous friends, arrived here a few days ago, and they were openly accused of treachery by the Taieng clan. They of course denied the charge, but as the Taieng chief had sufficient *prima facie* evidence against them, they were ordered to take the Mishmi oath and go through the ordeal usual among Mishmis under the circumstances, viz. each swallow a 'chunga' (four or five inches long and half an inch in diameter) full of Mishmi poison (aconite, I believe), ground and mixed with water, declaring before doing so that if they were lying they hoped the poison would kill them."

Large crowds of Mishmis from all parts of the country were present to see this performance, and every one I spoke to about it firmly believed in the efficacy of the test used to discover whether the suspected men had really acted as they are alleged to have done, declaring that if the suspected men are guilty they could not possibly escape dying; while, on the other hand, if they are telling the truth, the poison would not kill them, though it would make them very ill. I asked several men what would have happened had the suspected men refused to swallow the poison, and they replied, "They would have been compelled to take it. If they had not appeared voluntarily, as they have done, they would have been hunted down and killed by the Taieng clan."

By 3 p.m., the above proceedings having been completed, Brûmson shortly afterwards arrived at my tent. He is a fine-looking man, about forty-seven years of age, and has a very intelligent face for a Mishmi. He was wearing a large bearskin cap, which effectually hid the upper portion of his face, especially his eyes. He cannot speak Assamese, and this is, I am told, a terribly sore point with him, as he has an idea that if he could narrate his own grievances he would get a hearing, which up to date he has not, he says, succeeded in doing. He asked me why I have come into these parts, and I replied that I am anxious to become personally acquainted with all the Digâro and Mijâ chiefs, as also see their country, and that I was very anxious also to visit Lâmâ (everybody here talks of Rimâ as Lâmâ), and hoped that he and the other chiefs would help me with their influence, and also give me porters.

Both Tâkâlong and Brûmson promised to try and get me as many porters as I required, and Brûmson agreed to allow his son, a nice, smart-looking young fellow of about twenty-five or twenty-six years of age, to accompany me.

I spoke to Tâkâlong again about the Tibetan prisoner, and he said he would take 100 rupees for him, and this sum I agreed to give, as I was anxious to see the poor fellow set at liberty, and I believed that if I took him on to Rimâ with me he might be of some use to me. I then asked for permission to set the Tibetan at liberty, and after a deal of argument I was told I might do so. After several futile attempts to knock out the iron pin or cut the wood through with a *kukri*, a small Mishmi axe was brought, and a young fellow had to hack away at the wood, at the imminent risk of cutting the poor fellow's legs if his axe slipped, for half an hour, amidst the jeers and uncomplimentary remarks from a lot of young fellows who were looking on at the operation, ere the pin could be got out and the man released. The poor man appeared to be very grateful at having been released, and it was time his foot was taken out, for his ankle was much swollen, and of course very tender and sore.

After dinner I occupied myself in jotting down more Digâro words for the vocabulary I am making. Digâros are not nearly as inquisitive as the Abors, and so, I am thankful to say, we have not up to date been pulled about or molested, such as we should have been had we been in an Abor village. At mealtimes we always have a few present to admire the adroitness with which we feed ourselves with knife and fork. Some of the youths too occasionally make themselves obnoxious by mimicking everything either I or Molesworth say, as also by placing their anything but sweet bodies in too close proximity to us; but these are very small matters. I retired to
bed very pleased with my day's work, and with my mind much relieved, for I felt that I had conciliated two very influential chiefs.

Tâkûlong's house, as also the others I have seen in this village, is surrounded by a slight wooden fence on three sides, the front side only being without it. I was at first under the impression that this fence had been erected to protect any vegetables, &c., which might be grown within the inclosure from being devoured by the village mithon, but I am informed that its object is to prevent the house being rushed suddenly by any force attacking the village. The (mat) walls are likewise protected on the outside by split pieces of wood placed close together, which reach to within a foot or so of the top of them, in order to prevent ingress to the house by cutting the walls. As I have before observed, pigs being kept underneath the "chung" of the houses, that portion is usually railed in, but the railings which I have hitherto seen for this purpose merely come up high enough to keep the pigs inside. With the above exceptions, no other defences which I could see exist.

I have previously noticed that this tribe do not erect their houses in close proximity to one another upon any fixed village site. I suppose experience has taught them that it is safer to live scattered as they do when their numbers are numerically small. It would of course be much more difficult for any raiding party unacquainted as they would be with the village locality, to attack and burn a number of scattered houses, hidden from view until one is right up to them by dense jungle, than it would be were they all clustered together in one spot. The houses too being scattered as they are afford more chance for the inmates escaping with their lives during a sudden attack.

I saw a few cases of goitre, but none of any size, in this village. The spring from which the village gets its water is some distance away, and the water is dirty and not very plentiful at this time of the year.

_Thursday, December 24th._—At 8 a.m. the thermometer registered 47°. At 10.30 a.m. I left the village, accompanied by Hat-imson, Ghôsê, and Tâkûlong, who said they would escort me as far as the Dalei river, and just before starting Brûnson came up and wished me a safe and successful journey. He said—"Go cautiously and be ever on the alert. The road is dangerously bad for any one but Mishmis in places, and you have a long march before you. I have done all I can for you, and I am sending my son with you. Take care of him." We started in a north-east slightly easterly direction, and continuing this course for a quarter of an hour, we came upon a bad and dangerous piece of road. The path lay for some 30 or 40 yards along the edge of an almost perpendicular rock, a few hundred feet above the Brahmaputra, with nothing but little niches in it here and there for one's toes, though luckily there were a few creepers about to hold on by, but as they were not strong enough to bear one's weight, they would not have been of much use had one slipped, so that any accident of the kind meant almost certain death, for there was a sheer drop on to the boulders lying in the Brahmaputra below. Molesworth and I determined to go by this path (there is a better one above it by which cattle are taken), for the Mishmis seemed to think we could not get over it, and as we had two women among our porters, we argued that if they could get over such a path with their loads, we could also do so. We forgot, however, that going over such a place with bare feet is very different from doing so with boots on. We got over it all right, though we were both helped slightly over the last bit, and we were both glad when we had reached a safer spot. This is the worst bit of path we have had to go over to date. The Khamtis, as also my servants, went by the upper or cattle path.

After this we descended some 700 feet by a steep, slippery, and broken path, and at 11.15 we halted for 10 minutes, and then proceeding in a north-easterly direction, we passed a large mass of broken hill débris, chiefly rock, apparently
hurled down (from the north-west) by the bursting of a glacier, and soon afterwards we crossed the dry beds of the two hill streams, and then a little hill spring trickling out of the rocks close to our path. Just after passing the hill débris alluded to, we came upon a tolerably level, though somewhat stony, piece of ground, and I was informed that Eden and his men halted there the evening before they surprised Kaishá in his stronghold. We halted here for 15 minutes, and then proceeding E.N.E. for ten minutes or so, we entered Mison (Digâro) village, elevation 1300 feet, which is a few hundred feet above the Brahmaputra. Mison’s house is quite close to the path, and no attempt has been made to erect any defences of any sort at the entrance of the village. Distance from Tâkúlon about 3/4 miles.

Leaving Mison’s house at 10 minutes to 1 p.m. and proceeding in a north-easterly direction, we descended 100 feet or so and crossed a small hill stream, from which the village apparently gets its water. Then ascending 100 feet we crossed another hill spring, and the path ascended and descended alternately until at 1 p.m. we came upon the spot where Lûmîng’s house used to be before it was attacked and burnt by Kaishá’s relations, the Chulikattas, and the Gâming people. Elevation, 1500 feet. I took the bearing of the Brahmaputra from this spot and found it coming down from the eastward and making a letter S just below as it proceeds westward. After leaving this spot we proceeded in the east-south-easterly direction, and descending about 100 feet down a steep path we continued along a fine level path for a quarter of a mile or so. Then descending another 300 feet, we crossed the Dâlei river on a fishing weir. It is a fine large river, not fordable even now, and running very strong from the E.N.E. into the Brahmaputra. It is said to rise in the Snowy Range bordering on Tibet, and forms the boundary between the Taieng and Mânyô clans of Digâros. The valley on either side of it just here is of considerable size, nearly as wide in fact as that of the Brahmaputra. There are numerous villages up the gorge, some of which are of considerable size, one of them having, I am told, 100 houses in it. Kaishá’s people live on a high hill called Sâmëlâng, which bears N.E. from the Dâlei, and Måbûson and Måkûson, two other influential chiefs of the Mânyô clan, live a little below Kaishá. The country, too, known as Gâming, and inhabited by the Dindâ clan of Digâros, also lies up the gorge of this river about three-quarters of a day’s journey from Måkûson village (vide diary of 23rd instant), where mention is made of this tribe having helped Kaishá’s people in their attack on Lûmîng village.

They are not a numerous clan, and it is alleged that they are now on bad terms with the Bëbëjîls, whose nearest villages are only some two days’ journey from their most northerly villages. None of them have ever visited Sadîya, and as they are still on bad terms with the Taieng clan, they never even come as far south as the mouth of the Dâlei. I am told that the Mânyô clan of Digâro villages lying up the gorge of this river reach to within a couple of days’ journey of the Bëbëjîls villages, as also close to the borders of Tibet.

Before crossing the Dâlei I halted for half-an-hour. We crossed the river on a fishing weir, and I pitched camp in the jungle close to its left bank, as it was necessary that I should interview the headmen of the Månyô clan and solicit permission to march through their country, as also get them to give me some porters in exchange for some of those from Tâkúlon, who wish to return home from this spot. At 2.30 p.m. Måbûson, Måkûson, and a number of Kaishá’s sons and relations, arrived in camp.

I was very pleased at having got Måkûson to consent to accompany me, as he is not only a very influential man in his own part of the country (as far eastward as Tëmson village, which is close to the borders of Rima), but he speaks Mijû and Tibetan, as also Assamese, fairly well, and I considered that I was justified in promising him a gun if he really acted up to his promise.
Friday, December 25th.—I am told that many Tibetans come yearly as far west as this, trading, while the Digáros from these parts go regularly every year to Rima in quest of salt and cattle, &c. &c. By 9 a.m. a sufficient number of porters had arrived, and they all volunteered to go right through with me to Rima and back (as far as Tákûlong), provided I gave them 10 rupees each for the journey from this to Rima, and 10 rupees each for the return journey to Tákûlong. I was at first averse to doing so, as I feared running short of funds, but as they refused to move unless I consented to their terms, and Chowra strongly advised my closing with them, I agreed to do so. I had to pay them the first 10 rupees down ere they would move. I saw several Digáros smoking opium this morning. I am told no one drinks it. The Mijús, I am informed, grow large quantities of opium.

At 10.25 a.m., everything being ready, I succeeded in making a start. After ascending in an easterly (veering occasionally to north-east) direction some 200 feet we turned to the southward of east, and passed through large patches of fine thatching grass, and occasionally through some thick patches of what the Assamese call Méglabô, which, being very tangled overhead in places, necessitated one's going along with a stooing gait, which was very tiring. We could see the Brahmaputra coming from the E.S.E. down a long straight reach, and the valley is nearly, if not quite, half a-mile across. Shortly before 11 a.m. we came upon some fine level country, elevation 1200 feet, called Sâmêlang, and at 11 a.m. we descended some 250 feet down a steep path in a south-easterly direction, and proceeding for a short time over loose stones we came again upon a flat country, which was, however, jungly in places (where it has not been very recently cultivated). General direction south-east. Recently cultivated patches can be seen on the hills on either side of the Brahmaputra, but the hills on the left bank are more precipitous than those on this bank, and they come down almost right into the river. At 11.30 a.m. we descended some 300 feet down a steep path to the M’daun (also called Dâ) river, which is nearly as large as the Dâlei. This river, which runs down into the Brahmaputra from the eastward above us, and from the north-east just below, forms the boundary between the Mânyô clan of Digáros and the Mijús country. There is a path leading to Lâmâ along its banks, which is much used for trade purposes, and I am told that there are numerous Mijús villages, or hamlets, up the gorge of this river, which reach to within a short distance of Tibet. But few of the people who live to the eastward of it have ever visited Sadiya, but they trade regularly with the Tibetans residing at Rima and its vicinity, and many of the latter visit the Mijús villages yearly, often going as far west as the Dâlei. Salt (red-looking stuff, very like brickdust and tasting quite as gritty, though the Mijús say it is nicer than what can be procured from Sadiya) is the chief Tibetan commodity which the Mijús go in quest of, and after it, cattle, for they are excessively fond of meat and devour large quantities whenever they can procure it, and none is too tough for them to masticate or digest. They likewise affect Tibetan woollen coats, large copper "tos," which they use for brewing liquor in, swords, "kérás," cornelian beads, and a filigree silver ornament, sometimes studded with turquoise (called han by the Mijús), worn as a charm round the neck, powder, and bullets.

The chief articles which the Mijús barter in exchange for the above are musk-pods (called têlô), Mishmi "títâ" (called pôrwô) deer, Takin, tiger, and leopard-skins, horns, a creeper (called lang'gê) for making red dye, and the leaves of a plant (called chérâm) for making a black dye, and they likewise supply the Tibetans with a great deal of the inner bark of the sâal (Assamese word) tree, called tâkâlô by Digáros, which they use for making paper. They don't in fact often go to any villages to the westward of it.

There is a cane bridge across the M’daun, but we all crossed it on a fishing weir,
for it is not easily fordable even now. A little to the eastward of the Md’auon the Brahmaputra is seen running down from the eastward, but it turns south-east close to where the Md’auon empties itself into it. There is a cane bridge across the Brahmaputra a few feet below where the Md’aun empties itself into it, and the river (Brahmaputra) is very narrow just under it, for it rushes through a stony gorge.

We halted for three-quarters of an hour after crossing the Md’aun to lunch, and Chowā made arrangements with a Mijū, who is an old friend of his, for keeping one of his Khantis who has a very sore foot until we return. Starting again at 12.20 p.m., we proceeded for three-quarters of an hour over the boulders lying alongside, but a few feet above, the Brahmaputra, and about one mile to the eastward of where we had lunch we passed another cane bridge (consisting of five thinnish canes), length about 120 yards (width of Brahmaputra about 70 yards. It turns here to south of east for a bit). At 1.30 p.m., leaving the boulders we turned in an easterly direction and ascended some 300 feet into the jungle, in order to clear a mass of rock coming down perpendicularly into the Brahmaputra. At 10 to 2 p.m. we halted for five minutes, and then continuing south-east by south for a few hundred yards we came upon some recently cultivated “khets,” and saw a Mijū village on the left bank bearing south-west, and immediately afterwards we emerged upon a beautifully level piece of country lying in two tiers just above the Brahmaputra, and about 1000 yards wide, the whole of which is, or has been recently, cultivated. I saw the remains of the last cotton crop in places, also some fields with Miri sweet potatoes growing in them, and many patches with opium, the plants being an inch or two above the ground. I noticed here that the Mijūs waste their field rubbish instead of utilising it to improve the soil after burning it.

As observed in a previous diary, the Mijūs grow large quantities of opium, and they barter as much of it as is not required for their home consumption among the Bor Khantis for “dass” and other commodities. Large numbers of the Bor Khantis come down yearly, I am told, into the Mijū villages situated a little further to the eastward on the left bank of the Brahmaputra to trade.

After leaving this cultivated valley we turned to the north, and then gradually worked our way round to the north-east, and turned a couple of spurs, after which we descended a steep path and came out on to the Brahmaputra again. At 2.30 p.m. we crossed the dry bed of a small hill stream, and soon afterwards a large one called Ka’sē, running down into the Brahmaputra from the north-east. From 2.30 till a quarter to 3 p.m. our path was a very rough one, often over loose stones, and round the abrupt edges of spurs, full of ups and downs. Halted for 5 minutes at a quarter to 3 p.m., and then proceeded E.S.E., and directly afterwards I saw the Brahmaputra coming down a good long reach from south-east by south, and at 3 p.m. we came right out on to it and saw another cane bridge. River about 70 yards wide. Recently cultivated khets to be seen all about on both sides of it. Then ascending for 200 feet up a steep and very broken path, we passed a small mountain stream coming down from the north-east, and soon afterwards one of considerable size called Tinf, coming down from the south and running into the Brahmaputra on its left bank. After halting for 10 minutes on top of a spur, we proceeded at 3.30 p.m. in an east-south-easterly direction till 10 minutes to 4 p.m., when we came upon an open plateau, again just above the Brahmaputra, which is here running from the south-east, the hills on this bank gently undulating, those on left bank steep. At 8 minutes to 4 p.m. we descended a steep and rugged path and came out upon a lovely little sandy bay known by the name of Harangi (very similar to, only smaller than, the one at Nārā, where we camped on the 21st instant), close alongside the Brahmaputra, elevation 1250 feet, and I pitched camp there. I calculate the distance marched to-day at 12 miles, the best march we have as yet
made since we came into the hills. The path was, on the whole, good, but difficult (except for Mishmar) in places. It would have been impossible to have made as good a march with Dowanyas, even had they been carrying half the loads. There is a rapid just opposite our camp, and the water is rushing so furiously over it as to cause quite a small sea. Brahmaputra running from east by south just above our camp, but turning to south-east by south for a good long reach after passing it.

**Saturday, December 26th.**—Up at 6.30 a.m. Thermometer registered 50°. Got a fine view of the snows bearing S.S.E. Left camp at 9 a.m., and proceeding south-east by south for a couple of hundred yards or so over huge boulders close to the Brahmaputra, we left the river, and proceeding to a point or two more easterly, we came upon a plateau, and continued for a quarter of a mile along a good path, though it was jungly in places. After this, descending a few feet, we came upon a good large river, called the Ol, running down from the E.N.E. into the Brahmaputra. After crossing the Ol (at an elevation of 1250 feet), which is fordable at present, we proceeded for a short distance a little south of south-east, and after crossing the dry bed of a hill stream coming down when in flood from the south-east, we arrived half an hour after leaving camp at a path leading to the eastward to the Prângsî hill, upon which Tâgguruâson village stands, and I halted there to enable the villagers to bring us supplies.

I sent off a man yesterday evening, immediately after I had pitched my camp, to inform the villagers of my arrival; and consequently very soon after our arrival at the path alluded to, Tâgguruâson’s wife (he is away at Rimâ purchasing cattle) appeared. She brought down a small pig, which was immediately killed, singed, and cut up, it being the easiest way of carrying it, three small fowls (which were very acceptable, as we had been eating nothing but pig for some time past), and a mauud or so of rice. She also brought down a large quantity of fermented Pobosa, and a fire having been kindled, she proceeded to make “mad,” which every one (excepting myself and Molesworth) appeared thoroughly to enjoy.

I noticed some very Burmese-looking faces among the women of this village, but in other respects there is nothing to distinguish them from the Digâros. Many of the women were wearing the typical Assamese silver Kenthû so affected by Miris and Abors. A great many of the large rings worn in the top cartilage of the ear are silver, and many women were wearing heavy silver Karâs. I have seen very few cases of goitre in these hills to date, and none of an abnormal size. Ophthalmia too does not appear to be a prevalent disease, though squints are very common. The women are not nearly as strong-looking as the Abors, and far less demonstrative.

Leaving at 20 minutes to 12 a.m., we proceeded in a south-east by south direction, and crossing the dry beds of two hill streams just after leaving the village, our path lay through a number of recently cultivated khets, and about a quarter of an hour afterwards we crossed another dry hill stream, which when in flood runs down (like the first two) into the Brahmaputra from the eastward. Half an hour after leaving the path where we had halted so long we descended to the Brahmaputra, and we walked over boulders for a bit. Chowsâ showed me a hill on the left bank down which Cooper marched in 1870. The Brahmaputra is running down from the south-east, and is not more than 40 yards across in places. There is a cane bridge across it here. We halted for half an hour (elevation 1400 feet) to lunch. After lunch we left the Brahmaputra and ascended some 200 feet into the jungle to clear a mass of overhanging rock, and we kept in a south-easterly direction for the first 100 yards or so along a very broken and bad path, but afterwards along a tolerably good, though jungly one. At 1.20 p.m. crossed two small hill streams close together, running down from the E.N.E. into the Brahmaputra (general direction since lunch south-east). Halted here for 10 minutes, then continuing again at 1.30 p.m.,
we passed a small stream five minutes afterwards running down from the southward into the Brahmaputra on its left bank. The path from 1.30 to a quarter to 2 p.m. was very winding up and down, and stony, which made progress very slow. At this time we came right out on to the Brahmaputra again, which is not more than 30 yards wide in places. General direction to this south-east.

At 2.15 p.m. we were still proceeding in a south-easterly direction, and we came upon a long stretch of flat country about half a mile long, most of which has been recently cultivated. It was, however, jungly in places. I saw a good many more opium-fields here, and I noticed again that the rubbish taken off the same had been thrown on one side, instead of having been burnt and worked into the soil. The long grass which originally grew on the fields had apparently been burnt, and the roots having been pulled up by means of a piece of stick with a hook to it (the ground is all very sandy, and so not very hard) had been thrown on one side. The hills on both sides of the Brahmaputra still show signs of having been recently cultivated. Soon after leaving this long stretch of flat country behind us we crossed a small hill spring called Tākānōn, running down into the Brahmaputra from the north-east. After this, ascending about 100 feet up a steep zigzag path a point or so east of south-east, we crossed a spur and came upon more recently cultivated country, elevation 1700 feet, on a gently sloping hill, about half a mile long. There is a Mijū village just above, but not in sight, and no one could give me its name. We could see the Brahmaputra from this spot, coming down from a point or two further to the eastward. After leaving the recently cultivated country alluded to, we turned a point or so east of south-east, and went over some uneven and stony ground, the path sometimes ascending, at others descending and running through thick Māglābōn, terribly tangled overhead, and at 3 p.m., after turning suddenly to east, we descended 100 feet or so, and crossed a small hill stream (easily fordable now), called the Hālong, coming down from the north-east to east, and falling into the Brahmaputra. After crossing the Hālong we ascended the left bank for some 200 feet up a steep path, and then proceeding south-east by south, we passed a good-sized hill stream called the Tonwān, coming down south by west, and falling into the Brahmaputra on its left bank. Then turning to the north-east to turn a spur coming down into the Brahmaputra, our path wound about over very broken ground for a short time until we again emerged upon another fairly large patch of recently cultivated country on the slope of a steepish spur coming down into the Brahmaputra. After winding round this spur and crossing a small hill spring running down from the north-east over hard rock and forming a small waterfall, I camped at 3.35 p.m. in a vilely uneven and jungly spot, as the Mishmis declared that there is no water on ahead that we could reach before dark. Elevation 1900 feet. We saw the snow which was visible before leaving camp this morning nearly all day long. We were marching for four hours only to-day, exclusive of halts, and I reckon we did about eight miles. General direction south-east.

Sunday, December 27th.—Up very early. We could not pitch a tent last night, owing to the unevenness of the ground, and so passed a somewhat disagreeable night. After everything had been packed ready for a start I wrote a letter to the Deputy Commissioner, telling him of my movements since leaving Tākālong's village, and I got two Mishmis to carry it into Sadiya for 10 rupees and one tin of powder each, and a promise of a little rice and salt on arriving there. I left camp at 9.20 a.m., and proceeding in an east-south-easterly (turning sometimes a little more east, at others a little more south) direction for an hour, we passed a cane bridge across the Brahmaputra soon afterwards, and then a small hill stream coming down from the north-east. The path to this point was very bad, being terribly up and down, and in one spot it took us across the edge of an almost perpendicular rock with nothing
but a few little niches for one's toes to rest upon, and with a yawning cavern below to receive one in the event of a false step or a slip being made. The ordinary Mishmi cattle path is some distance above it. At 8 minutes past 10 a.m. we passed another small hill spring, trickling down from the northward. After crossing the spring our path turned a little more to the eastward, and we passed another trickling hill stream not very far from the last one. At 10.25 we came out into some opium fields and saw the Brahmaputra just below, coming down a good long reach from the eastward. Our path had been very stony, up and down, and jungly, from where we camped last night up to this point.

Chowsā again pointed to a hill called Kālom, on the left bank, as the one along which Cooper marched in 1870. There is a little snow to be seen on a hill bearing W.S.W., and another thickly clad peak, with large masses of snow in the gorges, bearing east by north, and a beautifully cold wind is coming down from it. Halted for 10 minutes to enjoy the view. The several spurs on both sides of the Brahmaputra to be seen from this spot show signs of having been recently cultivated, but there are no villages in sight.

At 10.30 a.m., continuing our journey in an east-south-easterly direction, we descended some 700 feet down a good path, though the first portion of it was overgrown with Māglābōn, and at 11 a.m. we passed another cane bridge across the Brahmaputra right opposite a hill stream called the Chāṭī* running down from the south into the Brahmaputra on its left bank. Saw more snow-clad hills to E.N.E. Our path from 10.25 a.m. up to this spot lay close alongside the Brahmaputra. At 11.25 a.m. I halted at an elevation of 1300 feet for three-quarters of an hour, just under the Mijū village of Tīlā, which is on the Mon Hill, bearing north. MM. Krick and Boury went to Rimā by this route.

Leaving again at 12.10 p.m., we commenced proceeding east by south, but soon turned sharp round to the N.N.W., and crossed the almost dry bed of a large hill-stream called the Kalan, which comes down when in flood from the north-west, after which we turned again to south-east, then to east, and subsequently to north-east, and ascended some 900 feet up a winding and at first a steep path. Then proceeding east by north we passed a large hill stream running down from S.S.E., evidently from the snow-clad peaks to be seen in that direction, and falling into the Brahmaputra on its left bank, after which we turned again to south-east, then to east, and subsequently to north, and soon afterwards turning to the north-east and then to north, we crossed the dry bed of a hill stream, coming down when in flood from the north.

After this our path turned again to the north-east, and then to east and south-east, and we descended 900 feet and crossed a large hill stream at an elevation of 1300 feet, called the Halai, running down very strongly from the north-east from afar, but from the northward a few hundred yards or so before it empties itself into the Brahmaputra. It is not fordable even at this time of the year. We crossed it by means of a slight wooden bridge, with railings to it, and there is a cane bridge across it a few feet below the wooden bridge. The hills on the right bank of the Halai, where we crossed it, are very steep, hence our having to turn in a north-easterly and northerly direction and proceed some distance ere we descended to it.

Just before descending to the Halai we passed through a large recently cultivated Khét, full of large felled unburnt trees, which made the going, especially for laden men, very difficult. It was 10 past 1 p.m. when we crossed the Halai, that is, one hour from the spot where we had lunched, distance 2½ miles. Just below the bridge which we crossed it on, the river (Halai) turns sharp to the westward

* ti is the Mijū word for “water,” so many of the names of the rivers in their country end in ti.
for a few yards, and then sharp round to south, before it falls into the Brahmaputra. I halted here 25 minutes for Chowsā, who stayed behind to eat. There are a large number of pine trees growing close down to the Halai on its left bank. This is the first day we have seen any. The first were visible just after we passed Matshonshā village. There are numerous Mijū hamlets up the gorge of the Halai, but the people inhabiting them are all poorly off, and no Mijū of any influence lives amongst them. These hamlets do not extend beyond a day's journey or so from this spot. After crossing the Halai we ascended in a south-by-east direction some 800 feet up the side of a spur running parallel with its left bank through tree jungle, and on reaching the top of it we continued for ten minutes or so E.S.E. along a level path, and then crossed a hill stream called the Namī running down freely from N.N.E., after which our path became winding for a bit, when we came on to a beautifully level plateau, and we continued along it in an east-south-easterly (varying occasionally a point or so one way or the other) direction till 20 to 3 p.m., when we saw the Brahmaputra coming down from a similar direction. Just about this time we saw a beautiful waterfall above the Brahmaputra on its left bank. The hills are all covered with pines and hill oaks from the Halai to this spot. After this, descending a bit, our path lay round the edges of the neighboring hills till 3 p.m., when my aneroid registered the height 1900 feet, and we halted for 10 minutes among a lot of wild lime trees, some of the fruit of which every one picked and ate. They had but little juice in them, but were otherwise not bad for jungle limes. After leaving the vicinity of the lime trees, we crossed the dry bed of a hill stream which, when in flood, comes down from the north, and continuing in a winding direction, we descended another 100 feet or so, at 3.30 p.m. I pitched camp on a tolerably level spot alongside of a small running stream. Elevation 1800 feet.

There is a Mijū village on a hill called Mönig, which is to the north, above us. The village is said to be a very large one, and the headman's name is Gongshā. He is of the Nat clan. We were marching for five hours to-day, exclusive of halts, and I reckon we did about 10 miles. General direction E.S.E. In the evening I tried to get Mākūson to give me the names of the Mijū villages on this bank of the Brahmaputra from the M'daun river eastwards, but he declared that he could not do so. He merely said, "There are a great many villages, or rather hamlets, along both banks of the Brahmaputra, as also up the gorges of the large rivers which run down from the north and southward." The names of the chief Mijū clans are:—Lāpā, Prūn, Manlo, Nāt (a very numerous one), Sāmī, Hāgon, Twā, Rō, Tumbli.

Monday, 28th December.—Up at daylight. Thermometer registered 47° at 7.30 a.m. Lovely morning. We have been exceptionally lucky in our weather since we left Sadiya, having had rain twice only.

I noticed some very Burmese-looking faces again among the women of this village. It is wonderful how uninquisitive every one is. People of both sexes of course prowl about examining things, but not in the monkey-like manner of the Abors or Chulikattas. We left camp about 8.30 a.m., and proceeding in an east-south-easterly direction, descended to within a few feet of the Brahmaputra. Crossed a hill stream running down strongly from the north-east (could not get the name). Soon afterwards turning north-east by north, we ascended some 50 feet or so, and proceeding a little more easterly, we descended a few feet, and the path running close alongside the Brahmaputra, which is not more than 30 yards wide in places, turned E.S.E. At 9.15 passed a cane bridge across the Brahmaputra and halted 10 minutes. The path up to this time was very broken, stony, and uneven, Brahmaputra running from south-east just here. Saw a lot of fine mithon belonging to Gongshā village, also some fine hybrids (cross between a Hāmā cow and a bull mithon, I was told).
Continuing again at 9.25 a.m., we soon afterwards came upon a tolerably level piece of recently cultivated country, covered however with rocks, some of which are of large size. General direction till 10.10 a.m. E.S.E., after which we turned a little more easterly, and passed a hill stream coming down from the northward, and at 10.20 another small one, called the Krâng, descending from the north-east (elevation 1700 feet). Path continued stony and uneven to this. It is also very badly defined, for, being a new one, it has not yet been properly trodden. General direction to this east by south, distance about two miles. At 25 minutes to 11 a.m. my aneroid registered the height at 1800 feet, but we soon afterwards descended for some 100 feet, again down a very steep path, in a south-south-easterly direction (Brahmaputra running down from a similar direction). Then we ascended 100 feet or so again (my aneroid registering 1800 feet), but immediately afterwards descending 50 feet or so, we came upon a tolerably good path, though very up and down here and there, and overgrown with Mêglâbôn in places, running E.S.E., and sometimes east and N.N.E. We continued along this middling path till 11.5 a.m., when I halted for five minutes. Elevation 1800 feet. Saw snow (apparently the same which we saw yesterday) pretty close to us and bearing E.S.E. The hills are all covered with pines, and recently cultivated khets are to be seen everywhere on both sides of the Brahmaputra.

Continuing our journey again at 11.10 a.m., we descended a few feet in an east-north-easterly direction, and passed through a recently cultivated khet, full of fallen trees. Path very bad, being over large rocks. At 11.20 a.m. I halted at a fine large hill stream called the Shâ, running down into the Brahmaputra (which is some little distance to the S.S.W. below us) from the north-east, for 30 minutes to lunch. We had no difficulty in crossing the Shâ by jumping from boulder to boulder. Elevation 1850 feet, where we lunched. Starting again at 11.50 a.m., we ascended some 200 feet or so in a south-east by south direction, and then turning more to the eastward we continued along a rough, winding, and jungly path till 12.25 p.m., when my aneroid registered 1900 feet, and we looked right down into the Brahmaputra, running from E.S.E., which turns to south-west and south a little below. Our path since lunch-time was very bad in places and it wound about in order to turn the several spurs abutting on the Brahmaputra to the south-west of us. After this, descending 100 feet or so down a nasty and somewhat dangerous path for porters, we came right out on to the Brahmaputra (elevation 1700 feet) and proceeded for a short time over boulders in an east-south-easterly direction. At a quarter to 1 p.m. we crossed a large hill stream called the Chûâ, coming down from the north-east, and emptying itself into the Brahmaputra, which is not more than 20 yards wide in some places, where it runs straight, and I halted for 10 minutes.

Then, continuing again at five minutes to 1 p.m., we left the Brahmaputra, and proceeding in an east-south-easterly direction for a few yards, we turned gradually to S.S.E., and descending to the Brahmaputra again, we proceeded over boulders and rocks once more, and at ten minutes past 1 p.m., after crossing two small hill streams running down into the Brahmaputra from the eastward (elevation 1800 feet), I halted 10 minutes. Then at 1.20 p.m., leaving the Brahmaputra, we ascended in a south-east by south direction some 100 feet or so, and at 1.35 p.m. crossed a small hill stream trickling down from the north-east into the Brahmaputra, and saw another cane bridge over the Brahmaputra soon afterwards. From 1.20 p.m. up to this time (1.35 p.m.) our path was very winding, up and down, and stony. General direction between south and south-east. The Brahmaputra is running from E.S.E. just below the cane bridge alluded to. At eight minutes to 2 p.m. we crossed another small hill stream coming down into the Brahmaputra from the east of north-east. Path
still bad, being very uneven and jungly. Halted eight minutes. Elevation 1900 feet. Brahmaputra running from S.S.E.

At 2 p.m., continuing our journey in a south-south-easterly direction, varying every now and then a point or so either way, we proceeded just above, and almost parallel with the Brahmaputra till 2.15 p.m., up to which time the path was still stony, rough, and in places jungly. Saw two small streams close together, one called the Watt and the other the Sumji, running down from south-west by west into the Brahmaputra on its left bank. Halted just opposite them for five minutes, after which, at 2.20 p.m., we proceeded over the Brahmaputra boulders till 2.30 p.m., when we left the river, and ascending in an east-south-easterly direction for a short time, we turned due east, owing to a rocky hill coming down perpendicularly into the Brahmaputra. The path from 2.30 till a quarter to 3 p.m. was as bad as it could possibly be, being terribly up and down, stony, and jungly.

At a quarter to 3 p.m. we emerged into the Brahmaputra again (elevation 1700 feet), and proceeded over boulders in a south-east by east direction (river flowing from a similar direction) till 25 minutes to 4 p.m., when we left the river, and ascending in an easterly direction an extremely uneven, stony, jungly, and badly defined path, turned to north-east and then back to south-east, and at 4.10 p.m. we came upon a narrow piece of flat country a few feet above the Brahmaputra, which is running east by north (just below this it runs away due west, and just above us it is coming down from the south-east), and I pitched camp there. The spot is known by the name of Phing, and the elevation is 1850 feet. Chowsá asked me to halt here to-day, in order that I might interview Tonson, who is a brother of Bôson, deceased (the chief alluded to at page 243 of Cooper’s book ‘The Mishmi Hills’), and a man of great influence in these parts. We were marching for 6½ hours to-day, exclusive of halts, and we did about 12 miles. General direction E.S.E. It was, in my opinion, the hardest march we have yet had. We are a little to the eastward of Tonson’s village, marked on the map as Prun, which is, by-the-bye, the name of one of the Mijú clans. Cooper’s farthest! We could see the village, which is said to have thirty houses in it, while proceeding along the boulders of the Brahmaputra at 3 p.m., but we cannot see it from where we are now. Two of Tonsong’s nephews came into camp soon after we arrived here, and stated that Tonsong, who is said to be very ill, and to have been unable to move for some time past, had sent them down to try and dissuade me from proceeding to Rimá. The arguments they used were in substance that the Rimá officials object very much to strangers entering their country; that they dare not, in fact, let any into Rimá, as the Lhassa Raja has prohibited their doing so; that consequently, if I insist on proceeding there, I shall be insulted and most certainly turned back as soon as my presence is discovered; that Tonsong, for the above reasons, is most anxious to prevent my proceeding there, if for no other reasons than that he will be blamed for not having stopped me.

In reply to this I said that I thought it was impossible for Tonsong to say, with any degree of certainty, how the Rimá officials would receive me; that I was most anxious to go there, and that I would run the risk of getting an unwelcome reception; and as Chowsá had a long talk with Tonsong’s two nephews after this, and no doubt explained that Tonsong would get a good present if he placed no obstacles in my way, but permitted me to proceed to Rimá and take my chance of being well or otherwise received, they intimated that they would return to their village and tell Tonsong what I had said, and would visit me again on the morrow at a spot some little distance to the eastward of this, where it was arranged I should move to in the morning, as the only water available here has to be got with much difficulty, on account of the boulders, from the Brahmaputra. It was quite dark when Tonsong’s nephews left my camp to return home.
Tuesday, December 29th.—Thermometer 53° at 6.30 a.m. this morning in a very sheltered spot. On leaving camp we proceeded east by south along an uneven and stony path, parallel to, but a little above the Brahmaputra, for five minutes or so, and then descending to the river, we continued over boulders till 25 minutes to 10 a.m., when we passed a suspension bridge across the Brahmaputra quite different from any I have yet seen. It consists of three three-stranded bamboo ropes, each about an inch in diameter, twisted beautifully together, the whole forming a small hawser some three inches or more in diameter, which, I am told, is very strong and durable. As far as I could judge after examining the rope carefully, it is made up of the tough outside part of the bamboo only, so that a very large number would be required to make a bridge, and the work of twisting must be very laborious. This particular bridge is nearly, if not quite, 200 yards long. It has a stage or platform to take off from or land on, but there are no hoops attached to the hawser, so I have yet to learn how the crossing is effected. I halted here seven minutes. The Brahmaputra makes a small letter s, just above the bridge, coming down from N.N.E., then east by south, and then from south and W.S.W. Leaving the Brahmaputra again at 18 minutes to 10 a.m., we ascended in a north-east turning to easterly direction 100 feet, up a very steep and difficult path, and then turning to south-east by south, got on to a tolerably level bit of country, and the path ran through some recently cultivated khets, in which I pitched camp at 10 a.m. (elevation 1850 feet). I reckon the distance from our last camp at two miles only. The name of the place in which our camp is pitched is Chunggam, and the land is cultivated by Tonson's people. The Brahmaputra is some distance below us, and is flowing from nearly due east to the westward down a fairly long reach. In the afternoon large numbers of Mijus from Tonsong's village came into camp.

Wednesday, December 30th.—Up at daylight and found it spitting with rain. We also had a little during the night. Thermometer registered 52° at 7 a.m. I saw a beautifully soft, and well twisted, three-stranded rope, about half an inch in diameter in the middle, but tapering away at both ends, this morning. It looks exactly like camel's hair, and feels like it too when handled, and it is made of stuff called chikok by the Mijus. It is a very fibrous creeper I believe. This rope is, I am told, very strong and tough, and it is said to last a long while, and from the look of it I can well believe that this is so. It is used to cross the bamboo-made hawser bridges alluded to in yesterday's diary. The following description will illustrate how the crossing is effected on these bridges. The bight of the rope having been passed through a wooden eye made on the top of a piece of very hard wood, about eight inches long, and six inches in diameter, with a slot in it of sufficient size for the bamboo-made hawser to rest firmly in it, the two ends are passed through the bight and are made to hang down, one on each side of the piece of wood with a slot in it. The slot in the latter is then placed on top of the bamboo-made hawser and the two ends of the rope having been picked up from underneath (the bamboo-made hawser), they are passed round the rump of the person wishing to cross the river, and both having then been brought up again tightly to the eye on the piece of wood with a slot, they are twisted carefully and then knotted in a peculiar way, so as to leave a bight large enough to go over the person's head and rest on the nape of his or her neck, and then all is ready the person about to cross places both hands (open) over the top of the piece of wood with a slot, and pressing it down tightly on to the bamboo-made hawser, lifts his legs off the platform (erected for taking off from), and away he slides towards the centre of the span. As soon as the piece of wood with a slot in it stops going, the person crossing lies back and, cocking his legs in the air, works his way up the other side by means of the hands, and, if necessary, feet also, like the Digáros do when in the hoops they use.
If a Mishmi has a load to cross he ties it below him and carries it over with him. This Miju method of crossing rivers is far preferable to the Digharó one, for in the first place there are no joints in the bamboo hawser, so that the piece of slotted wood travels more easily and much faster than the Digharó hoops do, while in the second the person crossing is in a sitting posture (which it is impossible to effect in hoops) for one-half of the journey across, and so is much less fatigued. He or she can also return to this sitting position and rest thus, whenever it suits their doing so, whereas in the hoops one has to rest, if necessary, in the most awkward position possible.

It was five minutes after 9 a.m. when we left camp. We commenced going in an easterly direction, but only for a few hundred yards, when we turned to the north-east, and proceeding thus for a short distance, we descended a few feet, and crossed a good-sized hill stream called the Mátí, coming down from the N.N.E. and falling into the Brahmaputra. After crossing the Mátí I saw a large river called the Lútt, running down from the south into the Brahmaputra, on its left bank. There is quite a large-looking valley just where it emerges from the hills before it falls into the Brahmaputra. Then turning gradually to the eastward and subsequently to the south-east to turn a spur coming down into the Brahmaputra (which is running from east to west here) we crossed, at 9.30 a.m., another hill stream coming down from the N.N.E. (our direction at the time being south-east by east) and falling into the Brahmaputra. Our path thus far was very up and down and stony.

At a quarter to 10 a.m. we emerged on some recently cultivated khets (Brahmaputra running from the E.S.E. here down a short reach) and our path up to this still continued up and down, and stony, and was likewise very winding in places. Tonsong has two or three huts just here, on the left bank of the Brahmaputra, where he keeps some slaves at this time of the year to collect fuel, &c. These huts are on a fine piece of level country covered with pine trees, and the Brahmaputra is coming down from the E.S.E. After passing through the recently cultivated khets we descended close to the Brahmaputra and kept along a path running close to, though a little above, it till 10 a.m., when we turned to the north and ascending some 40 feet or so up a steep hill we turned round to E.S.E. and emerged upon some old Indian-corn cultivation. Path up to this still very winding, uneven, and stony. At 10.15 a.m. our elevation was 2100 feet, as we had ascended a steep and badly defined path in an easterly direction. After this we turned S.S.E. again and saw a lot of hill monkeys. At 25 minutes to 11 a.m. we passed another Mijh bridge across the Brahmaputra. Elevation 1800 feet. After passing the bridge we ascended in a north-easterly direction 100 feet or so in order to clear a mass of rock, falling perpendicularly into the Brahmaputra, and at 15 minutes to 11 a.m. we came out on to the Brahmaputra running from the east down a short reach. Elevation 1800 feet. River only 35 yards or so broad in places. There is a very furious rapid just here, with a drop of several feet to it, another just above it. These rapids are, I notice, getting much more frequent now. Recently cultivated patches are still to be seen on the hills bordering on both sides the river. The hills on the left bank appear a little less steep and broken now than they were further to the westward. Two Mijh houses on the left bank are in sight, and there is a very large accumulation of drift wood, chiefly pine, about the place. I halted here for thirty-five minutes.

Starting again at 11.20 a.m. we proceeded in an east-north-easterly direction for nearly an hour, often over a very rough, uneven, and jungly path, and at 15 minutes to 13 we emerged upon a fine flat grassy piece of country, half a mile or so long, after which we entered more jungle. At 12 p.m. we crossed the beds of two small hill streams, coming down from the north, and fifteen minutes later we emerged on
the Brahmaputra. Elevation 2000 feet; our path from 11.20 till now having been but a few feet above it. I halted here for an hour. The Brahmaputra is not more than 20 yards (here) in places, and it is running from the E.N.E., but just above it runs down from east, and then from the north-east. The hills on the right (this) bank are rocky, bare, and bleak looking, while those on the left bank, though less bare looking, are also very rocky.

Continuing again at 1 p.m. we proceeded east, and ten minutes afterwards came upon a fine level piece of country (elevation 2000 feet) over a mile long, and I saw some very fine old pines. At 1.20 p.m. passed another Mijû house on the left bank. Brahmaputra flowing from north-east just here. At 1.30 p.m. our path was jungly, up and down, and stony. Passed a small hill stream coming down from north-west by west, our direction being N.N.E., and the Brahmaputra is flowing from the same direction. At 1.35 p.m. we came right out on to the Brahmaputra, elevation 2000 feet, and we continued in a north-easterly direction along its boulders, some of which are of an enormous size, and the whole slope at an unpleasant angle towards the river, so that walking along them is dangerous work; for if one were to become dislodged, a large number would go with it and probably crush one before one could escape. There is a distinct muddy look about the boulders lying for some 20 feet or so above the river which marks very clearly the height of the river when in flood. At 1.40 p.m. (when still going over boulders) we turned to E.N.E. (Brahmaputra coming from same direction down a good long reach). Rapids numerous, and very strong. Hills still bleak and rocky, and very bare in places. A few recently cultivated patches to be seen on the hills on the left bank, but none on those on the right bank. We continued going over boulders till 2 p.m., when we ascended into the jungle growing just above the river. Passed another Mijû bridge here, also a small hill stream running down from the northward. Halted here for ten minutes.

The country on the left bank belongs to a clan of Mijûs called Lâmât. They are said to be pretty numerous, and they are very fond of exercising their lordly rights in these parts by levying black-mail from such Digâros who visit this part of the country, especially those who happen to be on unfriendly terms with their clan, or with any members thereof. If the black-mail is refused, any articles which the Digâros refusing it may be carrying are immediately seized and stuck to. Their villages lie far up the gorge of the Kalang, a large river a little more to the eastward of this. The Brahmaputra is running from the E.N.E. here.

Continuing again at 2.10 p.m. in an E.N.E. direction, we proceeded for five minutes or so over an uneven and stony path just above the Brahmaputra, and then came upon some old cultivation, when the path improved a bit. At a quarter to 3 p.m. the Brahmaputra was seen running down from the east by north, and turning to south just below us. We ascended some hundred feet or so above the river about this time, and continued in an E.N.E. (varying occasionally a little to north) direction along a better path till 3.10 p.m., when we arrived opposite the Kalang (the river alluded to just above). It is a very large river coming down from the south-east, and falling into the Brahmaputra on its left bank. It has a fine broad valley (in the vicinity of) where it empties itself into the Brahmaputra. As before observed, the Lâmât clan of Mijûs have numerous villages up its gorge. I am told that there are very few Mijûs living to the eastward of the Kalang. This river is alleged to take its rise in the high mountains lying to the south-east, but close to the country of the Bor Khamtis, whose villages are said to be only four days distant from this. The Bor Khamtis trade freely with the Lâmât and other clans of Mijûs, and people from both tribes visit one another regularly every year for purposes of trade. The Bor Khamtis visit the Mijû villages lying a long way to the west of this. The chief articles brought down by the
Khamtis for trade are "daos" (which they obtain from the Singphos, for they have no iron in their own hills and do not understand manufacturing them. It is difficult to understand how these weapons originally came to be called Khamti "daos," when they are really Singpho "daos." I suppose because Khamtis sold them they were believed to be manufactured by them) and gongs, and very large numbers of the former are, I am informed, disposed of yearly. The Mijüs likewise purchase slaves from the Bor Khamtis, and the chief articles which they carry to the Bor Khamti country are cloths of all kinds (most of which come originally from Sadiya, being purchased from the Digâros living to the west of the M'daun river, who again purchase them from Digâros living west of the Dalei), musk pods, and opium (large quantities are, I am told, taken up to the Bor Khamti country yearly by the Mijüs).

There is no path to Rimâ on the left bank beyond the Kalang river, so that any one wishing to go there must cross over to this side to do so. Just before passing the Kalang I saw another Mijüs bridge over the Brahmaputra, as also a Mijüs house on the left bank of the river. The hills on the left bank are now a little less bleak looking, but those on this bank are still so. At 3.30 p.m. we crossed a hill stream called the Chûârî, running down very strongly from the westward, and our path then turned in that direction; and ascending a few feet through thick jungle we arrived at Lûsê Mijüs house, and I pitched camp close to his house at 20 minutes to 4 p.m.

Elevation 2200 feet. Brahmaputra about a quarter of a mile to eastward below us.

There are four other houses belonging to Lûsê's hamlet, but they are all very scattered. These people have never visited Sadiya, and it may be asserted generally that but very few of the people living to the east of the M'daun have ever been in there, and that consequently they knew literally nothing about us, and this being the case, it is marvellous how well we have been received everywhere. Some of the Mijüs, living as far east as this, have guns, which they purchase from those living further to the westward. I am told they can get none from Rimâ.

We were marching for 4 hours and 50 minutes to-day, exclusive of halts, and I calculate we did about 10 miles. Our general direction was E.N.E.

**Thursday, December 31st.**—Up at daylight. Thermometer 50° at 7 a.m. We are surrounded by hills, or we should feel it much colder. As it was, the early morning was very raw, and there can be no doubt that snow is falling on the higher hills. At 9.25 a.m. we left our camping ground. Starting in a north-east by north direction we crossed two small streams, coming down from the north-west, just after leaving the village, and continuing thus, along a path running a few feet above the Brahmaputra, till 10.10 a.m. we turned a little more to the northward, and the Brahmaputra was seen coming down from a similar direction. Our path up to this point was stony, very up and down, and jungly. Passed a very furious rapid just about this time, having a drop of several feet to it. From 10 minutes to 10 a.m. till 10 a.m. we were going along a fine grassy level, but afterwards ascending a few feet we got into jungle again, and the path became once more stony and uneven. Met two Mijüs returning from Rimâ. They told us that the Rimä officials had no intimation of our coming up to the time they left. At 10.10 a.m. the Brahmaputra was seen coming down from the N.N.W. down to a short reach, and our path was still uneven and stony, and the jungle so low overhead that we were compelled to go along in a stooping posture. At 10.15 a.m. we passed a Mijüs bridge across the Brahmaputra (path still jungly), and at 10.20 a.m. a small hill stream coming down from the west, after which we emerged from the jungle on to a level piece of country, bearing signs of having been recently cultivated in places. Then soon afterwards, proceeding N.N.E. for a short distance, we turned north-east, and emerged soon afterwards on to the Brahmaputra (elevation 2100 feet).
Leaving again at 10 minutes to 11 a.m. we proceeded north-east along a fine level piece of country (passing a small hill stream coming down from the westward—and I saw another coming down from the eastward and falling into the Brahmaputra on its left bank—at 11 a.m.) till 10 minutes past 11 a.m., when we passed a furious rapid in the Brahmaputra, which is running down north by east, and our path became uneven and jungly, though only for a short distance, as we came upon a level bit of country again almost immediately, and continued along it in a north-easterly direction till 11.25 a.m., when, turning to the north-westward we crossed a large hill stream (at an elevation of 2200 feet) called the Kânti, running down from the W.N.W. into the Brahmaputra. Then proceeding north-east again, we ascended some 200 feet or so up a steep hill and got on to more flat country, and proceeding along it till we gradually rose another 100 feet, the aneroid registering 2500 feet; after which at 15 minutes to 12 we turned a point or two further north, and proceeded so till noon. Saw snow-clad peaks to south and south-west, also two or three reaches of Brahmaputra in same direction from this spot.

After this we descended some 200 feet down a winding path and continued just above the Brahmaputra in a north-north-easterly direction (elevation 2300 feet), and at 20 minutes past 12 p.m., we came out on to the river (elevation 2200 feet). Passed two small hill streams coming down from the westward just before emerging on to the Brahmaputra, and I discovered to my great grief that I had lost the needle from my pocket compass, the only one I have with me. At 10 minutes to 1 p.m., we left again in a north-north-easterly direction, and, proceeding over boulders till 1 p.m., we passed a magnificent rapid with a drop of several feet, running like a sluice. The Brahmaputra is not more than 20 yards wide in places. After this, turning a little more to the northward, we continued going over the boulders for five minutes longer, when we ascended some 200 feet and soon got into jungle just above the river, and continuing in it till 1.20, we emerged on to an open piece of country, recently cultivated in places (elevation, 2400 feet), and we continued along it till 1.30 p.m., when we again found ourselves close to the Brahmaputra (elevation, 2250 feet). For some ten minutes or so before coming out on to the river our path was rough, stony, and jungly. After proceeding over boulders for a few yards, we got on to a fine sandy path, interspersed with boulders, and running a few feet above the river, and continuing along it till 20 minutes to 2 p.m., I halted for 10 minutes opposite Shûpshû Mijè¹’s house, which is on the left bank. He is of the Tâlâng clan. Country very bare and rocky-looking, and but little old cultivation to be seen about anywhere. The left bank of the Brahmaputra is rocky and perpendicular just here.

Continuing our journey at 10 minutes to 2 p.m., we proceeded over boulders till 2 p.m. in a slightly more northerly direction, when we passed a small hill stream coming down from the westward, and then got on to a level piece of grassy country, just above the Brahmaputra, and continued over it till 2.15 p.m. Hills on the left bank a good deal cut up with ravines, which have tree jungle in their vicinity, but the rest of the hills are bare and bleak-looking. Halted here for 10 minutes.

At 2.20 p.m. continued in a north-north-easterly direction and soon got into jungle again. Crossed a hill stream coming down from the west at 2.30 p.m., and then ascending some 50 feet or so up its left bank, we got on to a level grassy piece of country just above the Brahmaputra, with a recently cultivated khet or two here and there about it, and passed a Mijè¹ bridge (across the Brahmaputra) at 20 minutes to 3 p.m. Continued along till 8 minutes to 3 p.m. (elevation 2400 feet), when we again got into jungle, and our path wound about among some spurs, coming down in a very broken manner into the Brahmaputra. In some places the path
was good, but in others it was stony, up and down, and uneven. At 8 minutes past 3 p.m. we passed a good-sized hill stream (I couldn't get the name) coming down from the south-east into the Brahmaputra on its left bank. I halted for 10 minutes just after passing it, and continuing again at 3:18 p.m., we met three Mijũs returning from Rimã directly afterwards. They told me that they had slept out four nights since leaving Rimã, so that we are some distance off yet! Proceeding onwards our path became uneven, up and down, and jungly, until at 3.30 p.m., when (at an elevation of 2500 feet) we descended some 200 feet down a steep zigzag path, and getting on to a long stretch of flat grassy country just above the Brahmaputra we continued along it till a quarter to 4, when I halted for 15 minutes to let stragglers come up. I notice that our Mishmi porters are travelling slower every day. Chowã says they complain of being foot-sore, and say that their loads are heavier than they are accustomed to carry. There is an old Mijũ bridge across the Brahmaputra here. The hills on the left bank are bleak-looking and bare; those on the right bank are covered with trees.

At 4 p.m., starting again, we proceeded into some jungle (just above the Brahmaputra) in order to turn a spur or two, coming down into the Brahmaputra, and at 4 p.m. we crossed, by means of a wooden bridge, a large hill stream called the Chungtũ, running down from the westward, and soon afterwards a small one, the name of which I could not get. Then ascending a few hundred feet, gradually at first, but up a steepish path, just before reaching the village in a northerly direction we reached Krondong's house (elevation 2600 feet) at 4.30 p.m., and our Mishmi porters all came in about half an hour afterwards. The name of the hill on which the house stands is called Sātī, after a hill stream running down from the west a little to the north-eastward of this. Krondong came out to pay his respects to me soon after our arrival. He is a pleasant, quiet-looking, old man, about 48 years of age, very short and thick-set, and he was wearing a woollen Tibetan coat (not tied at the waist), and the typical Tibetan billycock with a turned-up brim. He killed a Lāmā cow soon after our arrival, and presented us with a piece of the beef, two fine cocks, and a little rice.

Friday, January 1st, 1886.—Thermometer 46° at 7 a.m. It was very cold during the night, and the wind, whistling up through the mat floor of the granary that we slept in, made it anything but pleasant. Krondong is a very wealthy Mijũ, but he is spoken of as being a very mild man, and as wanting in energy, and consequently he possesses less influence among his tribe than he would otherwise command on account of his wealth and numerous relations. He addressed me in substance as follows:—"I have never seen a Saheb before, for I cannot remember the Padri Sahebs who came this way, as I was then too young, but I have heard a great deal about them, as also about the Maharani and her country. I hear you are desirous of proceeding to Rimã, but I would strongly advise you not to go there, as the Governor is certain to insult you, and you will be ordered to leave the country as soon as your presence is discovered. Your going into the country too will bring trouble on the ryots, as the Governor will declare that they have given you food, &c., and will fine them heavily, as also beat them, and, as I have many friends in the place, I do not wish them to get into trouble. If, however, after hearing what I have said you still express a wish to be permitted to continue your journey, I will not oppose you, but will let you proceed, and you must take your chance of what happens."

I thanked him for his advice, and said I was very anxious to proceed on towards Rimã, and that I would take my chance of being well or otherwise received there, and I begged he would not send on any messenger to inform the Governor that I was in the neighbourhood.

It was 22 minutes to 10 a.m. when we started. We proceeded in a north-
easterly direction, and descending a few feet, crossed the Sātī, a large hill stream coming down from the westward (from which Krondong’s people get their water), after which we continued descending until my aneroid had registered 2400 feet, when we turned to the north, and kept along a path running just above the Brahmaputra till 10 a.m., at which time we passed a house on the left bank belonging to Krondon’s son, then descending another 500 feet or so nearer to the Brahmaputra we came (at five minutes past 10 a.m.) upon a level piece of country, and continued along it in a northerly direction for five minutes, when leaving the vicinity of the Brahmaputra we turned to the westward, while, turning a spur coming down into the Brahmaputra, and then got round gradually to north again, and after crossing two small hill streams trickling down from the westward (towards the Brahmaputra), we turned a point or so more easterly. Our path up to this was rough and jungly in places. At 20 minutes to 11 a.m. we were at an elevation of 2800 feet, and looked right down into the Brahmaputra, which was then flowing from nearly due north down a pretty long reach. Halted here for 10 minutes to let stragglers come up. The path which lay on the edge of a perpendicular spur was a very narrow one, and it was covered with pine needles likewise, making it very slippery, so that we had to go along very cautiously, for a slip meant certain death. I saw another Mījū house on the left bank and a Mījū bridge across the Brahmaputra from this point. The hills on both banks are rocky and are covered with pine trees.

At 10 minutes to 11 a.m., starting again, we continued windings round two other spurs, and got a glorious view of the snows to the south-west, as also a glimpse of more to the north-east, then commencing to descend at 13 minutes past 11 a.m. we came upon a flat piece of country just above the Brahmaputra. Elevation 2400 feet. I halted here for 30 minutes to let our porters come up, as they had lagged very considerably behind, owing to the path being difficult and very slippery. The Brahmaputra is running down from a point or two more easterly here. At 15 minutes to 12 we left again in a north-north-easterly direction, and soon afterwards got into jungle, growing on the edges of the hills which run down into the Brahmaputra, and our path wound about a good deal, ascending and descending 100 feet or so, and at 15 minutes past 12 p.m. we came out close to, but a short distance above, the Brahmaputra. Elevation 2600 feet.

At a quarter to 1 p.m. we continued our journey along a path which led us into the jungle, and wound in and out of the gorges between some spurs, coming down into the Brahmaputra. It was very stony and uneven, and, after descending and then ascending 100 feet or so, we passed at 1 p.m. a small hill stream coming down from the westward, as also a few recently cultivated “khets,” and at 15 minutes past 1 p.m. we came upon one of considerable size (all belonging to Krondong’s people). Elevation 2600 feet.

Then continuing E.N.E. along a path just above the Brahmaputra, we wound round the edges of some more spurs, and at 25 minutes to 2 p.m. we emerged on the Brahmaputra. Elevation 2500 feet, where I halted for 15 minutes. Saw a little old cultivation on left bank of river, which is running from east by north just here. It is only 20 yards wide in places, but appears to be very deep, and is running very fast and strong.

Leaving again at 10 minutes to 2 p.m. we proceeded over boulders for a few yards, and then ascending a few feet a point or two north of east by north, we came upon a fine stretch of open flat country, and continued going over the same until 2 p.m., when we passed a small waterfall coming down into the Brahmaputra from the south-east on its left bank. I also saw a little snow to the northward. Then, descending a few feet, we crossed a large hill stream, fordable at present, called the
Sikki, running down strongly from the northward, and after ascending its left bank I halted for 15 minutes, while Chowsá conversed with a party of Mishmis returning from Rimá with cattle. They informed me that they had left Rimá three days ago, and that up to that time the Governor was ignorant of our being anywhere near the Tibetan border, but they advised our pushing on there with all possible speed, as they said the Governor would be sure to hear of our coming from some one, and that as soon as he did so, I would be stopped and obliged to retrace my steps. I noticed that nothing but old and worn-out Lama cattle are sold to the Mishmis, and this is all that the Assamese down our way ever give them.

At 2.20 p.m. we continued N.N.E. along a tolerably level path for five minutes or so, and then got into jungle again just above the Brahmaputra, and continuing in it in an east by north direction for five minutes, we emerged (at 2.30 p.m.) on the Brahmaputra, elevation 2550 feet, and proceeded over boulders till 23 minutes to 3 p.m., when we once more ascended into jungle growing just above the river, and soon afterwards passed a large waterfall coming down from the northward. At 10 minutes to 3 p.m. we emerged on level country, elevation 2500 feet, with the Brahmaputra just below us, and running from N.E. (nothing but pines, some very fine, about, no cultivation, hills bare and rocky, also steep on left bank. Snow peak visible to northward), and continued going over it till five minutes to 3 p.m., when we came upon more jungle, but only for a few yards, but the path was stony and uneven. At seven minutes past 3 p.m. were going north-east by east, Brahmaputra running from north-east, and eight minutes afterwards we emerged on the Brahmaputra, elevation 2550 feet, and walked along boulders till 3.20 p.m., when I halted for 20 minutes. Passed another waterfall between 3.15 and 3.20 p.m. The Brahmaputra is here running from the N.N.E. Hills on left bank are rocky and bare, and those on this (right) bank but little better.

Starting again at 15 minutes to 4 p.m. we ascended a few feet, and getting into the jungle just above the Brahmaputra, continued in it till three minutes past 4 p.m., when we came out into a flat piece of country, elevation 2700 feet, along which we proceeded for a couple of minutes only, and then descending 100 feet so we crossed the Mongglá, a mountain stream, fordable at present, coming down from the N.N.W., and at a quarter past 4 p.m. we emerged on the Brahmaputra, and, proceeding along it till 30 minutes past 4 p.m., I pitched my camp upon a small level piece of grassy ground just a few feet above it. Elevation 2600 feet.

We are now very close to the borders of the Tibetan country. So far we have been excessively lucky, as Chowsá has successfully prevented any Mishmis from being sent on ahead of us to give the Tibetans intimation of our arrival in the vicinity of their country. I have been very much struck with Chowsá’s influence among both Digáros and Mjús. Many of the former tribe no doubt see a great deal of the Khantis, who reside on the Tengápáni, for they go there yearly in large numbers to purchase salt and other commodities, as certain of the Sadíya Kyahs have shops there all the year round, and the latter tribe mix a good deal, I am told, with the Khamtis from the Bor Khapti country, but even so it seems to me unusual that the chiefs of both Mishmi tribes should not only be very friendly with Chowsá, but likewise listen to, and unhesitatingly accept, his counsel. We were only marching for four hours to-day, exclusive of all halts, and I reckon we travelled about eight miles, and that our general direction was about N.N.E.

Saturday, January 2nd.—Thermometer 47° at 7 a.m. Lovely morning, and the Brahmaputra looks very grand, as it goes roaring and foaming along over a rapid just underneath where we are camped. I went over to Chowsá’s grass hut about 7.30 a.m., and he addressed me as follows:—“Saheb! I have done all I ever professed to be able to do for you, viz. have brought you safely through the Digáro
and Mijü country. We are now close to the borders of Tibet, and from this time you must act according to your own discretion. I have told you that we shall all be insulted, and possibly ill-treated, if we go on to Rimá, but you will not believe me. I can be of no more use to you, as I do not understand Tibetan."

Chowsá appears to be in low spirits this morning, but he brightened up a little when I told him that I am very much pleased and entirely satisfied with all that he has done for me since we left Sadiya, and intimated that I was quite prepared, if necessary, to act for myself in future. I said I did not anticipate any harm happening to us, and that I had no intention of retracing my steps towards Sadiya until I had used my best endeavours to reach Rimá.

Left camp at 8.50 a.m., and proceeding in a north-easterly direction for a quarter of a mile or so, we got on to an open piece of undulating grassy country called Mā-nek'rē, which is the boundary between the Mijü and the Tibetan country. There is a very large and solitary stone, lying close to the edge of this spot, and upon it may be seen standing upright two small slabs, each about two feet high, which were placed there, I am told, by the Padres Krick and Borry, to commemorate their journey to these parts. There is no river or even remarkable hill of any kind in the neighbourhood to mark the boundary, so that it may be said to be undefined. There is, however, one very noticeable feature about the spot, viz. that several pine trees, entirely branchless on all but their north-east sides, are to be seen on the slope above where the large stone just alluded to lies, as also a few similar ones growing just below it. These trees present, it is true, a most peculiar and scarecrow appearance, and the Mishmis believe that the Tibetan sylvan spirit has caused them to grow in this unique fashion in order to define the Tibetan boundary and show people the way on to Rimá; whereas the real cause of the apparently strange phenomenon is that the spot, being very unsheltered to the south-west, the branches in that direction of such trees as are most exposed to the force of the wind have been blown off.

After halting close to the huge stone alluded to for a few minutes we proceeded along a fine level path till 9.30 a.m., when we turned a point or so more to the north, and directly afterwards crossed a fairly large hill stream (now fordable) called the Yēpūk, running down from the north-west. This stream one would have imagined should have been made the boundary between the Mijü and the Tibetan country. Then ascending the left bank of the Yēpūk, we got on to more flat country, and soon afterwards our path wound round the edge of a spur for a time. At 10 minutes to 10 a.m. I saw the Brahmaputra coming down a short reach from due north, and at five minutes to 10 a.m. we passed a large hill-stream called the Dingti running down strongly from the eastward and falling into the Brahmaputra on its left bank. It is said to take its rise in the hills bordering on the Bor Khamti country. At 10 a.m., while going N.N.E., we came upon more flat open country, and at 10.10 a.m. we crossed a small stream coming down from the north-west, and I halted for five minutes just above the Brahmaputra, which is running from the north-east. The valley appears to be widening. The hills on both banks are low, and bleak-looking. Sometimes flat open country is to be seen on one side and sometimes on the other. Snow is visible on the hills to the north of us. The country about here is known by the name of Wālong. A little cultivation can be seen on both banks of the Brahmaputra just here, and also a little further to the eastward, where the country is beautifully level, for the valley is nearly, if not quite, a mile broad. Old Mākūson, as also Tonsong's brother, left us here, and there can be no doubt that they are both afraid of being seen in our company. They pretend that they intend crossing the river here and, preceding us to Rimá, will inform the Governor of my arrival, but I do not believe a word of it.
Starting again at 10.15 a.m., we continued along a capital path and passed below a Tibetan village, which was not in sight, but behind a hill to the west of us. Chowsâ informed me that all the villagers were away, hiding in the jungle, as the Tibetan tax collector had arrived at the village. The Brahmaputra is coming down from the westward of north just here. At 11 a.m. we passed a Tibetan hamlet called Tini, consisting, as far as I could see, of a couple or three wretched-looking hovels, on the left bank of the Brahmaputra, and I halted nearly opposite it for 10 minutes. Elevation 2700 feet. The country on this side is still called Wâlong, and the Brahmaputra is still flowing from the west of north. At 11.10 a.m. we continued our journey and proceeded a little west of north for a short time, when, turning a little more westerly, we ascended some 200 feet, and working our way round the edges of some spurs, coming straight down into the Brahmaputra, we got back gradually to W.N.W., and at 11.20 a.m. we passed a large hill stream (I could not get the name), flowing strongly from the north-east into the Brahmaputra on its left bank. It is said to come down from the mountains which border on the Bor Khamti country. At 11.30 a.m. we were some 100 feet or so above the Brahmaputra, and were looking right down into it. It is running down from the north-west through a narrow rocky defile, and the hills on both sides of it for some 300 or 400 yards or so are precipitous and run right down into it. There is literally no valley just here. At 10 minutes to 12 a.m. I halted for 40 minutes. Elevation 3000 feet. From 11.30 a.m. up to this time we had been winding about among the precipitous spurs alluded to above, the path being very narrow and slippery, owing to the large quantities of pine needles about. Saw snow which I had seen in the morning bearing north-east by north.

Starting again at 12.10 p.m., we left the Brahmaputra several hundred yards on our right, that is to north-east of us, and proceeding in a north-westerly direction, we soon afterwards came upon a large plateau (elevation 3000 feet) with some unusually fine pine trees upon it. Saw some terrace cultivation upon the left bank. At 12.40 p.m. we descended some 200 feet or so, and after crossing the dry bed of a hill stream which flows down from the south-west when in flood, we ascended its left bank, and then our path, which was somewhat broken in places, and covered with huge stones, wound about over fine undulating country. At 1 p.m. we all left the path to go and look at a hot-water spring in the jungle a few yards or so to the north of us, and I halted close to it for 20 minutes. The spring is a very diminutive one, and the water is tasteless. It is warm, but not too hot to sit in. Chowsâ and his Khamtis, as also my Mishmi porters, washed themselves in it. The Mishmis tell me that it used to be some distance further to the north-west of where it now is.

Leaving again at 1.20 p.m. we passed through a large grove of lime trees, bare of fruit, and emerged on to a splendid piece of flat country, covered with short frost-bitten grass and ferns, and we kept along in a north-easterly direction until 1.30 p.m., when we struck the Brahmaputra again, running down from the E.N.E., and our path was stony and uneven for ten minutes or so, when it became very good, and we continued in an east-north-easterly direction over a fine plateau covered with short grass and over three-quarters of a mile wide, till 10 minutes past 2 p.m., when I halted about a quarter of a mile from the Brahmaputra for 10 minutes. At 20 minutes to 2 p.m. we passed a large hill stream, coming down strongly from the south, and falling into the Brahmaputra on its left bank. Snows visible to N.N.W., S., S.S.W., and S.W., those to N.N.W. being close-to. We first saw these snows about a quarter of an hour or so before I halted. The hills on the left bank are steep and rocky, as also those on this bank immediately above the plateau. Pine trees, some of them exceptionally fine, to be seen everywhere, and
as the path is strewn with their needles it is very slippery. There used to be a large Tibetan village close to this spot years ago; but the villagers first refused to pay revenue to the Rimâ officials, and next endeavoured to throw off their allegiance, so they were attacked, I am informed, by a large force from Rimâ, and the village was burnt and a large number of the inhabitants were killed.

The remains of stone walls, erected to protect cultivated crops from the ravages of cattle, are still to be seen about. At 2.25 p.m., continuing our journey, we proceeded for a few minutes a little to the west of north, and then descending some 30 feet or so, we crossed a large hill stream, now easily fordable, coming down from the north-west, and after crossing it ascended in a north-easterly direction a steep path for some 350 feet, and got on to a fine, open, and semi-level piece of country. Elevation 3300 feet (Brahmaputra a short distance to the S.S.E. of us), and at a quarter to 3 p.m. I again halted for 15 minutes to let stragglers come up. Then continuing again at 3 p.m., we proceeded in a north-easterly direction along a path which was at times very winding until 3.25 p.m., when I again halted for 10 minutes opposite a fine waterfall coming down from the E.S.E., and falling into the Brahmaputra on its left bank. The valley in this vicinity is wide, and the Brahmaputra is running from the N.N.E. Snow is visible a long way ahead, as also a little to the westward.

Leaving again at 3.35 p.m., we proceeded north-east, and afterwards turned a little more to the north, and crossed a small hill stream coming down from the north-west, and ascending its left bank we continued along the edge of a spur covered with jungle for a while, and then descending gradually for some 250 feet, we came upon a small stream trickling down from the north-west, and at 10 minutes past 4 p.m. I pitched my camp close to it. Elevation 2900 feet. The valley is considerably narrower just here. The spot was not a desirable one for a camp, as the only available water is bad, while wood is scarce and the space is very limited; but I was informed that there is a Tibetan village a short distance ahead, and fearing that if the villagers discovered us in their vicinity they would send in word to the Rimâ officials, and that they would most probably send out a force and prevent our proceeding any further into the country, I considered it advisable to halt where I did.

We are now only a little more than one march from Rimâ, so we shall soon know our fate. Chowâ is still somewhat despondent. He has not forgotten the treatment he received when he visited these parts ten years ago, and being (as all Khamtis are) very proud, he is loath to give them the opportunity of insulting us in the presence of the Mishmis who are with us. I, on the other hand, do not so much mind being rudely treated or even insulted, so long as I succeed in reaching Rimâ, and he appears to be much astonished, as also, I believe, disgusted with my indifference. We were marching for 5½ hours to-day, exclusive of all halts, and as our path was a very good one during the greater portion of the distance, I reckon we travelled 11 miles. Our general direction I calculate was north-east by east, though this is sheer guesswork, for our path often wound about in and out of the several spurs which run down into the Brahmaputra in the most puzzling manner. The march was certainly an easy one compared with most of those which we have hitherto made.

*Sunday, January 3rd.*—Lovely morning again and very cold. Thermometer 42° at 7.30 a.m., and the ground was covered with hoar frost. The Brahmaputra (which is some distance below us to the south-eastward, and can only be heard faintly roaring from where we are) is running from nearly due north just below our camp. Left camp at 9 a.m. (it was so cold that neither the Khamtis nor the Mishmis could be persuaded to leave their camp-fires earlier), and proceeding in a
northerly direction, we continued along a capital path bordering on the Brahmaputra till a quarter to 10 a.m., when, leaving the river, we turned nearly due west, and proceeded for some distance up the right bank of a very large hill stream called the Krupti, coming down strongly from the westward; and then crossing it on a log thrown across it for the purpose, with a rough railing to it, we ascended its left bank, and at five minutes to 10 a.m. I halted for five minutes. The Krupti is not fordable even now. Snow is to be seen close to this spot to the southward, as also to the south-west some distance away. The valley, which was somewhat narrow in the vicinity of our last night's camp, commenced widening again soon after we began marching this morning.

Continuing our journey at five minutes past 10 a.m., we turned sharp round to north of north-west and proceeded along a fine level path for a few minutes when we struck the Brahmaputra again, which is running from the north-west (below us, i.e. to the south-east, it appears to flow in a very winding manner, and just above where we are it is coming down from a little west of north), and we continued along a good path just above it till 20 minutes past 10 a.m., when we came upon some small patches of Pobosā cultivation, lying just below a small Tibetan village called Kan'de.

We could not see the village, as it is on a flat piece of country some 200 or 300 feet above us. I halted here, and sent a man up to the village to see if Täggrüson was there, but the man had scarcely reached the village when a large herd of cattle were seen emerging from some pine trees to our north, and soon afterwards Täggrüson and his cousin appeared. He was, of course, quite prepared to see us, as we had sent on a messenger to tell him of our intention to visit Rimā. Chowsā told him that I wished him to precede us to Rimā and inform the Jën of my arrival, and solicit him to allow me to visit him, but he at first refused point-blank to do anything of the kind, and upon his asking why I had undertaken such a long, arduous, and disagreeable journey, Chowsā explained that I wished, if possible, to find out where the Brahmaputra took its rise from. Täggrüson seemed sceptical that I had spoken the truth, and he said:—"The Lāmā Raja will never believe that this is your real reason for coming to these parts. He is not like you Sehebs. He is more like a dog than anything else, and he is not to be trusted. He will find all sorts of excuses to pick a quarrel with you, for he will say you have come to look at the place with the ulterior object of taking it."

After which he declared that as he does not know Tibetan he could not talk to the Jën, and so that it would be useless my sending him there. I explained that this difficulty could very easily be got over by his taking the ransomed Tibetan with him, but this he pooh-poohed. After this Chowsā took him aside, and had a long talk with him, and having promised him in my name a couple of guns if he would do as I wished him to do, Täggrüson subsequently intimated that he would cross the river and, preceding us to Rimā, would inform the Governor of my being close by, and tell him that I wished to be permitted to have an interview with him; but he told me plainly that it was impossible to say how the Governor would receive the information, and after some further conversation he left us to cross the river, as arranged.

During Chowsā's conversation with Täggrüson the latter told him that he felt sure that the Jën would not permit me to go into Rimā, as also that he would not consent to see me. Täggrüson also informed him that the Tibetan Raja is so terribly exacting and tyrannical that every one of the ryots would joyfully welcome the advent of a large force, provided they came to take the country, and Chowsā says that he can fully corroborate all this.

My conversation with Täggrüson delayed us for two hours. Continuing our
journey again at five minutes past 12 p.m., we proceeded in a northerly direction along a good and even path till 12.20 p.m., when we crossed a small hill stream running down from the westward, and 10 minutes later our path, which had become stony and up and down, brought us close to the Brahmaputra, which is coming down from the north-east. We passed a Tibetan village on the left bank, consisting of four or five wretched-looking houses, with a little terrace cultivation in their vicinity. The valley is very narrow again just here, there being scarcely any flat country on either bank.

At a quarter to 1 p.m. we crossed a small stream coming down from the westward, and I saw another about the same time coming down from the eastward, and falling into the Brahmaputra on its left bank, and our path continued stony and up and down until 1 p.m., when we turned to the north-east for a little while, and then a point or two further to the eastward till 1.15 p.m., when we got on to a plateau, and I halted for five minutes to let stragglers come up. The Brahmaputra just here is full of bends. Saw snow to N.N.W. and southward on tops of high peaks only. Pine trees, some unusually fine, everywhere. The valley here is, however, insignificant, and what flat country there is, is covered with large stones.

At 1.20 p.m. we proceeded north-east along a capital even path, and passed some low-lying rice-fields, and soon afterwards we crossed three small streams, coming down very close together from the north-west; then ascending some 300 feet up a steep zigzag path, got at a quarter to 2 p.m. on to the edge of an undulating spur, elevation 3400 feet; I halted here for 10 minutes. The hills on the left bank are rocky and precipitous, and come right down into the Brahmaputra, which winds about in the most fantastic manner away to the south-west. Fine view of snows to the north-west, north, and north-east.

Continuing again at five minutes to 2 p.m. in a northerly direction, we descended some 200 feet, and continuing along a level piece of country for half a mile or so, we descended another 200 feet, and leaving the vicinity of the Brahmaputra, we turned in a north-westerly direction; and, continuing so for nearly a mile, we turned sharp to the eastward and crossed, by means of a log, a small river called the Köchü, running down strongly from the north-west. This river is not fordable, even at this season of the year. It is said to be a branch of the M’dau, or Dû, which we crossed on the 25th of December, and there is a path along its banks, leading to Tibet. I halted here 20 minutes.

Starting again at 10 minutes to 3 p.m. in a south-south-easterly direction, we ascended some 200 feet up the edge of a spur on the left bank of the Köchü, and got on to a fine plateau (saw snow to the northward); then turned gradually to east, and then to north-east again, and at a quarter past 3 p.m. we were looking right down into the Brahmaputra, which is a hundred feet or so below us to the eastward, and running from north-west down a good long reach. At 3.30 p.m. we passed the largest Tibetan village, consisting of some twenty houses, I have yet seen. It is called Kânau, and it has a good deal of terrace cultivation in its vicinity. Then, continuing a point or two west of north, we crossed at 25 minutes to 4 p.m. a hill stream coming down from the westward, and, ascending its left bank, I halted for five minutes to let stragglers come up. Saw a little snow to the eastward close to us. Continuing again at 20 minutes to 4 p.m., we proceeded along an uneven and stony path till 10 minutes past 4 p.m. when we crossed a dirty little stream running down from the north-west, and then rising a few feet we got on to a flat piece of country, where I pitched my camp. Elevation 3100 feet. Brahmaputra running 100 yards or so to the south-east of us down from west of north. Snow visible to the northward, and also a little to the south-east. We were marching for 4½ hours to-day, and I calculate that we did about nine miles. General direction N.N.E.
We are now only five or six miles from Rimā, and so to-morrow we shall know our fate. I myself do not believe that the Tibetans will harm us. If, however, all that the Mishmis have told me be true they will prove inhospitable, and may possibly peremptorily order me out of their country. Directly after pitching camp I sent off Tāggrūson's cousin, who is with me, with five rupees to endeavour to get some fowls. We have been very short of good food for the past three days, having had nothing but tough, tasteless beef, and bad, dirty rice. Vegetables, even of the commonest kind, we have not tasted for some ten days. The country is beyond doubt a wretched one for a white man to travel through, so different to Afghanistan, where one can get capital bread and first-class sheep.

Monday, January 4th.—Up very early and wrote a letter to the Deputy Commissioner, giving him a short account of my movements to date, and at a quarter to 10 a.m. Tāggrūson's cousin returned from his visit to a Tibetan village in quest of fowls, &c., and reported that the villagers would sell him nothing, as they fear incurring the Rimā Governor's displeasure. We started in a north-north-westery direction immediately afterwards for Rimā, the Brahmaputra coming down from a similar direction, and soon afterwards passed a good-sized stream coming down from the north-east, and falling into the Brahmaputra on its left bank. Hills on this (right) bank slope gently down to the river, and I saw a little new cultivation about, the ground having been scratched merely with a plough. There is very little flat country on the left bank. At 10.15 a.m. saw Brahmaputra coming down a good long reach from N.N.E., and snow was visible to W.N.W., N.N.W., north-east and E.N.E. Our path lay just above the Brahmaputra, and was a very good one as far as this. Saw a good many Tibetan men and women belonging to a village (name of which I could not get) close to, but out of sight. They are all clothed in the long dressing-gown-looking garment I have before alluded to, and appear to be very dirty and poor. They stared very hard at us, but kept quite aloof. Some of them pointed, however, in the direction of Rimā, and then in a pantomimic manner drew their hands across their throats, meaning us, I suppose, to understand that this was the treatment we might expect on arriving there.

At 25 minutes to 11 a.m. the river was coming down from the N.N.W., and our path was still close to, though a little above it, and ten minutes later we turned to the westward, and descending a few feet we crossed a good-sized hill stream coming down from the westward. Then turning sharp round to the eastward we ascended its left bank and turned to N.N.W. again, and our path led us over a fine plateau. Elevation 3200 feet. The valley winds just here considerably, but the hills on the left bank come right down into the river.

At 10 minutes past 11 a.m. I halted for 30 minutes just above the Brahmaputra, which was running down from the N.N.E. Snow to be seen to south-east by south, south-east, east, north-west by west, and west. The path to this was a very good one, as it lay chiefly through flat country, covered with short grass. The hills on the left bank still come right down into the river, but there is a fine broad valley on this bank. Starting again at 11.40 a.m. we proceeded along a capital level path, just above the Brahmaputra in a northerly direction, turning gradually a little more easterly till 5 minutes to 12, when we crossed a small hill stream, coming down from the north-west, and I then halted 30 minutes to lunch. At 12.30 p.m., continuing our journey in a north, slightly easterly direction, we arrived at a quarter to 1 p.m. just below the Tibetan village of Sa-mā, where the Padres Krick and Boury were killed. I tried to purchase a few provisions here, but no one would sell us a thing, lest the Rimā Governor, coming to hear of it, should have the party who did so called in and order him to be beaten and fined.

This is the village where my ransomed Tibetan lives, and his brother, who had got

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intimation from some one of our arrival in the vicinity, and who had also apparently heard how his brother had come to be ransomed and brought back home, appeared and brought him down a new coat. He also gave me a fowl and a little rice, and presented the Khambis and Mishmi porters with a small basketful of fermented Pobosā; and during the conversation which transpired while we were halting to receive his gifts, he explained, by pantomimic signs, that he and his brother intended fleeing to Assam with us when I returned from Rimā. My aneroid showed the elevation here to be 3600 feet.

After parting with my ransomed friend's brother we continued our journey for a short distance a little to the north of west, and then descending 100 feet or so, crossed a small stream called the Sā- chu, coming down from the north-west, after which, ascending its left bank, we continued in a north-easterly direction along a good path, and soon afterwards came upon some recently cultivated khetas belonging to the Tibetan village of Sangsā, and at 10 minutes past 1 p.m., after turning the edge of a spur, we came suddenly upon a fine open valley (elevation 3600 feet), some 2½ miles long, and more than a mile broad, with a good deal of terrace cultivation about it at our (south-west) end.

I halted here for five minutes or so in order to make a few notes. The Brahmaputra (which is some little distance to the east of us) is running down from nearly due north just here, and I can trace it (for two miles or so) to the northern end of the valley, where two distinctly visible openings can be seen in the hills, one to the west of north, the other a few points east of ditto, and my Mishmi porters (many of whom have visited Rimā often on former occasions) tell me that the opening to the west of north is the one down which the Brahmaputra flows, and that the Tibetans assert that it takes its rise in some high mountains away to the north-west, distant about 15 days' journey, and that on the other side of that mountain there is another river (the Nagongchu on A—k's map, I take it), which flows away west into the Abor country. My Mishmi porters cannot tell me the name of the river which flows through the other opening, which is visible in the hills (to the north of us). From a copy of A—k's map which I have with me it would appear to be the Zayul-chu. The ransomed Tibetan, however, calls it the Lāmm, and he tells me that it is now fordable. There can be no doubt the river marked Rong Thoi-chu in his map is identical with the Brahmaputra, and it is correctly shown there too as taking its rise in the mountains situated about a fifteen days' journey to the north-west of Rimā.

I cannot see Rimā from where we are, but from what my Mishmi porters tell me it must be close to the spot where the river flowing down the opening visible in the hills east of north, empties itself into the Brahmaputra. The hills bordering the valley to the north-west and south-east appear less bleak than they were further back, and their height is insignificant. The Brahmaputra, too, is minus the large boulders we have been accustomed to see daily of late. My Digār porters do not recognise the word Zayul; when asked what the name of the valley is, they replied Lāmm. The ransomed Tibetan also looked confused when Chowsā asked him its name, though he subsequently said Zai Wā. He tells me, too, that there is another small river close to Rimā called the Mīchā, which takes its rise in the same hills as the Nagong-chu. Chū is undoubtedly the correct word for "water."

Continuing our course along a fine level path leading through some recently cultivated "fields" down the centre of the valley we crossed at 1.35 p.m. a small sandy bay, lying close alongside of the Brahmaputra, passing several fine-looking mules grazing close by, and then our path led us through a piece of country covered with low scrub, and at 10 minutes to 2 p.m. we saw some mounted men proceeding to the southward along the pine-clad slope some distance to
the westward of us, and immediately afterwards we observed a small group of men—apparently armed, for we saw flashes issuing from their midst every now and again—collected on the left bank a short distance ahead of us, as also two or three mounted men galloping about in their vicinity, and as we drew nearer to the spot where this group was gathered some of them commenced shouting in an unmistakably hostile manner, and were immediately answered by others, whom we could not see, on our bank, while several guns were simultaneously fired in quick succession. We nevertheless proceeded quietly in the direction of the group alluded to, but after continuing for a short distance we got to a nasty low patch of ground, with thick scrub growing very close to the path on either side, and finding that the shouting was becoming momentarily greater and the firing was increasing, I halted my party and waited to see what would happen, Chowsâ remarking (in anything but a frightening tone however, for, like all Khamtis, he is no coward), "There, Saheb! I told you that we should not be well received, but you would not listen to me. We shall probably all be shot."

We were so completely hemmed in by the scrub alluded to that we could not see a soul, though it was evident from the shouting and firing which was proceeding that we were being speedily surrounded, and some of my Mishmi porters, who had pushed on a short distance ahead of us and had peered round the corner of the scrub, reported that an armed party barred the path by which we should have to proceed were we to advance any further, and while I was hesitating whether to proceed or extricate ourselves from the scrub (which not only completely obscured our view, but would likewise minimise our chance of defending ourselves were we to be attacked) by retiring a short distance, a fine, powerful young Tibetan was seen making his way hurriedly towards us. Upon arriving close to where Molesworth and I stood, he doffed a cloth which he was wearing round his head and respectfully saluted us, but having done so, he passed brusquely by us, and seizing the ransomed Tibetan by the arm he led him aside, and after the pair had seated themselves the young man entered into an earnest and hurried conversation with him. After they had been thus conversing for some minutes Chowsâ and I walked over to their vicinity, for the shouting and firing of guns was still going on, and Chowsâ asked the ransomed Tibetan what the Rimâ man had said, but instead of replying promptly to Chowsâ's query, he pretended he had not quite understood it, and even after it had been repeated he was very slow at replying to it, and appeared to me to be thinking what he should say. At last, however, he blurted out: "The Rimâ man is an emissary of the Jên, and he has been sent to find out who you are or what you want, as also to ask you if you have come to take the country." Chowsâ told him to reply that we had come from Assam upon a perfectly peaceful errand, viz. to endeavour to trace the source of the Brahmaputra, and to explain that the question whether we had come to take the country or not scarcely needed a reply, inasmuch as we had not come with any force, much less an armed one. After the ransomed Tibetan had interpreted Chowsâ's speech, the Rimâ emissary continued talking in the same low and earnest strain, and I accordingly told Chowsâ to ask again what it was about; but he had either been speaking in an uncomplimentary manner about us, or his speech contained threats from the Jên, which my ransomed friend considered it better I should not hear, for he would not tell us.

I then requested the emissary to return speedily to his master, and having acquainted him with all he had heard, solicit him to allow me to cross the river and pay my respect to him; and after conversing for some few minutes longer with the ransomed Tibetan, he suddenly arose and left us, and the ransomed Tibetan informed me that he had gone off to do as I had desired him to. The shouting and firing not having diminished in the least, I suggested that we should vacate the spot we were
on and seek a more suitable one, but the ransomed Tibetan declared that the Rimā emissary had particularly requested him to keep us where we were until he should return, and he added, "It is better too for you to remain where you are, as you are out of sight here. If you get into open ground the people may become excited and fire upon you." So I decided to stay where I was. It was about 3 p.m. when the Rimā emissary left us, and after his departure we had a somewhat anxious time of it, for the shouting and firing not only continued spasmodically, but a bullet was sent whizzing over our heads and struck the ground within a few inches of one of my Mishmi porters, while he was endeavouring to reconnoitre the country from a little knoll some 20 feet or so from where Molesworth and I were sitting. It was in vain that I looked for the arrival of old Mākūson or Tāgrūson, for neither came near us, and to make matters worse the Rimā emissary had declared before leaving us that neither of the men mentioned had preceded us; that every one, in fact, was ignorant of our being in the neighbourhood until a Tibetan had come in hurriedly to Rimā and reported that a party of strangers were close to the spot.

It was not until 4 p.m. that the emissary returned, and he was as provokingly uncommunicative (to us) as he had previously been. Following his former tactics, he sat himself down with the ransomed Tibetan, and again entered into a confidential conversation in a low tone of voice, on seeing which Chowsā became very restive and angry, while I was of course anxious to know the result of his conversation with the Jēn, and so Chowsā and I again walked over to where the pair were sitting. I directed Chowsā to ask the ransomed Tibetan what the emissary was saying (for he did not relax speaking, even when we went over to him), but he again appeared averse to act as interpreter. Upon being pressed, however, somewhat sharply, to state what the emissary was saying, he said the man had informed him that he had crossed the river and delivered my message to the Jēn, who had gone off to acquaint the Raja (I had heard in the morning that a Raja—whose name I was afterwards informed is Tāplā—is here on inspection or something); and that, as the latter's residence is some distance off, some delay would occur ere his orders concerning us were received. I then told Chowsā to tell the ransomed Tibetan to request the emissary to stop the firing and shouting that was going on, as also to complain to him about the bullet which had been fired into our midst, and Chowsā did so in a palpably angry and excited tone of voice. The ransomed Tibetan interpreted Chowsā's speech in due course, but the emissary did not appear to be in the least perturbed at it, though (if the ransomed Tibetan interpreted truly) he expressed regret that the bullet had been fired amongst us, and declared that he had already upbraided his people for having done so. As regards the firing and shouting he said he had no power to stop them.

I waited patiently till 4.30 p.m., and then finding that no orders were forthcoming from the Raja, I directed Chowsā to ask the emissary (through the ransomed Tibetan) to show us a suitable spot for a camp, pointing out that as we had huts to erect, firewood (which appeared to be very scarce) to collect, and our food to cook, before it got dark, we could no longer delay camping. He, however, refused point-blank to do so, excusing himself by saying that he could do nothing for us until the Raja had given his orders concerning us. I accordingly determined to act for myself, and as I decided to encamp for the night on a little sandy bay which we had passed on our way to this spot, I ordered the porters to pick up their loads, and we commenced retreating, the Rimā emissary refusing to accompany us. As soon as we had emerged from the thickest part of the scrub which had hitherto obstructed our view of what had been going on on the slopes above us, we saw groups of armed men ensconced in safe places of vantage, viz. behind trees, &c., above us, and one of these, which we passed within 200 yards or so of, deliberately called out for permission to
fire at us as we went by; at least this was the impression which their tone and actions left on my mind.

After proceeding a short distance in the direction of the place I intended camping on, we were met by two fully armed Tibetans, mounted on sturdy-looking 13-hand ponies, in capital condition, who peremptorily ordered my Mishmi porters to halt, which they at once did, and upon my asking them (through the ransomed Tibetan) what they wanted, they asked where we were going to, and I told them. We then proceeded again, and the two mounted men followed us to the edge of the sandy bay, and then dismounted; and soon after my tent had been pitched they sauntered jauntily into our camp, having first tethered their ponies, and pryingly examined everything they saw, as likewise closely scrutinised Molesworth and myself. They seemed especially interested with my cooking paraphernalia, and closely examined everything. They were both tall, powerful-looking fellows, and were clad in the typical long loose woollen Tibetan coat, with very loose flowing sleeves, tied up at the waist. Theirs were, however, slightly different from any I had hitherto seen, for they were trimmed round the edges with some three inches or so of fur (one of the coats was trimmed with tiger fur); as head-coverings one man wore the typical billycock hat, with a broad turned-up rim, of the most aesthetic-looking colour, while the other had on a most fantastic-looking hat, in shape like a Welshwoman's, except that the crown was much lower and the straight rim broader. I cannot say what it was made of, but it looked like hard felt, coloured blue and red. It gave me the idea of being a most uncomfortable head-dress, for instead of being large enough to fit on to the wearer's head, it was poised jauntily on one side, and was kept in that position by means of a strap which passed under his chin. Their other garments consisted, as far as I could tell, of white Hindustani-looking pajamas, and these were tucked inside the tops of their long boots, unshapely loose-fitting things, with thick raw hide soles, sewn on to cotton cloth tops, embroidered in places with coloured cotton. I noticed one of them was wearing an undervest made of Assamee Mooga silk. Both men had pigtails, and the one wearing the fantastic-looking hat wore what hair had not been so tied up in long straight locks. Both had several ornaments studded with turquoises tied up in their hair, and they both wore earrings in the lobes of their ears, as also several roughly made rings, containing turquoise and other stones, on their fingers. They also had an unusually large massive-looking Tibetan "madulis," which we so often see the Digares who visit Sadiya wearing. Both men took snuff while prowling about. They dipped their thumbs (with long nails to them) into the packet containing it, and then sniffed the same up. I also saw one of them blow his nose upon—well—an apology for a handkerchief. It was a small coloured piece of cloth, about eight inches long by six inches broad. He used both hands for the process, which he performed in quite a neat and orthodox European style. Their arms consisted of long straight swords, the handles of which were studded with turquoises, tied round their waist, and one man had powder and priming flasks, made of wood, with leather necks to facilitate the measuring out of powder, hanging about him. He had no gun with him, but I saw it strapped across his back when he was mounted. It was the only one I had seen close, but beyond perceiving that it was a matchlock with a very long barrel and peculiarly shaped stock, as also that it had a peculiar looking stand, like a two-prong fork, with a wooden handle attached to it, just under the muzzle and lying parallel with it, I had no time to notice it minutely. I could not see what their saddles were like, as they were completely hidden by the coats they wore, but I noticed that they rode with very short stirrups. Their bridles were made of fairly soft leather, and there was nothing peculiar about them or their snaffle-bits. I noticed, however, that the latter were strapped up much too tightly into their ponies' mouths. I was
told afterwards that these two swells do not belong to Rimâ, but that they have come here very recently with the Raja. I could not find out what their rank is, but I believe they are officers of a sort. Scarcely a quarter of an hour had elapsed after camp had been pitched when twenty or thirty more horsemen suddenly appeared in a cluster, and halted some hundred yards or so to the westward of us, on the edge of the path leading toward Rimâ, and upon my asking (through the ransomed Tibetan) why they had come there, I was told that the Raja and the Jên had arrived.

Time, however, went by without any sign of such exalted persons appearing, and I soon discovered that the party of mounted men had been sent to watch our movements, and prevent our returning in the direction of Rimâ. They picketed their ponies and then lit fires, and several of them sauntered over to our camp and prowled about there, looking at things, until it was nearly dark, when they returned to their fires. The young Rimâ emissary was among those who sauntered into our camp, but he continued as uncommunicative as ever. I directed the ransomed Tibetan to ask him if any orders had been received from the Raja, but he did not deign to reply.

The Khamtis, as also our orderlies, managed to collect a little wood before it got dark, but there was no jungle about fit for making huts, and so they had to content themselves with camping out in the open. About 8 p.m. Tâggrûson's cousin and the ransomed Tibetan were called to the Tibetan camp, and they were absent for over half an hour, and when they returned they informed us that they had been directed to tell us that a message had been received from the Raja to the effect that he did not know who the Maharani was; that we were not wanted at Rimâ; that no provisions would be given to us; and that the best thing I could do would be to go back from whence I had come as quickly as possible; and such a message coming on the top of the treatment we had received, made me determine to retrace my steps towards Sadiya in the morning, especially, too, as I knew that the Khamtis and Mishmi porters were almost entirely without food, and I accordingly warned my Mishmi porters to be ready very early.

Tuesday, January 5th.—Molesworth and I went to bed last night with all our clothes on, but as we were not disturbed we both slept soundly. Up at daylight, and had everything packed by 6 a.m., but it was so bitterly cold that the Mishmis, although more eager than any one to be away, could not be persuaded to leave their fires till 8 a.m. The thermometer registered 29° at 7 a.m., and the ground was covered with hoar frost, so that everybody must have had a very miserable time of it during the night in the open. When daylight appeared, no Tibetan pickets were to be seen anywhere. We left camp at five minutes after 8 a.m. and went along at a brisk pace, my Mishmi porters and the Khamtis complaining bitterly about the cold on their feet, until 10.10 a.m., when I halted for fifteen minutes, elevation 3200 feet, and the Mishmis lit a fire and warmed themselves a bit. Starting again at 10.25 a.m. we passed our Sunday night's camp at a quarter to 11 a.m. and continuing on till 11.25 a.m. we halted for 55 minutes right opposite the Tibetan village of Kanau to lunch, and a few minutes before we had finished we discovered a party of fully armed Tibetans (leading their ponies at the time, as the ground was very rough and uneven), following in our track. The spot where we were was anything but a nice one to defend ourselves on had it been necessary for us to do so, and so we pushed on as hard as we could towards the Köchû river, and at 10 minutes to 1 a.m. we crossed it, but I was compelled to halt immediately afterwards, as I found that my servant, as also the ransomed Tibetan, who was carrying my camp bed, had lagged behind. At 2.30 p.m., as neither of them had come in and no Tibetans had made their appearance, I was apprehensive that my servant had been stopped and made a prisoner of, and I sent Tâggrûson's cousin,
who was still with us, back to reconnoitre, and he returned soon afterwards and reported that the man had got fever and was consequently coming along very slowly; that the Tibetans whom we had seen on our track had sent one or two of their party on ahead of them to endeavour to catch me up and induce me to halt, as they wished to speak with me, and that, having met these men a short distance on the other side of the spur, running down parallel with the left bank of the Köchû, they had directed him to return to where I was, and ask me to wait until their main body could come up with us. Upon my asking him where the ransomed Tibetan was, he said that he was detained by the advance party alluded to; but that they were sending my bed on to me by another Tibetan, and almost immediately afterwards the same was brought in. The Tibetan who brought it informed us that Tâggrûson was with the main body of the Tibetans, and so I determined to halt and hear what the Rimâ men, and particularly Tâggrûson, had to say. I pitched my camp upon a tolerably level spot, a few yards above the Köchû on its right bank, elevation 3000 feet, at about 3 p.m., and my servant, as also a Tibetan villager, came in very soon afterwards; and upon my asking the latter if he could tell me what the Rimâ men wanted with me, he said they had come to tell me that the Raja was surprised, and likewise annoyed, that I had gone off in such a hurry, as he had intended seeing me if I had not done so. I was very pleased at hearing this speech, and I had it explained to him that I should most certainly not have left as hurriedly as I had done had I been better received, and had not a message been sent to me over night, which purported to have come from the Raja, telling me that I had better go off as quickly as possible, and I concluded by saying I would return again to Rimâ in the morning, provided I got some provisions given me; but upon hearing this latter speech his tone and manner changed directly, and he said plainly that he did not think it would be any good returning to Rimâ, as the Raja would not see me now. After this I held no further conversation with this man, as I was informed that he had no official status, and so could not possibly know anything about the Raja, but I waited patiently for the arrival of Tâggrûson and the main body of Tibetans. It was about 3.30 p.m. when they all appeared leading their ponies down the path on the left bank of the Köchû, and on arriving at the river they tethered their animals among a lot of boulders on a semi-flat and grassy spot close to its left bank, and soon afterwards numbers of them crossed over to our side and prowled about examining things. No one, however, showed any signs of desiring to confer with me in order to explain why they had come amongst us, and I did not ask any questions, as I hoped that some one in authority would in due course request to have an interview with me.

During the remainder of the afternoon Molesworth and I occupied ourselves in showing them such few things as we had with us that we thought would interest them. I exhibited my guns and revolver, and after taking them to pieces and putting them together again, I fired several shots to show them the breech-loading action; then we gave them a few boxes of matches, and a small looking-glass or two I had with me, and we showed them some tea which they looked at closely and declared it to be good. The guns and revolver did not astonish them half as much as I expected they would, but they were very much taken with the matches and the looking-glasses.

At about 4.30 p.m. they brought us about 13 seers of rice and a little dirty-looking stuff, half butter half cheese (which we had eventually to throw away), and they declared that more provisions had been sent for from a large village situated on the left bank of the Brahmaputra, and not very far off; but evening came, and up to the time it got dark no more had arrived, and about this time Chowsâ informed me that he had had a long conversation with Tâggrûson, and had gathered from him
that the party had merely been sent from Rimâ to see us all well out of the country, as also to find out, if possible, what our future intentions were, and that they had really nothing particular to talk to me about. Tāggrūson had likewise told Chowsā that the story which had been previously told us in re the Raja having been annoyed at my going away so precipitately was false, and he (Tāggrūson) had stated that he was not sanguine about our getting any more provisions, as the Tibetan had given us all they had brought with them from Rimâ, and as far as he knew they had not sent to any village for more, and had no intention of doing so, and he (Tāggrūson) strongly advised our leaving early on the morrow and making a forced march to Wālong, where he had some stores which he would place at my disposal. I accordingly settled over night that we should leave as early as possible on the morrow for Wālong, and have nothing more to do with the Rimâ people, all of whom had gone over to their camp across the river just as it was getting dusk. After dark I let off a couple of rockets, as I had promised them I would do so.

When Chowsā asked Tāggrūson why he had not come over to our side of the river at Rimâ when all the firing and shouting was going on, he replied that he did not reach Rimâ until very late. His story was that, after leaving us on the 3rd instant, he had crossed the river and gone to a Tibetan village close to Rimâ, where he slept the night; that while there he happened to mention that we were in the vicinity, and that in the morning he was sent for by a high Rima official who happened to be in the village, and that the latter kept him so long talking about us that he did not reach Rima until it was nearly dusk; and that early on the following morning, when he was about to proceed to deliver my message to the Jên, he heard that we had all departed, and so he came away after us as fast as he could. I have now no doubt whatever that the whole of this speech is false, for I have ascertained that the Rima officials, like all eastern potentates, petty, or otherwise, do not deign to converse direct with any one beneath them. They are consequently surrounded by numerous understrappers and sycophants, who prevent, by force if necessary, any attempt at such familiarity; consequently, it is not to be wondered at that even such Mishmis who trade regularly at Rima know literally nothing about the officials there. They merely know that there is an individual called the Jên (and occasionally a Raja), who treat every one (especially their own subjects) beneath them harshly, and sometimes even cruelly. Of course, if Tāggrūson had explained this to me when I first intimated my desire to utilise his services I should have known how to act. I should in fact have directed him to do exactly what he subsequently did do, viz. proceed ahead of us and tell some of his Tibetan friends that he had seen some strangers, with two Sahebs accompanying them, quite close to, and so had run on to let them know in order that, if necessary, they might acquaint their Governor. I should have been very much easier in my own mind too when the firing and shouting was going on at Rimâ had I known that Tāggrūson was powerless to interview the Jên (much alone the Raja) and deliver the message I had asked him to do, as I should then have known that I had to trust implicitly to my own tact; whereas I foolishly believed (even when the young Rimâ emissary told me that he had seen nothing of either Tāggrūson or Mākṣūson) that they had one, or both, preceded me and had fully explained to the Jên why I had come and all about me; and that the unwelcome reception I was getting was owing to Tāggrūson’s explanations. I did not see anything of the ransomed Tibetan during the afternoon, but in the evening I was informed that he was in the Tibetan camp attending to one of the men’s ponies.

Wednesday, January 6th.—Up at daylight, having slept in my clothes in case I might have had to turn out in the night. The thermometer was only down to 35° this morning at 7 a.m. None of the Tibetans came near us. They were
amusing themselves, between 7 and 8 a.m., firing at a mark. Täggrüson tells me that they are first-class marksmen, and may often be seen practising at Rimâ. He declares that they can hit a very small mark while riding past it at a gallop, but I can hardly believe that it would be possible to perform such a feat with the long clumsy matchlocks they use. I am under the impression that, before attempting to shoot, the owner of one of the matchlocks must first find a level spot where to place his wooden fork, after which he has to place gunpowder in the pan and then strike fire with the flint to ignite the tinder. Up to 8.30 a.m., as no more provisions had been given to us, I sent a polite message over to their camp to say that, as my party was very short of food, I would be obliged if they would give me a little more rice or something; but they ordered my messenger to return and ask me who I was and where I had come from, and to tell me that if any more Sahebs came this way they would most certainly be killed; and they again commenced firing guns. It appeared to me clear that I should get nothing more from them except insolence, and so I determined to have nothing more to do with them, but to retrace my steps as speedily as possible. Accordingly, at 9 a.m., everything being ready for a start, we left camp and marched until 11.15 a.m., when we crossed the Krüpt, and I halted for one hour and ten minutes to lunch and wait for my sick servant, whom I had left some distance behind, in charge of a Mishmi, and one of our orderlies to come up. Starting again at 12.25 p.m., we passed the spot on which I had camped on the night of Saturday, the 2nd instant, at 1.30 p.m., continuing until 2.15 p.m., we again halted for 15 minutes, and met old Máküson on his way to Rimâ. It appears that he has been nowhere since he left us! He was afraid in fact to go to Rimâ and inform the Jên of our presence in the neighbourhood, as the latter would have upbraided him for allowing us to go there, as also for having acted as our guide. I could hardly be civil to the old man at first, for I felt that he had grossly deceived me. Having thought the matter over, however, I came to the conclusion that I could not blame him for the manner in which he acted. He rendered me yeoman's service when he supplied me with porters, as also for having used his influence to secure us a safe and speedy passage through his part of the country, and I feel therefore that I am still beholden to him. At 2.30 p.m. we continued marching again, proceeded till 3.30 p.m., when my Mishmi porters rested for ten minutes. After which, starting again at 3.40 p.m., we marched until 5 p.m., when we reached Walong, and I pitched camp in an old field full of tobacco run to seed, a portion of which I had first to pull up, alongside of a wretched tumble-down and miserable-looking Tibetan house. Elevation 3200 feet. Distance marched about 16 miles, as we were moving for six hours and 20 minutes, exclusive of all halts. I purposely pushed on to this place, as Täggrüson promised me supplies here, and he right royally fulfilled his promise. The place consists of but three houses, all in the same condition as the one already described. Täggrüson keeps a good many cattle here, and the Tibetans (there are about fifteen souls, all poor-looking) look after them for him, and are allowed to make use of them for ploughing, &c. I notice that the ordinary villager wears no pigtails, so I fancy it is a mark of rank with the Tibetans.

Thursday, January 7th.—The thermometer stood at 34° at 7 a.m. We got off about 10 minutes past 10 a.m., and crossed the boundary between the Tibetan and Mijû country at a quarter to 12, and ten minutes later we arrived at the spot where we had camped on the night of the 1st instant, and we halted there for 55 minutes to lunch; and, starting again at 10 minutes to 1 p.m., we moved along at a good pace till 25 minutes past 1 p.m., when we again halted for 15 minutes. Leaving again at 35 minutes past 1 p.m., we continued going till 20 minutes to 3 p.m., when we halted 10 minutes; and starting again at 10 minutes to 3 p.m., we marched without another halt to Krontong's village, where we had halted on the night of the
31st December, arriving there at 10 minutes past 5 p.m., and right glad I was that we had made such a good march and had got into such good quarters. I calculate the distance marched to-day at about 11 miles. We were moving for five hours and 40 minutes, exclusive of all halts. Kromdung presented us with a fowl and six eggs, and persuaded him to sell me a pig for nine rupees.

**Friday, January 8th.**—Thermometer 33° at 7.30 a.m. We started, and marched until 10 minutes past 11 a.m., when the Mishmis halted for five minutes. Then leaving again at 11.15 a.m. we continued till 10 minutes past 12 p.m., when I halted for an hour close alongside the Brahmaputra to lunch. After lunch, starting again at 10 minutes past 1 p.m., we continued going till 25 minutes to 2 p.m., when we halted for 15 minutes to let Chowsâ and his Khamtis eat. Then proceeding again at 10 minutes to 2 p.m., we moved along until 20 minutes to 3 p.m., when I halted 10 minutes for stragglers to come up, and then continuing until 20 minutes past 3 p.m., our Mishmi porters again rested till 25 minutes to 4 p.m., after which we marched on till 4.15 p.m., when I pitched camp on a flat grassy piece of country close to, but a little above, the Brahmaputra, and a little to the north-east of Lúsè’s house (alongside which I was encamped on the night of the 30th of December last). Elevation 2300 feet. Distance travelled 11 miles.

**Saturday, January 9th.**—Lovely morning again. Thermometer 37° at 7 a.m. Left camp at 8.30 a.m. and, marching till 9 a.m., we halted for 40 minutes. Starting again at 20 minutes to 10 a.m., we continued till 25 minutes to 11 a.m. Leaving again at 15 minutes to 11 a.m., we continued till 20 minutes to 12, when I halted for 60 minutes close alongside the Brahmaputra, elevation 2000 feet, for lunch. After lunch, continuing again at 12.30 p.m., we marched on till 25 minutes to 2 p.m., when we again halted for 10 minutes close alongside the Brahmaputra, and leaving again at 15 minutes to 2 p.m., we continued going till 2.30 p.m. Continuing again, we marched on till a quarter to 4 p.m., when we reached the spot where I had camped on the 29th. Distance travelled to-day 11 miles.

**Sunday, January 10th.**—Thermometer 39° at 7.30 a.m., at which time Chowwa sent down word to say I must halt here to-day. I accordingly occupied myself in collecting Mijù words for my vocabulary.

**Monday, January 11th.**—Feels like rain. Thermometer 39° at 7 a.m. Left camp at 8.30 a.m. and continued going till 10 a.m., when I halted for 15 minutes to allow stragglers to come up. Starting again at 10.15 a.m., we continued till 11.25 a.m., when we halted for an hour at the Chla. Then leaving again at 12.25 a.m., we crossed the 5a at 1 p.m., elevation at crossing 2000 feet, and continued going till 1.10 p.m., when we halted for 15 minutes. Leaving again at 1.25 p.m., we kept going till 3.10 p.m., when we reached the site of our old camp of the 29th December last, and I pitched camp on the old spot, elevation 2000 feet.

There can be no doubt that yesterday’s rest did our porters (and ourselves likewise for that matter) a great deal of good. They marched splendidly to-day, and I calculate we covered 12 miles. We were marching for five hours and ten minutes, exclusive of halts. I promised them a large pig (if it could be got) provided they reached this place to-day at a tolerably early hour, and probably this may have had something to do with the way they all stepped out.

**Tuesday, January 12th.**—Thermometer 42° at 7 a.m. Managed to effect a start by 9.30 a.m., and continued going until 20 minutes to 11 a.m., when we crossed the Halalai river, and I halted for 15 minutes. Then proceeding again at five minutes to 11 a.m., we continued marching till seven minutes past 12 p.m., when we halted for 53 minutes to lunch at the spot where we lunched on the 27th ultimo, viz. below the Mijù village called Tila. Starting again at 1 p.m., we continued going until 20 minutes to 2 p.m., when we halted, at an elevation of 2200 feet, for 10 minutes;
then continuing again at 10 minutes to 2 p.m., we marched until 10 minutes to 3 p.m., when we reached the uncomfortable site I camped on the night of the 26th ultimo, and I again halted for 10 minutes to let the stragglers come up. Then starting again at 3 p.m., we marched till 10 minutes to 4 p.m., when I pitched camp upon a fine flat grassy piece of country alongside a small hill stream called Dakand, running down from the north, elevation 1700 feet. I calculate the distance marched to-day at 12 miles. We were walking for 4 hours and 52 minutes, exclusive of all halts. There are some Mijá houses on the hills above us, but none in sight.

Wednesday, January 13th.—Lovely morning. Thermometer 35° at 7 a.m. Had some difficulty in getting the Mishmis to leave their fires, owing to the cold, but I eventually got them off by 10 minutes to 9 a.m., and they continued going until 9 minutes past 10 a.m., when we halted for 10 minutes. Proceeding again at 19 minutes past 10 a.m., we continued marching, and crossed the Or at 5 minutes to 11 a.m., elevation 1250 feet. I left Chowśá with his Khantis and our Mishmi porters to bring on supplies promised from Tággríson's village, and I and Molesworth marched on as far as Harangt, the little sandy bay close to the Brahmaputra, where we were encamped on Christmas Day (20 days ago!) reaching there at 20 minutes to 12, and very sorry I was afterwards that I had left Chowśá and the others behind us; they did not turn up until 25 minutes past 1 p.m. (that is, one hour and forty-five minutes after Molesworth and I had arrived at Harangt), and they all appeared to be very full of liquor.

Leaving Harangt at 25 minutes past 1 p.m., we continued until a quarter past 2 p.m., when we halted for 15 minutes at a Mishmi bridge across the Brahmaputra, opposite a hill called Tholáng. At 2.30 p.m. we continued marching till 25 minutes to 4 p.m., when we halted for 10 minutes in an opium field (opium just a few inches above the ground). Elevation 1500 feet. Then continuing at a quarter to 4 p.m., we marched briskly till 5 p.m. (the last mile and a half of our journey being over boulders lying close to the Brahmaputra), when I pitched my camp on a nice sandy spot alongside of the Brahmaputra. Elevation 1100 feet. The place is known by the name of Nyé, after a small stream which runs down (a short distance from us) into the Brahmaputra from a point or so east of north. There was any quantity of drift-wood about, so we had heaps of firewood at our doors.

Thursday, January 14th.—Up at daylight. Morning very wild. Thermometer 50° at 7 a.m. We left camp at 10 minutes to 10 a.m., and crossing the Mdaun 20 minutes later, we ascended its left bank up a steep path, and proceeded on in the direction of the Dalei and got very close to that river ere we could find a suitable spot to camp on with water anywhere at hand. We had to halt for nearly an hour while Mishmis were sent out prospecting for the same, and some having at last been found, we pitched camp at 12.30 p.m. on a tolerably decent spot, which had recently been under cultivation, elevation 1300 feet, and Molesworth and I rested ourselves for a few hours.

This place, like all the country in its neighbourhood, is called Sáméláng, after the hill upon which Kaisā's people reside. Soon after camp had been pitched Mabruson appeared and presented me with a small mithon, and a fine pig was also brought in soon afterwards, as also some rice and a large quantity of fermented Pobosā, showing that the Mányō chiefs were determined, if possible, to carry off the palm for hospitality. I was very loath to accept so much from them gratis, but they would heed nothing that I said. The Mishmis killed both animals in due course, and by 4 p.m. there was not a vestige of either of them to be seen about raw, though large chunks tied on to the Mishmi or Khamti baskets, or skewers full of grilled pieces lying about, met one's eyes everywhere. The prospect of getting heaps of beef and pork, as also liquor gratis, apparently proved more attractive to
my porters than home ties, for they were all still in camp up to 5 p.m., though I believe some of them went up to their villages afterwards. How long the manufacturing of liquor went on I can’t say, for I went to bed early.

Friday, January 15th.—Thermometer 52° at 7 a.m. I found yu (liquor) being brewed at a very early hour, and it appeared clear therefore that I should have the usual difficulty in getting off early. At eight minutes to 11 a.m. I managed to get them to start. We crossed the Dalei running very strongly (I fancy if we had been much later we should not have been able to cross it on the weir, as a portion of it was broken) at 11.30 a.m., and after ascending some 300 feet or so up its right bank, I halted at a quarter to 12 for eight minutes to let stragglers come up. Then continuing again at 7 minutes to 12, we reached Mising’s house, where I left my servant on the 24th December last, at 12.20 p.m. I found he had returned to Tākūlong’s village two or three days ago.

Continuing again at 1.15 p.m., we marched till a quarter to 3 p.m., when I reached Tākūlong’s village. I camped upon the old spot where I had been on the 23rd and 24th December last. Only five out of the sixteen porters I have with me will agree to go into Sadiya with me, so I shall be compelled to call upon Tākūlong for assistance.

Saturday, January 16th.—Thermometer 54° at 7 a.m. It rained on and off all last night, though not heavily. I believe it is snowing on the higher ranges. At 15 minutes past 11 a.m. the last cooly had left the village, and Molesworth and I left immediately afterwards. It was just drizzling at the time, and the little rain we had already had during the night made the path very slippery, so that we were unavoidably very slow in descending the very steep path which leads from the village to the Úm, and we didn’t cross it till noon. After crossing it, we proceeded on till 10 minutes past 1 p.m., when we reached Nārā, the sandy spot where we camped on the night of the 21st December last, and I halted for half an hour. Leaving Nārā at 1.40 p.m., we crossed the Talūk at 25 minutes past 2 p.m., and at 3 p.m. I halted for five minutes at an elevation of 1000 feet in the jungle. Then continuing again at 5 minutes past 3 p.m., I again halted in the dry bed of a mountain stream for 10 minutes to let stragglers come up. Elevation 900 feet. Continuing again at 3.30 p.m., we marched till 5 minutes after 4 p.m., and after halting five minutes we proceeded on till 10 minutes past 5 p.m., when I pitched camp on a filthy jungly spot, covered with nasty wet grass, close to, but a good deal above a little stream called Chìlang. The spot is alleged to be half-way between Tākūlong’s and Hai-imsong’s villages. It is not much used as a camping-ground, as the majority of Mishmis who travel between the two villages prefer camping in Chōsē village (where I camped on the 19th of December), which is some distance above us. The last 1½ mile to this place was along a beautifully level path, but it was terribly overgrown with jungle, and so we all got wet through. The jungle, too, was terribly tangled overhead, and so we had to go along in a stooping position, which was very tiring. We were marching for five hours, exclusive of halts, and did, as nearly as I can guess, 10 miles.

Sunday, January 17th.—Up at daylight; foggy, cloudy-looking morning. Thermometer 53° at 7 a.m. We left camp at 9 minutes to 10 a.m., and continuing till 15 minutes to 11 a.m., we crossed the Māyē, and halted for 10 minutes (elevation 800 feet). Starting again at 5 minutes to 11 a.m., we marched till 12.25 p.m., when I halted for 35 minutes to lunch. Continuing again at 1 p.m., we reached the Tēdēng at 2.30 p.m., and after crossing it on a weir at a spot higher up than we did on the 19th December last, I halted for 25 minutes. Starting again at 5 minutes to 3 p.m., we reached Hai-imsong’s village at 10 minutes past 4 p.m. The path up from the Tēdēng is a long and stiff one, as the elevation of the village is
1800 feet, and where we crossed the Têdêng my aneroid registered 500 feet only. Soon after arriving in the village I arranged with Hai-imsong for four porters for to-morrow, to replace four men from Tâkulan’s village, who wish to return home. We were marching for 5 hours and 10 minutes, exclusive of halts, to-day, and I reckon that we did 10 miles.

**Monday, January 18th.**—Thermometer 40° at 7 a.m. We effected a start by 8.45 a.m. Commencing to ascend the hill above Hai-imsong’s village, we continued marching till 9.30 a.m., when I halted at an elevation of 2900 feet for 10 minutes. Then continuing again at 9.40 a.m., we marched on till 10 a.m., when I again halted for 15 minutes. Elevation 3100 feet. We had thus ascended 1300 feet in 1½ hour, i.e., in about two miles. After this, continuing at 10.15 a.m., we proceeded till 11 a.m., when the Mîshmis again halted for 10 minutes, at an elevation of 3300 feet.

Leaving again at 11.10 a.m., we reached the highest point in the hill (4300 feet) at noon, and after this, descending 300 feet, I reached Pûpiar (the spot from which we got such a glorious view on the 18th December) at 10 minutes to 1 p.m., and halted 30 minutes. Elevation 4000 feet. After this, leaving again at 1.20 p.m., we continued again till 2.10 p.m., when we reached Háreling (elevation 3200 feet), where I camped on the night of the 18th December last. Then leaving again at 2.15 p.m., we continued till 3.20 p.m., when we again halted 10 minutes. After which, starting once more at 3.30 p.m., we proceeded till 4.30 p.m., when I reached Tâmêmûkh, where we were camped on the 17th December last (elevation 450 feet). We were marching for 5 hours and 55 minutes, exclusive of halt, and I reckon we did about 15 miles. Digâros (male or female) can’t compete with Abers in carrying loads down hill. Had I been performing to-day’s journey with Aner porters, we should have reached Tâmêmûkh by 1 p.m.

**Tuesday, January 19th.**—Thermometer 50° at 7.30 a.m. At 9.30 a.m. I started on ahead of every one in order to try and get a shot at a deer, as a little venison would have been a treat for us all, but I reached the spot where we are camped to-day at 11.20 a.m., distance five miles, without seeing anything. During the afternoon I occupied myself in jotting down Digâro words for my vocabulary.

**Wednesday, January 20th.**—Started at 7.30 a.m. for Dûrâmûkh, which we reached about 10.30, and about half an hour afterwards we left by boat for Sadiya, reaching there at midnight.
THE

BIBLIOGRAPHY

OF

THE BARBARY STATES.

PART I.

TRIPOLI AND THE CYRENAICA.

(WITH A MAP).

BY

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THE BIBLIOGRAPHY

OF

THE BARBARY STATES.

PART I.—TRIPOLI AND THE CYRENAICA.

By Lieut.-Col. Sir R. Lambert Playfair, K.C.M.G., etc.

All that now remains of the three Eastern Barbary States is a Bibliography! Tripoli is a vilayet of the Turkish Empire, and eager eyes are turned towards this part of the Sick Man's inheritance. Tunis is a French Protectorate, and in the natural course of things will one day lose the last shred of its independence. The "famous and warlike city of Algiers" is the capital of a French colony, a prolongation of France. Morocco alone retains its independence and much of its mystery; in spite of its unrivalled position, its ports on either ocean, its perennial streams fed by snow-clad mountains, and its brave and hardy population, it still remains as impenetrable to modern civilisation as ever. But it also has its "question," though the writer hopes to complete its Bibliography before it too "joins the majority."

The complete Bibliography of the Barbary States will contain the following parts:

I. Tripoli and the Cyrenaica, the subject of the following pages.

II. Tunisia, by Messrs. Graham and Ashbee, forming originally an appendix to their excellent book of travels,* but which they purpose publishing in a separate form completed to a later date.

III. Algeria, already published by the writer in part 2, vol. 2, of the

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R. G. S. Supplementary Papers for 1888, pp. 132-430, but requiring a supplement.

IV. Morocco, in progress.

The Province of Tripoli is less known to the general public than the three others, and a map has been thought likely to prove serviceable to the student of its literature. It extends along the coast from the island of Djerba to Tobbrook, a little beyond the Bay of Bomba, rather more than 800 miles, including all the territory between Tunis and Egypt. Southward it comprises the territory of Fezzan, the town of Ghadames, and the oasis of Ghat. Along the coast, and to about seventy miles inland, there are fertile tracts, but beyond this limit the country is for the most part a barren desert, interspersed at intervals with a few oases.

Nevertheless, it contains many spots of more than ordinary interest, celebrated by the poets and historians of Greece and Rome. The shores of the Syrtis were the terror of navigators, both in ancient and more modern times. Tripoli is the ancient Oea, which, with its neighbouring cities of Leptis and Sabrata, constituted a federal union styled Libya Tripolitana. Beyond this is Cyrenaica, or the Pentapolis, so named from its five Greek cities, Barca, Teuchira, Hesperis, Cyrene and its harbour Appolonia. Under the Ptolemies, Hesperis became Berenice, the modern Bengazi; Teuchira was called Arsinoë, the modern Taurca; and the port of Barca was raised into a city by the name of Ptolemais, the modern Tolemeta. The capital of all this district was Cyrene, the most important Hellenic city in Africa, founded B.C. 631. It gave its name to a well-known philosophic sect, and was the birthplace of many distinguished people, while in commercial importance it almost rivalled Carthage; its cities were adorned with magnificent edifices, and its fountains and forests became the scene of many interesting mythological events. Here were the "dull forgetful waters" of Lethe and the garden of the Hesperides. The army of Cato nearly found a grave in the sands between it and Leptis Magna, and Oea, the capital of the Syrta Regio, was the birthplace of some of the most prominent characters in Roman history.

Beyond the Cyrenaica and extending to the borders of Egypt was Marmarica, a sandy region stretching inland as far as the oasis of Jupiter Ammon.

After the destruction of Carthage, Tripoli became a Roman province, the coast line subsequently passed into the hands of the Vandals, from whom it was rescued by Belisarius. Then came the most extraordinary movement which the world has ever seen, the sudden rise and extension of Mohammedanism, following the death of its founder, which obliterated every trace of Christianity and civilisation from North Africa.

Since then, with rare and short intervals, Tripoli has remained in the hands of the Mohammedans, the government of the caliphs being
succeeded by various local dynasties, and finally it passed into those of the Sultan in 1835.

This is not the place for a detailed historical or geographical account of the country. The student will find all that can be said on these subjects, though perhaps an *embarras de choix*, in the works herein catalogued.

No attempt at a systematic rendering of oriental names is possible; authors must be held responsible for the orthography of the words used by them.
A BIBLIOGRAPHY

OF

TRIPOLI AND THE CYRENAICA.

1. B.C. 484. Herodotus.—See Nos. 96, 266.
4. 41. Mela, Pomponius.—See No. 24.
5. 77. Pliny the Elder.—See Nos. 96, 248.
7. 160. Antoninus Augustus.—See Nos. 94, 96, 216.
8. 238. Solinus Polyhistor.—See No. 96.
9. 413. Paulus Arosius.—See No. 96.
10. 527. Procopius of Cæsarea.—See No. 55.
11. 630. Isodorus of Hispalis.—See No. 96.
13A. 1100. El-Edrisi.—See No. 185.
13C. 1330. Abu 'l Feda, Ismael.—See Nos. 118, 119, 121, 190, 194, 199.
Amongst other interesting matter this contains a letter dated 29th July, 1510, in which Don Pedro Navarro, commanding a Spanish force, reports having taken Tripoli.

20. 1510. Ferdinand of Arragon, writing to Henry VIII., informs him that Pedro Navarro stormed Tripoli on the 25th July, with great slaughter. 10,000 of the enemy were slain and the rest taken. Calend. State Papers, For. and Dom. Henry VIII., vol. 1, 1509–1511, No. 1209.


22. 1512. New Privilege granted by Ferdinand to the inhabitants of Catalonia to trade at Tunis, Algiers, Tripoli and Bougie. Mas-Latrie, Traités, D pp. 341.


From the original letter-book in St. Mark’s Library.


Mela flourished about the middle of the first century. He examines the three divisions of the globe known to the ancients, and describes Mauritania; Numidia, with its capital, Cirta; Africa, with its cities, Hippone, Ruscada, Utica, Carthage, etc., Leptis, Lake Triton, the Island of the Lotophagi, Oea, the modern Tripoli, and the Cyrenaica with the oasis of Jupiter Ammon.


“Letters from the Grand Master announce the surrender at discretion of Tripoli; that M. d’Aramon had saved 200 men of note, that the rest of the soldiers, about 500, were put in chains, and others fit for the oar were impressed.”

26. 1552. Salazar y Murdones, P.—Hystoria de la guerra y presa de Africa; con la destrucción de la villa de Monatzer y isola del Gozo, y perdida de Tripol de Berberia.

Napoles. fol.


27. 1556. Leo Africanus.—De Totius Africae Descriptione, libri ix. Antverpiae, 1556; Zurich, 1559: 8vo.

The author was an Arab of Granada, named El-Hassan bin Mohmed El-Ouezzaz El-Gharthathi, who visited a great part of Africa. He was taken by Corsairs, and baptised by Leo X. His original work was in Arabic, but it has been translated into Latin and into nearly all the modern languages of Europe. The English version bears the title: A Particular Treatise of all the Mainelands and Isles described by John Leo, with map. London: 1600, 4to. A French translation, by Jean Temporal, was published at Lyon, 1556, folio; and an Italian version is given in Ramusio, vol. 1.
A BIBLIOGRAPHY OF TRIPOLI AND THE CYRENAICA.

The French edition was re-published at Paris at the cost of Government in 1830: 4 vol. 8vo, pp. xlviii., 640; 581; viii., 758; xxiii., 576. The first book treats of Africa in general; the second and third are devoted to Morocco and Fez; the fifth, sixth and seventh refer to various parts of Algeria, Tunis, Tripoli and the Cyrenaica.

Though Leo was a native of Granada, he went to Africa at a very early age and studied at Fez and Morocco; visited Timbuctou and many parts of the Barbary States before his conversion to Christianity. An interesting biographical sketch of this remarkable man is given by Berbrugger, Rev. Afr. vol. ii. 1858, p. 353.

28. 1560. Views of Tripoli.—Two very curious views of Tripoli about this date exist. One is in the British Museum (Press Mark 642, 10). The other is in the Public Record Office (see No. 1 of the Tripoli Archives). Both show the Quadrifrontal Arch entire and separate, and in the latter the town is being besieged by the army of Philip of Spain. Both are probably published at Venice, and the former is ascribed to D. Zenoi.


30. 1561. Naval engagement between the Galleys of Philip of Spain and the Morres of Tripoli, in which the former were vanquished. Calend. State Papers—1561-1562, 300.


33. 1568. Bertelli, F. Civitatum aliquot insigniarum, &c. Ven.: 4to.

A collection of prints, one of which is of Tripoli.


The author was Valet de chambr and Geographer in Ordinary to King Charles IX. There are many editions. Chap. xviii. treats of the "Fondation de la Cite de Tripoly."


Marmol was a native of Granada, served in the expedition of Charles V. against Algiers, was taken prisoner, and travelled during seven years and eight months over a great part of North Africa. A French translation was published by d'Ablancourt at Paris in 1667, 3 vols. 4to, pp. 532, 578, 304. Tripoli is described under the heading "Regno de Vnez. Libro sexto," vol. 2.

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38. 1588. Sanuto, M. Livio.—Geografia distinta in xiii. libri, &c., con xii. tabole di essa Africa in disegno di rame.
    Venezia, folio, pp. 146, with a copious index and 12 maps. Only one vol. was ever published. At pp. 64–66 is a description of Tripoli and the Cyrenaica.


41. 1599. Hakluyt, Rev. Richard.—The Principal Navigations, Voyages, Traffiques, and Discoveries of the English Nation made by sea or overland, to the remote and furthest distant quarters of the earth, at any time within the compass of these 1600 yeres, &c. London: folio, 2 vols. pp. 620, 312—204. B.L. Vol. ii. part i. contains The English Voyages made by and within the Streight of Gibraltar.
    The following have reference to Tripoli:

42. Page 177. A Letter of the English Ambassadors (W. Hareborne) to M. Edward Barton, enclosing the next-named "Commandement."

43. Page 177. The Commandement of the Grand Signior, obtained by Her Majesties Ambassador, M. Will. Hareborne, for the quiet passing of her subjects to and fro his dominions, sent in 1584 to the Viceroys of Algier, Tunis and Tripolis in Barbary.

44. Page 178. A Letter of the Hon. M. Will. Hareborne, Her Majesties Ambassador with the Grand Signior, to M. Tipton, appointing him Consul of the English in Algier, Tunis and Tripolis of Barbarie, dated 30th March, 1585.—Tipton had already held this position at Algiers in an unofficial manner, for some time.

45. Page 184. The voyage made to Tripolis in Barbarie, in the yeere 1583, with a ship called the Jesus, wherein the adventures and distresses of some Englishmen are truely reported, and other necessary circumstances observed. Written by Thomas Sanders. This voyage was under the auspices of the Turkish Company. The vessel was plundered, the master, Andrew Dier, was hanged, and the crew were doomed to slavery, and only released owing to the intercession of Queen Elizabeth at the Sublime Forte.

46. Page 191. Correspondence regarding the restitution of the shippe called the Jesus and the English captives detained in Tripolie in Barbarie and for certain other prisoners in Argier. 1584.
    A new edition, with additions, was published in 1809 and following year. This work has recently been reprinted by Messrs. E. & G. Goldsmid, of Edinburgh.
48. 1603. Knolles, Richard, Fellow of Lincoln’s College, Oxford.—The General History of the Turkès, from the first beginning of that nation to the rising of the Othoman Familie, with all the notable expeditions of the Christian Princes against them, &c. London: folio, pp. 1152.

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49. 1610. Tonsis, Battistino de.—Historia della guerra di Tripoli di Barbaria.

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At vol. ii. p. 874. The Description of Alger, written by Nicholas Nicholay, and also of Malta and Tripolie.


From p. 250 to 255 is more especially devoted to Tripoli. There were but few slaves there in the author’s time.


P. 300, Tripoli confederata di Algieri.

P. 324, Tripoli posseduta da Goti.


This translation is exceedingly rare. No copy exists in the British Museum or the Advocates’ Library in Edinburgh; there is one at the Bodleian, and another at Aberdeen.


Chap. II. Section V. treats of Tripoli, the Cyrenaica and the Marmarica.

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59. 1660. A Chart or View of Tripoli.—Showing an attack made by boats on a large vessel in the harbour. A drawing, coloured, in the King’s Collection, Brit. Mus. (cxl. 61.) This is followed by another pen-and-ink view of the same town (cxl. 62).


61. 1667. De Voornaemste Steden der Werelt.—The Principall Citties of the World; known as G. van Schagen’s collection. Amsterdam: oblong 4to. Two of the prints, one with the legend in French, represent Tripoli. The latter is the same view as that given in Mortier, No. 86.


63. 1670. Ogilby, John.—Africa: being an accurate description of the regions of Egypt, Barbary, Libya, and the Biledulgerid, etc. Folio, maps and plates. A mere translation of Dapper. The author is a very miscellaneous writer, but an unconscious plagiarist.


66. 1675. Seller, John, Hydrographer to the King.—Atlas Maritimus, or the Sea Atlas, being a book of Maritime Charts describing the sea-coasts, capes, headlands, etc., in most of the known parts of the world. London: folio. One of them is a bird’s-eye view of Tripoli, coloured, engraved by Hollar.


69. 1685. A Treaty was signed between France and Tripoli after the bombardment of the latter town by the Duc d’Estrees. The Tripolitans restored 600 Christian slaves, two French vessels, and paid a large indemnity. Tab. des Étab. Franç. en Alg. 1841, p. 420.

70. 1685. Tripoli le 18 Maggio, 1685. Distinto Ragggeruglio giontio per lettera particolare ad un Mercante nel porto d’Ancona. Roma, Modena, Parma: Sm. 4to, p. 3.


71. 1687. Knolles, Richard. The Turkish History from the original of that Nation to the growth of the Ottoman Empire, with the lives and conquests of
their Princes and Emperors. With a continuation to this present year, 1687, by Sir Paul Rycant, eighteen years consul at Smyrna. London: folio, 3 vol., pp. 990, 383-606.

At vol. ii. p. 136 is “State of the affairs of England in reference to . . . Algiers and other parts of Barbary.”


75. 1695. A collection of prints in the British Museum, Press mark S. 148 (38), contains some most interesting views of places in Africa. Published probably in Amsterdam. The legends are in Dutch and English. No. 5 represents Tripoli. There are also views of Algiers, Djidjeli and Tunis. The volume has no letterpress or title. ? Dapper. No. 63.


The first letter, pp. 1 to 90, is “Etat Chrétien et politique du Royaume de Tripoli,” and contains an interesting account of the state of Christian Slavery there. Other editions published at La Haye, 1704, and at Rouen, 1731.

77. 1700. Glorioso triumfo conseguido por quatro galeras de la religion de S. Juan en los mares de Berberia, apressando un vaxel de Tripoli llamado Sultana, al 9 de Octubre de 1700. Barcelona.

78. 1702. P. Schenkii, Hecatompolis sive totius orbis Terrarum oppida nobiliora centum. Amsterdam: obl. 4to.

A collection of coloured engravings, of which one (89) represents Tripoli.

79. 1705. Harris, John, A.M. Navigantium atque Itinerantium Bibliotheca, or a complete collection of voyages and travels, consisting of above four hundred of the most authentic writers; beginning with Hakluyt, Purchas, &c., in English; Ramusio in Italian; Thevenot, &c., in French; De Bry and Grynaeus Novus Orbis in Latin; the Dutch East India Company in Dutch; and continued with others of note, &c., &c. London: 2 vol. folio, pp. 862, 928 and [App.] 56.

Ch. xii. contains . . . a short account of Malta and Tripoli; taken from Nicholas Nicolay.


Ch. x. vol. ii. describes his visit to Mesurata and Tripoli. Chap. xi. a voyage in the mountains of Derna, Cyrene, Bengazi, &c.

82. 1715. Van der Aa, Pierre.—La Galerie Agradable du Monde ou l'on voit en un grand nombre de cartes et de Belles Tailles-Douces, les principaux Empires, &c. Le tout mis en ordre et executé à Leide: sm. folio.

Plates Nos. 13a and 14 are copies of those previously noticed. No. 75. No. 15 is “Manière de Supplucer les esclaves à Tripoli.” The vol. also contains some interesting views of Algiers and Tunis.


In Book ix. is an account of Cato’s gathering the remnants of the Battle of Pharsalia, and transporting them to Cyrene; a description of the Syrtes follows, and a digression concerning the Temple of Jupiter Ammon.


86. 1720 (?). Les Forces de l'Europe, Asie, Afrique et Amerique, ou description des principales Villes avec leurs fortifications. Dessignées par les Meilleurs Ingenieurs, &c. Amsterdam: 4to.

No. 158 represents Tripoli, a mere sketch outline evidently copied from Van Schagen's collection. This one is published by Pierre Mortier.


The author was Commissaire de la Marine for the King of Spain in Holland. His work was pirated in English by Morgan in 1728 and 1750, and it has been translated into several other languages.

It was also pirated in French, ‘État Général et particulier du Royaume et de la ville d’Alger, et de son gouvernement, &c.’ La Haye: 1750, 12mo. A new edition of the original work was published in 1732 under the title: ‘État d’esclavage des Chrétiens au Royaume d’Alger avec celui de son gouvernement, &c.’ Amsterdam: 8vo, pp. 300. The author copies freely from Marmol. A Spanish edition was published at Barcelona in 1733, pp. 340, with maps and view of Algiers.


90. 1731. Godefroy, le P.—État des Royaumes de Barbarie, Tripoly, Tunis et Alger; contenant l’histoire politique et naturelle de ces pays—La maniére dont les Tures y traitent les esclaves, comme on les rachete et diverses aventures curieuses—Avec la tradition de l’Église pour le rachat des captifs. Rouen: 12mo.


* Confirmed on the 30th June, 1793.

93. 1733. **Hebenstreit, J. E.** Professor of Medicine at the University of Leipzig.—De Antiquitatis romanis per Africam repertis. Leipzig: 4to.

94. 1735. **Antonini Augusti Itinerario.**—See Appendix to Shaw, No. 96.

   At vol. 5, p. 413 is "Mémoire présenté au Roi pour reprimer l'insolence des Corsaires de Tripoli d'Afrique et pour les forcer à une paix avantageuse aux sujets de S. M."

   Dr. Shaw was chaplain to the Consulate at Algiers. This is one of the most valuable works ever written on North Africa. See 'Quarterly Review,' vol. xcix. p. 331.


Two of these represent Tripoli.

98. 1740-1751. An Universal History, from the earliest times to the present, compiled from original authors and illustrated with maps, cuts, notes, chronological, and other tables. London: folio, 8 vol.


The author merely touched at Tripoli on his way from Algiers and Tunis to Egypt.


Commences an account of the ancient history of Cyrene taken from classic authors. M. Hardion died before it was completed. See No. 113.

101. 1750. A compleat history of the Piratical States of Barbary, viz. Algiers, Tunis, Tripoly, and Morocco. Containing the origin, revolutions, and present state of those kingdoms, their forces, revenues, and policies and commerce. With a plan of Algiers and a map of Barbary, by a gentleman (Morgan) who resided there many years in a public character. 8vo.

This was translated into French by Boyer de Prebandier in 1757. The work is of little value; it is a mere translation of Laugier de Tassy, who again copied from Marmol. Morgan was an indefatigable plagiarist.

102. 1750. Historical Memoir of Barbary, and its Maritime Power, as connected with the Plunder of the Seas; including a sketch of Algiers, Tripoli and Tunis, an account of the various attacks made upon them by the several States of Europe, considerations on their present means of defence, and the original treaties entered into with them by Charles II.

Another edition published at London in 1815.


At p. 181 is an account of an inscription said to have been taken to France from Tripoli, which had been originally placed in the Amphitheatere of Berenice by the Magistrates and Jews.


This is a decree of the Jews of Berenice ordering an eulogium on M. Titius every new moon.


At p. 554 is a comparison of the measures in the Cyrenaica.


This gives an account of the establishment of Consuls, of whom John Tipton of Algiers, Tunis and Tripoli was one of the first ever appointed.


With the original documents (15½ pp.) is a well-executed plan and survey of the harbour of Tripoli.

112. 1771. Monro, Dr. Alexander.—Of a pure native crystalised natron or fossil alkaline salt, found in the Country of Tripoli in Barbary. Phil. Trans. Abr. xiii. p. 216.


This is a continuation of M. Harckon's Account, see No. 100.


Very little of this work is devoted to Tripoli.


This gives a list of 313 captives redeemed.


120. 1790. Bruce, James.—Travels to discover the source of the Nile in 1768-1763. Edinburgh: maps and plates, 5 vols. 4to.


122. 1794. A Short Account of Algiers, and of its several Wars ... with a concise account of the origin of the rupture between Algiers and the United States. Philadelphia: 8vo, pp. 50.

123. 1800. Rennel, Major James, Surv. Gen. Bengal.—The Geographical System of Herodotus examined and explained by a comparison with those of other ancient authors and with Modern Geography. In the course of the work are introduced ... The oasis and Temple of Jupiter Ammon, the ancient circumnavigation of Africa, &c. London: 4to, pp. 766, with 11 maps.

Sect. xxii. Of the Tribes who inhabited the coast and country of Libya between Egypt and Carthage. Sect. xxiii. Concerning the two Syrtes; the Lake Tritonis, &c. Map ix. The coast and country of Libya.


125. 1801. Treaty between France and Tripoli, dated 19th June, containing the “most favoured nation” clause. Tab. des Étab. Fr. en Alg. 1841, p. 423.


The author was employed by the Society for Exploring the Interior of Africa. He went direct from Cairo to Mourzouk, and thence to Tripoli, whence he returned to Mourzouk.

Also a French translation, Paris, 1803, 2 vol. 8vo, with valuable notes by Langles principally from Arab authors.


In an appendix is given a letter from General William Eaton to the Secretary of the Navy, dated 9th Aug., 1805.


Vol. II.

2 P

132. 1813. **Blaquière, Edward.**—Letters from the Mediterranean; containing a civil and political account of Sicily, Tripoli, Tunis and Malta; with Bibliographical Sketches, &c. London: 8vo, 2 vol. pp. 652, 460.

The first 105 pp. of vol. 2 are on Tripoli.


At p. 301 is an extract from his journal relating to his march from Alexandria through the desert to Derna.


135. 1814. **Ali Bey el Abbassi, Pseudonym of D. Badia y Lebliech, a Spanish traveller.**—Voyages en Afrique et en Asie pendant les Années 1803-1807. Paris, 3 vol. 8vo, with atlas, long folio, lxxxii, plates, of which the first, from i. to xii. bis, relate to Morocco. xiii. to xv. relate to Tripoli.

An English version was published at London, 1816, 2 vol. 4to, and a second French edition at Paris, 1884, 3 vol. 12mo.

The author travelled as a Turk; he landed at Tangier, where he saw the Sultan, passed through Meknès to Fez, where he resided a winter, returned to the coast at Larache, where he embarked for Tripoli, and the further East.

Vol. i. chap. xxii. contains an account of Tripoli, with a plan of the great Mosque and copies of several Roman inscriptions.


Placing the inhabitants of the Ionian Islands on the same footing as natives of Great Britain.

137. 1816. **Declaration.** signed by the Bey of Tripoli at the instance of Lord Exmouth, providing for the abolition of Christian Slavery, l. c. p. 155.

It is curious that nothing exists on this subject in the Tripoli Archives.

138. 1816. **Janson, W.**—A View of the Present Condition of the States of Barbary; or an account of the Climate, Soil, Produce, Population, Manufactures, Naval and Military strength of Morocco, Fez, Algiers, Tripoli, and Tunis. Also a Description of their Mode of Warfare, interspersed with anecdotes of their Cruel Treatment of Christian captives, illustrated by a new and correct hydrographical map, drawn by J. J. Ashton.

This gives an account of the American War on Tripoli, and of Eaton's expedition from Egypt to Derna.

139. 1816. **Historical Memoirs of Barbary**, as connected with the Plunder of the Seas; including a sketch of Algiers, Tripoli and Tunis, an account of the various attacks made upon them by several States of Europe; considerations of their present means of defence; and the original treaties entered into with them by Charles II. London: 12mo, pp. 112.

The portion devoted to Tripoli and Barca is from pp. 53 to 58. It is without value.
140. 1816. Hunt, Gilbert T.—The late War between the United States and Great Britain from June 1812 to February 1815, written in the ancient historical style: containing also a sketch of the late Algerine War, and the Treaty concluded with the Dey of Algiers. New York: 8vo, pp. 334.

The whole work is a poor travesty of Biblical language, very partial to the U.S., and generally untrustworthy, being a mère compilation.

See also two articles in the Analectic Review, Philadelphia, vol. vii. pp. 105-113 and 113-131. The former gives a sketch of the Barbary States; the latter narrates Decatur's expedition against Algiers, Tunis and Tripoli, which proved successful where European fleets had failed.


This is the great standard work on the African Church.

142. 1817. Dümgé, Dr. C. G.—Ansichten von Tripoly, Tunis und Algier, aus dem Reiseberichten Französischen Missionairs, Stuttgart: 8vo. pp. 120.

143. 1817. Tully, Richard.—Narrative of a ten years' residence at Tripoli in Africa, from the original correspondence in the possession of the family of the late Richard Tully, Esq., the British Consul. Written by his Sister. London: 4to, pp. 370, with map and 6 coloured plates.


144. 1817. Leyden, John, and Hugh Murray.—Historical account of Discoveries and Travels in Africa ... with illustrations of its Geography and Natural History as well as the moral and social conditions of its inhabitants. 2nd edition. Edinburgh: 2 vol. 8vo, pp. 512-535.

Vol. i. p. 296, contains an abstract of Mr. Lucas' journey from Tripoli to Fezzan; p. 417, Horneman's journey to Jupiter Ammon, Fezzan and Tripoli. Vol. ii. p. 209, Voyage of the Jesus to Tripoli; p. 230, Shaw's travels in Barbary; p. 252, Tully's Tripoli; at p. 521 there is a bibliography of important works relating to Africa.

The original edition was published in 1799, and a French translation by Cuvillier appeared in Paris, 4 vol. 8vo, with atlas, in 1821.


The author gives an animated description of what he saw, but his work is superficial.

The author accompanied Mr. Ritchie, who was employed by the British Government, on a mission to Central Africa, where he died. He started from Tripoli, and travelled as far south as 24° N. lat.

A French translation by L. Ed. Gauthier was published in Paris, 1882, 2 vol. 12mo.

See also Tripoli Archives, No. 17.


Part iii. p. 249 et seq. contains an account of the various routes inland from Tripoli. See also Journ. des Savants, 1822, p. 104.


Bainbridge commanded the Philadelphia, which ran ashore at Tripoli, when he and his crew were made prisoners. Both were distinguished in the Barbary War.

150. 1821. Hutton, Catherine.—The tour of Africa, containing a concise account of all the countries in that quarter of the globe hitherto visited by Europeans. London: 3 vol. 8vo.

Written as if by an imaginary traveller. Vol. iii. p. 468 et seq. refers to Tripoli.


154. 1826. Denham, Major, Captain Hugh Clapperton, and the late Dr. Oudney.—Narrative of Travels and Discoveries in Northern and Central Africa, in the years 1822, 1823 and 1824. Extending across the Great Desert to 10° N. Lat., and from Kouka in Bornou to Sackatoo, the capital of the Felatah Empire. London: 2 vol. 8vo, 3rd edition, 1828, pp. 471, 465, with maps, plates, and illustrations.

An American edition was published in Boston, 1 vol. 8vo, pp. lxiv. + 255 + 104 + 112.

The authors started from Tripoli, and the two first returned to the same place.—See also Tripoli Archives.

155. 1826. Letronne, J. Ant.—Rapport de la Commission nommée par l’Académie pour examiner les résultats du voyage en Cyrénalique et en Mar- 


Project of publication of Pachô’s work, l. c. p. 505.

The Society voted him the prize of 3000f.


158. 1829. **Pachó, Raymond.**—Relation d'un voyage dans la Marmarie, la Cyrenaïque, et les Oasis de l'Andjelah et de Maradeh, pendant les années 1824 et 1825 ; accompagnée de cartes géographiques et topographiques et de planches représentant les monuments de ces contrées. *Paris*: 4to, 1827-1829, pp. 404, atlas, fol., 3 maps, and 100 plates.

159. —— Rapport des Commissaires nommés par la Commission Centrale pour examiner les résultats de voyage de M. Pachó dans la Cyrenaïque.

160. —— Notice sur la Cyrenaïque lue à la Soc. de Géogr.

161. —— See also *Edin. Rev.*, vol. xlviii. 1828, pp. 220.


Reviewed in the London Magazine, 3rd ser., vol. ii., October 1828, pp. 361-366, under the title "An Account of the Present State of Tripoli." The author states that Tripoli was in a more advanced condition than any of the other Barbary States on account of the hereditary forms of its government.

163. 1827. **L'Investigateur Africain.** — A journal published at Tripoli during a short period, to which M. J. L. Rousseau, French Consul, was a contributor. It was edited by Gräberg de Hemsö.

164. 1828. **Lyman, Theodore.**—The Diplomacy of the United States, being an account of the foreign relations of the country from the first treaty with France to the present time. *Boston*: 2nd edition, with additions, 2 vol. pp. xii. 470, xii. 517.

Vol. ii. chap. xiii. relates to negotiations with the Barbary Powers, including operations at Tripoli and Eaton's expedition.


The texts concerning the history of Cyrene taken from Herodotus, Pausanius, Scylax, &c., are brought together. The first edition was published in 1819.


Reviewed in *Edin. Rev.*, vol. xlviii., 1828, p. 220.—See also *Tripoli Archives*, No. 19. A most exhaustive work.

167. 1828. **Laing, Major Gordon.**—An account of his travels from Tripoli to Timbuctoo and murder near the latter place is given in the Quarterly Review,
A BIBLIOGRAPHY OF TRIPOLI AND THE CYRENAICA.

vol. xxxviii. p. 100.—See also a French translation of this article in the Bibliothèque Universelle, Genève, 1828, t. xxxix. p. 47.—Also Tripoli Archives, Nos. 23, 26, 27, 30, 31, 32.


Chap. i. treat of Tangier, Tilimsân, Mîlyâna, Algiers, Bîjâya, Kosantina, Bûnâ, Tunis, Sûsû, Saâkús, Kabis, Tripoli, &c.

Ibn Batuta left his native city, Tangier, about 1324, and spent two years in making his journey.


At p. 47 is an account of Bruce's travels in Tripoli and shipwreck at Benghazii.


This gives a résumé of the explorations of Horneman, Laing, Ritchie and Lyon, with a general account of Africa. It forms vol. ii. of the Edinburgh Cabinet Library.


Another edition. 1835.

Chap. v. The Cyrenaica and the Pentapolis.

Chap. vi. Tripoli and its immediate Dependencies.

172. ——— A German translation. Pesth, 1836–37. 'Gemälde der Berberie oder Geschichte und gegenwärtiger Zustand der Staaten Tunis, &c.'

173. 1830. Grâberg de Hemsö.—Carta dell' Africa.

See No. 100 of the Antologia.

174. 1830. Treaty between France and Tripoli, dated 11th Aug., negotiated by Contre-Amiral de Rosamel, abolishing Christian slavery (which had already been abolished by Lord Exmouth in 1816), and generally regulating the relations between the two countries. Tab. des Étab. Fr. en Alg., 1841, p. 424. See also Tripoli Archives, No. 32.

175. 1832. Papers explanatory of the circumstances under which Sidi Hassuna D'Ghies has been accused by the Bashaw of Tripoli of having abstracted the papers of the late Major Laing. Blue Book. Folio, pp. 142.

176. 1832. Shereef Mohamed Hassuna D'Ghies, Late Minister to the Pacha of Tripoli.—A Statement to the Rt. Hon. Lord Goderich, Sec. of H.B.M. for the Colonies, concerning the expedition of the late Major Laing to Timbuctoo, and the affairs of Tripoli. Blue Book. Folio, pp. 54.


This gives an interesting account of the origin of French consulates, and amongst others of those of Tripoli, Tunis, &c., in about 1647.

The portion treating of Tunis and Tripoli is from p. 88 to 101.


This also appears as Relation d'un voyage dans l'intérieur d'Afrique septentr. in the Bull. de la Soc. de Géog., 2 série, t. i. pp. 277 et seq.


The Vandals never extended their dominion beyond the sea-coast of Tripoli and the Cyrenaica.


Vol. iii. p. 210, contains an account of the Plateau of Barca and the Cyrenaica.

185. 1836. **Jaubert, Amédée.**—Géographie d'Edrisi traduit de l'Arabe en français, d'après deux MSS. de la Bibliothèque du Roi, et accompagnée de notes. T. i. 1836; t. ii. 1840.

Tripoli and Barca are mentioned at vol. i. pp. 252-285. The Arabic text and French translation were also published by Dozy and Goeje. Edrisi was born at Cueta in 1093.

See also Journ. Asiat. 3 ser. t. xi. p. 362.


Report written in 1806 to the Prince de Bénévent, Ministre des relations extérieures de l'Empire Français.


At p. 106 he gives an account of previous explorations in the Cyrenaica and Tripoli.


In addition to much valuable information regarding Algeria before and after the Conquest, this volume contains a series of appendices of exceptional interest. The first three relate exclusively to Algeria. No. iv. is a “Précis analytique de l'histoire ancienne de l'Afrique Septentrionale” during the following periods: Carthaginian, Roman, Vandal, Byzantine; including an account of the introduction of Greek civilization into the Cyrenaica. No. v. “Division territoriale établie en Afrique par les Romans.” No. vi. “Principaux traités de paix et de Commerce conclus par la France avec les Regences Barbareques.” No. vii. “Bibliographie Algérienne.”


This commences with the invasion of N. Africa by the Mohammedans in A.D. 647–8.


Tripoli taken by the Turks, vol. ii. p. 59.


A most valuable work. Contains 2803 entries.


The work commences with a description of the country between Barca and Gabes.

Also Arab. text published by De Goeje, Leyden, 1871. English translation by Ousley, 1800.
A BIBLIOGRAPHY OF TRIPOLI AND THE CYRENAICA.


Many other editions.
An English edition of Strabo was published by H. G. Bohn in 1854-7, translated by H. C. Hamilton and W. Falconer. 3 vol. 12mo.
In Book xvii. c. iii. s. 18, is an account of the Syrtis and the Cyrenaica.

Vol. iii. fasc. i, part xxxi., Inscriptiones Cyrenaicae.
This contains 237 Greek inscriptions from Cyrene, Ptolemais, Teuchira (Arsinoë), and Berenice.


Two illustrations of Cyrene.


This paper, by the notorious sulphur explorer and adventurer of Tripoli, first induced Richardson to make his celebrated journey to the Sahara.

209. —— Considérations politiques et commerciales sur Ghadames, suivies d'un Itinéraire de Tripoli à Ghadames. l. c. p. 97-123.

Reply to M. Hase, who had asked the author if he could find in the writings of Arab authors exact information regarding the first expeditions of the Mohammedans in Africa. He gives a critical examination of En-Noweiri's work, the accuracy of which he disputes. He narrates on the authority of other authors the Arab invasion of the Cyrenaica and Tripoli in a.d. 641-644.


This is contained in vol. xxi. of the Library of American Biography, con-
ducted by Jared Sparks. Decatur’s brilliant services on the Coast of Barbary are well known; he commanded the Philadelphia, which was captured by the Tripolitans. He subsequently recaptured and destroyed her.—See also N. Amer. Rev. vol. lxxiv. pp. 27.

214. 1847. Richardson, James.—Touarick Alphabet, with the corresponding English and Arabic letters; vocabularies of the Ghadamsee and Touarghee languages...with the 3rd chapter of St. Matthew in the Ghadamsee and Kabail (or Algiers dialect) rendered (interlinearly) into Latin by F. W. Newman, &c. London: folio.


The original work is a general history of the Mohammedan world, and is unsurpassed in Arabic literature as a masterpiece of historical composition. It was printed at Bulac, in 7 vols. royal 8vo, A.H. 1284. He was a native of Tunis; taught at Tlemcen; was first the captive and subsequently the friend of Timur, and died at Cairo in A.D. 1406.

At vol. i. p. 301 of de Slane’s work are collected some of the most ancient Arab traditions regarding the first invasion of Africa by the Mohammedans, from a history of the conquest of Egypt by Abd-er-Rahman ibn el-Hakim. 1. “Conquête de Barca.” 2. “Tripoli.” At p. 313 are extracts from the great work of En-Noweri on the conquest of Africa, an account more detailed than that of Ibn-Khalidoun.


216. 1848. Antoninus, Augusta.—Itinerarium A. Augusti, ed. G. Parthey and M. Pinder. Berlin: 8vo.—See also Appendix to Shaw. No. 96.


219. 1848. Richardson, James.—Travels in the Great Desert of Sahara, in the years 1845–46, containing a narrative of personal adventures during a tour of nine months through the desert, amongst the Touaricks and other tribes of Saharan peoples. Including a description of the oases and cities of Ghat, Ghadamis and Mournzouk. London: 2 vol. 8vo, pp. 440, 482, with map and numerous illustrations.

The author started from Tripoli and returned to the coast at Mersata, having made a journey of 1600 miles.


223. ——— Deux nouvelles inscriptions Grecques de la Cyrenaïque véritable em—
placement de Cyrène. l.c. p. 432.—See also Journ. des Savants, pp. 370-377. These were found by M. Vattier de Bourville.


This paper gives much valuable and original information on the commerce between Waday and the seaports of Bengazi and Tripoli. Corrections and additions to this memoir were published in the following volume; p. 356. It is continued l. c., t. xiii. pp. 82, 341; t. xiv. pp. 153-315.


At p. 62 are suggestions relative to the Cyrenaica, &c.

228. ——— Instructions à M. Vattier de Bourville pour l’exploration de la Cyrenaïque, l. c., pp. 68-84.


From information obtained at second hand.


234. 1850. Testa, E.—Aanteekeningen wegens de Verkenning, het inkomen en de ankerplaats van de Haven van Tripoli in Barbarye en de winden en stromen, welke aldaar heerschen volgens plaatselijke waarnemingen verzameld. Amsterdam: 8vo, pp. 82.

Two illustrations, one being the Quadrifrontal Arch. From “L’Univers: Histoire et description de tous les peuples.”


This portion of the work contains a history of Tripoli. See page 141.


This contains a notice of the American war with Tripoli. The first edition was published in the U.S. in 1847.

242. 1853. *Richardson, James._Narrative of a Mission to Central Africa performed in the years 1850-51 under the orders and at the expense of H.M. Government._ Edited by Bayle St. John._ London: 2 vol. 8vo, pp. 343, 359, with outline map.

Richardson started from Tripoli; he visited Mourzouk, Ghat, Aghadez, Damergou, and thence East to Ungurutuwa, six days’ march from Kuka, where he died on the 4th March, 1851.


At pp. 85-90 is a description of the Coasts of the Cyrenaica and Tripoli.

245. 1855. *Order of the Porte* to the Pasha of Tripoli for preventing the traffic in slaves from Tripoli to Candia. Hertslet’s Treaties, vol. x. p. 602.


In Book v. is an account of the Syrtes and the Cyrenaica.


An excellent account of the Regency, with notices of the various expeditions that had been undertaken in and from it.


The author resided 10 years in Tripoli.


The author started from Bengazi, visited Cyrene, Derna, Ptolemeita, Teucra, and back to Bengazi; thence eastwards by Angila to Jupiter Ammon, and so to Egypt.


An English translation of this work, 'Travels and Discoveries in North and Central Africa, being a Journal of an Expedition undertaken under the auspices of H.M. Government in the years 1848-1855,' London: 8 vol. 8vo, with many maps and illustrations.


The portions of Dr. Barth's work treating of the Tripolitaine are vol. i. pp. 1-181 and vol. v. pp. 441-453.


Both works of considerable importance.


An account of the Regency and the various explorations that had been made in it.

Copious notes, with illustrations, regarding the Cyrenaica at vol. iii. p. 132.

A description of Tripoli and the Cyrenaica, from p. 11 to p. 44.


A very full account of this remarkable enterprise.

The author says of this that it was a “simple lettre qui n’était pas destinée à l’impression.”


Vol. ii.—Les Monnaies de la Syrthique, de la Byzacène et la Zeugitane. pp. viii. 188.
Supplement. Additional coins from all these regions. pp. iv. 96.
All profusely illustrated. A standard work.


The author travelled as a Mohammedan pilgrim.


286. — Einige Bemerkungen von Dr. H. Barth zu Herrn v. Beurmann’s Kartenskizzen aus Fessan und Barksa l. c., pp. 352.


A résumé of this, under the title ‘Études sur les Migrations des nations berbères,’ is given in the Journal Asiat., Oct., pp. 340-54. The writer takes as his point of departure the distribution of Berber tribes at the time of the Arab invasion, and the base of his investigations is course the celebrated work of Ibn Khaldoun.


298. 1863. Herman, Consul-General.—Report on the trade of Tripoli for 1862. 1 c., p. 441.


A very important work for which the Geographical Society of Paris awarded its Gold Medal. M. Duveyrier started from Constantine in 1859, proceeded to the country of the Beni M’Zab, thence to El Golea and other parts of the Algerian Sahara. He subsequently explored the Tunisian Sahara, Ghadames, Rhut, Mourzouk, and Zouila, reaching Tripoli by the long route of the Sokna. The journey lasted during three years. In a first appendix the author treats of the ancient geography of the country. In a separate appendix, M. Bourguignat describes the Mollusca observed, with 3 plates, and M. Cosson the new plants, 3 plates.


This valuable work contains, amongst others, 41 documents connected with Florentine relations with Tripoli and the other Barbary States.


This mission was sent by the Governor-General of Algeria, and was commanded by Colonel Mircher. With him were associated Capitaine de Polignac, l’Ingénieur Vatonne, l’Aide-Major Hoffman and the Interpreter Ismael bou Derba. Its object was to open commercial relations with the great markets of the Soudan. It went by sea to Tripoli, and thence to Ghadamès by El-Oued. See also Rev. des deux Monde and Bull. Soc. Géogr. Paris, 2e Sem. p. 405.


Section ii. L’Afrique d’Hérodote, Art. ii. s. 3. Les tribus de la région littorale depuis la frontière d’Egypte jusqu’à l’entrée du territoire Carthaginois.

—See also Petermann, Geogr. Mitth. 1862, p. 11 ; Jour. des Sav. p. 398.


The first only refers to Fezzan.


At p. 88 is an allusion to the siege of Tripoli by the Tunisians, and to the plague of 1708.

308. 1864. De Champlouis, M. Nau, Capitaine au Corps Impérial d’État-major.—Notice sur la carte de l’Afrique sous la domination des Romains, dressée
au Dépôt de la Guerre d'après les travaux de M. Fr. Lacroix, par ordre de S.E. le Maréchal Comte Randon, Min. de la Guerre. Paris; 4to, pp. 46.

The map in question is in two large sheets (2,000,000), and includes the whole district between the Cyrenaica and the Atlantic. See also L'Ann. Géogr., t. iii. p. 110.


Superbly illustrated, with 12 maps and plans, 22 plates in double-tinted lithography, 16 photographs, 10 plates of Greek inscriptions, and 26 woodcuts.


312. ——— Do. for the year ending 31st Dec. 1863. l. c., p. 408.

313. 1864. *De Tremaux, Vice-Consul,* on the trade of Derna for 1863. l. c., p. 410.

314. 1864. *Herman, Consul-General,* on the trade of Tripoli for 1863. l. c., p. 411.


316. ——— On the death of Madlle. Tinné and the botanist H. Schubet. l. c., August.


320. ——— Ausflug von Tripoli nach Lebda. l. c., p. 263.

321. ——— Nachrichten von Gerhard Rohlfs aus Rhadames. l. c., p. 305.


vol. II.


329. —— Tagebuch seiner Reise von Tuat nach Rhadames, 1864. l. c., p. 8.


341. 1867. Dennis, Vice-Consul.—Report on the trade of Bengazi for 1866. l. c., part ii. p. 118.


A short abstract of the author’s visit to that part of the coast between Berenice and the Egyptian frontier in 1867.

A review of Smith and Porcher's work.


Published at the office of the Revue Numismatique.


353. ——— Audjila und Djalo. 1. c., No. 49, pp. 1153-1158.


Amongst works published at Constantinople is the following:

طرابلسغرب تاريخي.

Histoire de Tripolie de Barbarie.

Mehemed Behjeddin efendi, great-grandson of the Cheikh el-Islam Așehir efendi, who had translated into Turkish the Arabic history of Abû Abd-Allâh Mohammed ibn Khalil Ghaboun Tarabloucy.


Dr. Nachtingal and Mademoiselle Tinné left Mourzouk together, the former for Bournou, the latter for Tibesti. She was killed, and her caravan pillaged by the Touaregs, no doubt from cupidity. This letter is followed by observations by M. H. Duveyrier, and by an account of Nachtingal's journey to Tibesti.
360. 1870. **Nachtigal, Dr.**—Reise Dr. G. N—'s nach Tibesti aus brieflichen Mittheilungen. Schreiben Dr. N—'s an Dr. A. Bastian. Mit 1 Karte. Zeitschr. Gesell. für Erdk. zu Berlin. 5 Bd. 1 Heft, pp. 69-75.

361. ——— Briefe des Herrn Dr. — an Herrn Dr. A. Bastian. l. c., 3 Heft, pp. 265-269.


A Biography of Mademoiselle Tinné, and an account of her murder near Mourzouk.


Communicated by the Ministère des Affaires Étrangères. This includes an account of Bengazi, Tolemeïta, Derna, Bomba and Tobrouk.


A valuable paper, though the author describes his experience as “a tale of fruitless labours and repeated disappointments.”


The third volume is devoted to Tripoli.


374. ——— Brief des Dr. — aus Bornu. Das Ausl. Nr. 20, p. 475.

375. ——— Brief des Herrn Dr. — an die Redaktion. Zeitsch. der Ges. für Erdk. zu Berlin. 6 Bd. 4 Heft, pp. 334-345.

376. ——— Uebersicht über die Geschichte Wadai’s. l. c., 6 Bd. 4 Heft, pp. 345-366.


The author gives a sketch of all that has been done for the exploration of the south, both in Algeria, Tripoli and Morocco; written as a preliminary study for his projected journey in the Sahara of Algeria, where he was killed in the following year.


392. 1874. Louis-Salvador, Archduke.—Yacht-Reise in den Syrten. 1873. Prag : 4to, pp. 400, with map, 30 illustrations, and 34 woodcuts in text.

This, like all the distinguished author’s numerous works, is got up magnificently, and is for private circulation only. His route lay from Alexandria along the North Coast of Africa to Tunis.


The Kléber had to visit the coral fisheries and to “show the flag” in Tunis and Tripoli.
This gives a short account of all who have fallen victims to their endeavours to advance geographical knowledge in Africa, including, of course, the Barbary States. A very instructive map is added, showing the region in which each person travelled and the place of his death.

This contains only a short list of books on Tripoli and the Cyrenaica.

The author proceeded via Tougourt.

The lady in question was wife of Clifford Kock van Brengel, Dutch Consul at Tripoli from 1827–33, who made an interesting archaeological journey in the Cyrenaica.

411. 1876. *Veth, Prof. P. J., and Dr. C. M. Kars.*—Bibliografie van Nederlandsche Boeken, Brochures, Karten, enz. over Afrika. Utrecht: Svo, pp. 98. Pp. 18 to 29 are devoted to North Africa.

412. 1876. *Bainier, P.*—La Régence de Tripoli. Avec une Carte. L'Explorateur, No. 58, vol. iii. p. 202. This is an extract from a work not then published, "Cours de Géographie Commerciale," by the author, who was "Sous-directeur de l'Ecole supérieure de Commerce de Marseille."


416. ——— Voyage dans le Djebel Tripolitain. Explorateur, No. 75.


The author visited Tripoli and Lebda, going and returning by sea.


432. 1877. Brunet de Presle, M.—Observations sur le vase de Bengazi. l. c. p. 43.

433. 1877. Beulé, M., Réponse à l. c. p. 44.


435. 1877. Rohlfis, Gerhard.—Eine Eisenbahn nach Central-Africa. Petermann, Geogr. Mitth., p. 45 et seq., with map of the country S. of the Syrtis as far as Murzouk.

436. —— Die Bedeutung Tripolitaniens an sich und als Ausgangspunkt für Entdeckungsreisende. Weimar: 8vo, map.

437. —— Die Bedeutung Tripolitaniens an sich und als Ausgangspunkt für Entdeckungsreisende. Weimar: 8vo, pp. 21, with map.

The author maintains that Tripoli is the best place of departure for the Soudan.


Pp. 275 to 294 contain an account of Bruce's Travels in Tripoli and the Cyrenaica, with facsimiles of his drawings of the quadrifrontal arch at Tripoli, and on the outer cover of the volume his drawing of the Doric Columns at Ptolemaea.


The last few lines only are devoted to Tripoli and Benghaza.


There is nothing very especial in this regarding the region east of Tunis, except incidentally as forming part of the Roman possessions.


   A mere repetition of Rohlf's, Petermann, Mitth. 1868, p. 1.


446. —— Voyage de Rohlf's de Tripoli á Lagos. Paris : 8vo, pp. 61.


448. 1878. **Henderson, Vice-Cons.**—Report on the trade of Bengazi for 1876. l. c., p. 930.

   This gives an account of the esparto trade.


   Also a French translation by Jules Gourdault. Paris : 8vo, pp. 540, with map and 90 illustrations.
   And an Italian one in the Cosmos di Guido Cora, vol. v. p. 411 et seq.
   The first nine chapters are devoted to Tripoli and Fezzan.


457. 1879. **Chavanne, Dr. Josef.**—Die Sahara, oder von Oase zu Oase. Wien : 8vo, pp. 639. With map and many illustrations.
   I. Von Tripoli nach Murzuk.
   II. Fessan.
   III. Von Murzuk nach Rhat.
   IV. Von Rhat nach Rhadames, &c.

   Part iii. pp. 219 to 281 contains a description of the Tripolitan coast as far as the frontiers of Egypt. Two plates, containing sketches of coasts and headlands.

459. 1879. **Paladini, Leone.**—La ferrovia del Sahara, fra Cabes e il Sudan, e sua evidente correlazione cogli interessi commerciali d'Italia. Cagliari : 8vo, pp. 64.


466. 1880. Camperio.—Gita nella Tripolitania. Esplor. vol. ix.—See also Un Viaggio a Tripoli.


470. ———— Neue Beiträge zur Entdeckung und Erforschung Afrika. Cassel: 8vo, pp. 159. This specially refers to N. Africa.


Dr. Rohlfs conveyed presents from the Emperor of Germany to the Sultan of Wadai in return for the hospitality of the latter to Dr. Nachtigal. He was accomplished by a naturalist, Dr. A. Stecker.


Also an Italian translation: Tripolitania, viaggio da Tripoli all’oasi Kufra, by Dr. Guido Cora. Milano: 8vo, pp. 200. A second part of the work is devoted to scientific subjects, in which he is aided by several distinguished naturalists.

Reviewed in the Rev. des Deux Mondes, by G. Valbert, 1st Nov. 1881, under the title “Un voyage malheureux dans les Oasis de la Tripolitaine.”

473. ———— Neue Beiträge zur Entdeckung und Erforschung Africa’s. Cassel: 8vo, pp. 156.

Notes on various subjects; inter alia on Halfa grass, and the importance of Tripoli in the problem of opening out Africa.


475. 1881. Kraus, Dr.—Dell’Oasi et Città di Ghat. L’Esploratore, An. v. p. 73 et seq. with plan.


An article intended to prove that a certain class of vases, of which the Arkesilaos vase of Paris is a well-known example, were manufactured in the 6th century. For engraving of that vase see title-page Birch's Ancient Pottery, 1873.


A very superficial work.

482. 1881. **Perrond, Cl.**—De Syrticis emporiis, thesiam facultate litterarum parisiensi proponebat ad doctoris gradum promovendus Cl. P——. Parisiis: 8vo, pp. 226.

To this is joined, Index operum in hac commendatione laudatorum—about 109 entries.


Gives an account of the filibustering expedition of William Eaton, the well-known American "General" in the Cyrenaica. He was named U.S. Consul at Tunis. After a short and troubled residence there he proceeded to Egypt, whence he marched with an ill-assorted and mutinous force to Derna, which he took, though he was speedily obliged to evacuate it.


Part 1, pp. 1-9 contains inscriptions collected in the Province of Tripoli.

488. 1881. **Brunialti, Dr. Attilio.**—Algeria, Tunisia e Tripolitania, studio di geografia politica sugli ultimi avvenimenti africani. Milano: 12mo, pp. 274, map.


The author seeks to turn the eyes of his countrymen to this country, which he believes destined to become a new Italy.


Haimann’s work was published separately at Milan in 1886. q. v.


492. ——— Lettere da Derna. l. c., No. 8, pp. 280-288.


Pp. 43 to 49 contain an account of the Coast of Tripoli and the Cyrenaica.


Chap. xl. vol. ii. p. 219 contains a description of “Tripoly in the West” and of the Confraternity of Es-Senoussi.


At the end of this article is a short notice of the flora of Tripoli and Barca.


503. 1882. N. N.—A Proposito della Tripolitania. l. c., p. 397.


507. 1882. Bettoli, Parmenio.—Tripoli Artistica. l. c., Fasc. iii. et seq.

In the same number is a map of the territory of Bengazi.

508. ——— Tripoli Commerciale. l. c., pp. 265 et seq.

510. —— Lu'incidente di Derna l. c., p. 218. The arrest of Sig. Mamoli, agent of the Società d'Especializzazione at Ras-et-Tin, near Derna.


Haimann and Camperio made a journey in the Cyrenaica, accompanied by the wife of the former and a numerous escort.


Copiously illustrated. P. 793 to the end devoted to Tripoli and Tunis.


514. —— Another short notice. l. c., p. 322.


Wien: 8vo, pp. 122.

Of the 1212 works here catalogued, 450 have reference to Egypt and North Africa.


This work is a reproduction of letters which appeared in the Journal des Débats in July and Aug. 1882. The author visited Tripoli during the Insurrection in Egypt, when great agitation existed in the West.


The author gives a short account of Tripoli from 1146, when Roger, King of Sicily, took possession of it, and he appends a list of the various French consuls from 1630. He promises a more complete work afterwards. M. Feraud died at Tangier while these sheets were in the press.


Reviewed by F. C. in the 'Nuova Antologia' of 15th Jan. This work cites the opinion of Rohlfss, that Italy should conquer the Cyrenaica.


527. 1883. **Schweinfurth, Dr. G.**—La Côte de la Marmarique. Lettre à M. Henri Duveyrier. Compte Rend. Soc. Géog. Paris, p. 484. The author made a voyage on board a German gunboat to the port of Tobruk. He remarks that he is proud of being the first to call the attention of the Italians to the Cyrenaica and the Tripolitaine.


530. —— Rapporto 40. l. c., p. 100.


532. —— Rapporto 41. Tobruk. l. c., p. 163.

533. 1883. **Freund, Dr. G. A.**—Viaggio lungo la gran Sirte da Bengasi a Tripoli, Maggio e Giugno, 1881. l. c., pp. 183 et seq.

534. 1883. **Corbetta, Dr. C.**—Da Tripoli ad Algeri. l. c., p. 265.


538. —— Recents Travaux Italiens sur la Cyrénaïque. l. c., p. 146.


At p. 210 is a hydrographical description of the coast of Tripoli.


544. 1884. Camperio, Capt.—Carta economica della Tripolitania e Cirenaica. This map has been published by the Soc. d’Esplorazione Comm. in Africa, Milano—scale, 1:3500,000—and includes all the recent observations of Captain Camperio and his companion, Sr. Mamoli.—See L’Esploratore, an. viii. p. 64.

545. 1884. Longo, il Pastore P.—Lo Snussiorno, ovvero la confraternità Mussulmana di Sidi Mohammed Ben Ali es-Snussi. l. c., p. 121 et seq.

546. 1884. Brunialti, Prof. A.—Assab e Tripoli. l. c., p. 257.


This is a mere record of a tourist’s impressions. The author states in his preface:—“Ceci n’est pas un livre à proprement parler.”


The author simply made the voyage in the mail steamer.

552. 1885. Longo, Pastore P.—Delle Antiche Città della Tripolitania. L’Esploratore, an. ix. p. 109:

An attempt to fix the position of the ancient cities after Vivien de St. Martin.

553. 1885. Camperio, Capt., and Dr. Schweinfurth.—Sudan, Egitto e Tripolitania. l. c., p. 169.


Extracted from the author’s work, ‘L’Italia e la questione coloniale,’ Milano, 1885. This gives a succinct account of the Tripolitaine and the Cyrenaica, and the benefits likely to result to Italy from the possession of these countries.

555. 1885. La Tratta degli Schiavi in Tripolitania. l. c., p. 256.

A work of no particular scientific merit, but intended to make known the country in Italy, and to advocate its occupation by that nation.

557. 1885. *La Cirenaica (Tripolitania).*

The anonymous author reviews the work of Giuseppe Haimann (2nd ed. w'ih plans of Bengazi and Derna), and suggests that the Italian Government should assist the Milanese Society in exploring the country. *Nuova Antologia*, 1st November.


A work of the highest value. The portion devoted to Tripoli and the Cyrenaica is from p. 1 to 133.


Gives an account of the order of Es-Senoussi in the Cyrenaica.


PP. 384–389 especially devoted to Genoese relations with Tripoli in 1355.


This is a re-arrangement of the sees given by Morcelli, in geographical order. Eight are mentioned as in the Tripolitaine.


A series of detached papers, one of which is, "Is there any reason for believing that the town population of Morocco, Algeria, Tunis and Tripoli are of a special character?"


The author died at Alexandria (1883) before the publication of this work.—See also Peterm. Geogr. Mitth. p. 186.

566. 1886. *Esplorazione Commerciale.*—At the end of 1885 the "Esploratore" was replaced by the above-named journal as the official organ of the "Società d'Esplorazione Commerciale in Africa, Residente in Milano." Frequent letters containing commercial and political information regarding Tripoli and the Cyrenaica continue to appear in it.


Contains much useful information regarding the country, its people, climate and productions.


At page 725 is an account of the coins of the Cyrenaica, Libya and Syrtyca.


577. 1888. Tripoli, Commerce. l. c., p. 283.

578. 1888. Borsari Ferdinando.—Geografia, Etnologica e Storica della Tripolitania, Cirenaica e Fezzan, con Cenni sulla Storia di queste Regioni e sul Silfio della Cirenaica. Torino; Napoli; Palermo: 8vo, pp. 278.


This contains views favourable to the annexation of Tripoli and the Cyrenaica by Italy. "Nous croyons que la cause de la Civilisation et de la liberté ne ferait que gagner si la France et l'Italie poursuivraient . . . &c."

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PUBLIC RECORDS.—TRIPOLI ARCHIVES.

In the Public Record Office in London there is a series of 62 MS, volumes containing correspondence from and to the Consulate-General of Tripoli, as follows:

Royal Letters, 1500-1742. This volume contains letters and translations from the Beys of Tripoli and Tunis to the Sovereigns of England.

VOL. II.
No. 1. 1590-1728. Letters from Consuls Samuel Tooker, Nathaniel Bradley, Admiral Sir John Narborough, Consuls Thomas Baker and Nathaniel Lodington. At the beginning of the vol. is a very curious view of Tripoli (about 1560) being attacked by the Army "del Re Philippo et con aiuto della Sede Apostolica, del Duca de Fiorenza et del gran Mastro della Religion di Rhoda." It also contains printed copies of Sir John Narborough's treaty of 5th March 1675-6.

No. 2. 1659 to Geo. II. An unbound collection of miscellaneous letters.

No. 3. 1729-1746. Letters from Consuls Nathaniel Lodington and William Reed.

No. 4. A single Turkish letter sealed Mohammed ben Othman [A.H.] 1169.

No. 5. 1747-1766. Letters from Consuls William Reed and Robert White.

No. 5 [sic]. 1766-1765. Letters from Consul Robert White and several from the Bey to the King.

No. 6. 1765-1769. Letters from Consuls A. Fraser, Robert Wilkie and Edward Barker.

No. 7. 1770-1779. Letters from Consuls Barker, Bayntun, Cooke, Mr. (afterwards Consul) Tully and others. An unbound collection.


No. 11. 1810-11. Ditto.


No. 15. 1817. Ditto.

No. 16. 1818. Ditto.

No. 17. 1819. Ditto. This contains news of Mr. Ritchie's expedition, and letters from him.

No. 18. 1820. Cons.-Gen. Warrington. This contains a coloured sketch of his house, and pencil sketches of antiquities found by him.

No. 19. 1821. Cons.-Gen. Warrington. The first despatch reports transmission of thirty cases of antiquities.

No. 20. 1822. Cons.-Gen. Warrington. Contains a historical memoir on Tripoli, and letters from, and information regarding Dr. Oudney, Capt. Beechey and Mr. A'Court.


No. 28. 1828. Cons.-Gen. Warrington. Trade Reports.
No. 32B. 1695-1830. Copies of Treaties.
No. 34. 1831. Cons.-Gen. Warrington. Miscellaneous and Trade returns.
No. 36. 1832. Ditto. Miscellaneous.
No. 37. 1832. Regarding the charge made by the Pasha of Tripoli against Sidi Hassuna D'Ghies of having abstracted the papers of the late Major Laing.
[No. 39. Missing.]
No. 40. 1833. Vice-Cons. J. Fraser and Joseph Dupuis. Continuation of the affair of Hassuna D'Ghies and the late Major Laing.
No. 2. 1825-32. Ditto.
No. 3. 1825-34. Domestic. Answers to letters.
No. 4. 1834-36. Ditto. Ditto.
No. 3. 1836. Vice-Cons. Wood, Bengazi and Vice-Cons. Dupuis. Report from the latter on trade of interior, with map.


No. 9. 1841. Ditto, ditto.

No. 10. 1824-41. Case of Captain Chatten, “La Fortuna.”

No. 11. 1842. Cons.-Gen. Warrington.


There are also scattered notices concerning Tripoli, some of great historical interest, in the various printed calendars of State papers published under the direction of the Master of the Rolls, as follows:—


Foreign and Domestic Series, Henry VIII., vol. i. 1509-1511, No. 1209, and vol. ix. 1535, No. 910.

Foreign Series, Edw. VI., 1547-1553, pp. 157, 162, 163, 165, 168, 170, 172, 175, 183.

Calendar of Treasury Papers, vol. 1556-7-1696, No. 392, 464, 483-542; vol. 1697-1701-2, xlvi. 30, li. 54, lxi. 1, lxvi. 9, lxxvii. 36, 57; vol. 1702-1707, lxxxiv. 33, 34, 90, lxxv. 125, lxxxvi. 19, 100; vol. 1708-1714, cxxxiii. 9, cxxxiv. 61, cxii. 24, cxxii. 24; vol. 1714-19, cxxxiv. 28, cxxxv. 43, cxxxvi. 16, cxxxvii. 44, ex. 40, exci. 41, ecxiv. 44, 45, 53, cciv. 63.

Foreign Series, vol. 1559-60, Nos. 550(6), 590(6), 640(3), 665, 859(13), 1066(4); vol. 1560-61, 74(3), 128(3), 148(1, 3, 5), 167(1), 187(1), 194(1, 2), 224(2, 10), 232(6), 328(2), 433(2, 3, 4), 450(3), 564(3), 716(30); vol. 1561-62, 13(2), 256(2), 300; vol. 1564-65, 171(3), 1168(2), 1220(1).

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HUDSON’S BAY AND STRAIT.

By Commodore A. H. Markham, R.N.*

The question of the practicability of navigating Hudson's Strait in safety during a certain period of the year, has lately excited much interest, and has occupied a good deal of public attention on both sides of the Atlantic for reasons apart from geography. At the same time it is a question of considerable geographical importance, especially when considered in connection with the movements of the ice in that region.

The reason that attention has recently been drawn to this out-of-the-way, and somewhat dreary, locality is, in a great measure, due to the fact that a scheme has been recently started, having for its object the construction of a railroad that would connect Winnipeg, and other important towns on the line of the Canada and Pacific Railroad, with some harbour on the shores of Hudson's Bay.

The inhabitants of the North-West are naturally desirous of possessing a seaport which they can call their own, situated nearer to their cattle-raising and grain-producing districts, than either Montreal or New York, to which ports all the produce of Manitoba and the North-West have hitherto had to be shipped for transportation to Europe. The only way by which this desire can be attained and their hopes fulfilled is by the creation of a seaport somewhere on the shores of the west coast of Hudson's Bay, connected by rail with Winnipeg, or some other large commercial emporium in Manitoba. This would give an outlet to the rapidly growing trade of the North-West, and would fill a want that has long been felt, and which is now pressing harder than ever on the residents of that great expanse of country situated in Canada, to the eastward of the Rocky Mountains.

I do not, however, in this paper, propose to discuss either the desirability, or the practicability, of constructing a railroad such as is suggested, but simply to write a brief history of what has already been achieved of geographical interest in Hudson's Strait and Bay, in view of the possibility of the route being sooner, or later, opened to commerce.

I experienced so much difficulty myself in obtaining information regarding these regions, and had to hunt up and refer to so many books

* An abstract of this paper was read before the Society at the Evening Meeting, June 11th, 1888, and published, with the discussion which followed, and a map in illustration, in 'Proceedings R.G.S.,' 1888, pp. 549 et seq.—[End.]
on the subject, that I considered an account written for our Society, in a somewhat condensed form, would prove useful and of interest to the Fellows, and also to others, who may be desirous of becoming acquainted with a part of the world which may at no distant date become of considerable commercial and geographical importance.

The knowledge I have acquired of these regions has been gained by a careful study of the writings of our old navigators, and also of more recent reports, and this has been supplemented by the experience I gained during a voyage I made in the summer of 1886, in the Alert, through Hudson’s Strait to York Factory, on the western shore of Hudson’s Bay.

Hudson’s Bay, or, as it has not been inaptly termed, the Mediterranean Sea of North America, is a large inland sea, situated between the parallels of 51° and 64° N. lat., therefore well outside the Arctic zone, and between the meridians of 75° and 95° W. long. It is about 900 miles in length from north to south, some 600 miles in breadth, and covering an area of something like 500,000 square miles.

Hudson’s Bay is reported to be remarkably free from rocks and shoals, and it has an average depth of about 70 fathoms. So uniform are the soundings that our accomplished associate, Dr. Bell, of the Geological Survey of Canada, in a paper which he communicated to our Society in October 1881 on the commercial importance of Hudson’s Bay, had no hesitation in saying, that if, through any convulsion of nature, this vast basin was to be drained of its water, we should find “an immense plateau similar to the prairies of the west.”

I would here observe that there are few authorities on this subject, whose opinions should be received with greater respect than those of Dr. Bell, who has devoted many years of his life to the exploration of Hudson’s Bay, and whose knowledge and experience regarding the physical geography and geology of that part of the world are so well known.

The same authority states that storms in the bay are very rare, and by no means formidable; that icebergs are never seen, and that fogs, the most dreaded enemy with which a sailor has to contend, are of rare occurrence, and of but short duration.

The climate of the shores of Hudson’s Bay during the summer months is mild and genial, and many European vegetables, such as potatoes, lettuce, beet-root, and onions, are grown in the open air. The winters are, however, very severe; and the whole country, covered in a snowy mantle, has then to yield to, and acknowledge the power of, King Frost.

It is asserted that the temperature of the water in Hudson’s Bay is no less than 14 degrees higher than the water of Lake Superior, and, in support of this assertion, Lieut. Gordon (who was sent by the Canadian Government in command of the recent expeditions despatched to Hudson’s Bay for the purpose of reporting on its feasibility as a com-
mercial ocean route) writes, in his first official despatch: that "Hudson's Bay may, therefore, be regarded as a vast basin of comparatively warm water, the effect of which must be to considerably ameliorate the winter climate to the south and east of it."

The principal and, so far as we know at present, the only practicable approach to Hudson's Bay in a ship is through Hudson's Strait—a deep channel about 500 miles in length, which separates Labrador from the islands of Arctic America. The Strait has an average breadth of about 100 miles, but the width in the narrowest part of the channel is not more than 45 miles. The soundings in the Strait vary from 150 to 300 fathoms, and it is wonderfully free from shoals or rocks, or any other obstacles that would tend to make the navigation of a narrow channel more than ordinarily dangerous.

Although Henry Hudson has the reputation of, and is generally accredited to be, the discoverer of the Strait and Bay that bear his name, it is by no means certain that this claim can be substantiated. On the contrary, it is more than probable—and it is a probability amounting almost to a certainty—that the credit of this discovery is really due to earlier navigators.

It is well known that Sebastian Cabot made two voyages across the Atlantic, with the object of discovering a north-west passage to what was then called the South Sea. The first of these voyages was made in the year 1498, and the other in 1516.

During one of them, though it is not known which, it is almost certain that not only the Strait that now bears the name of Hudson was discovered, but also another Strait—that wider and broader expanse of water, which was subsequently named after another of our sea worthies, the brave and skilful navigator, John Davis.

My authority for this assumption is the fact that on Cabot's planisphere of 1544 (which is now in the Paris library), the west coast of Davis's Strait, is fairly accurately delineated as far north as latitude 67° 30', and an opening, corresponding to the entrance of Hudson's Strait, is also shown as existing between the 61st and 64th parallels of latitude, and in about the 60th meridian of west longitude from Greenwich. This is almost the exact position of the Strait; if, therefore, it was only set down on the planisphere at haphazard, it must be regarded as a very curious coincidence, and a wonderful piece of prophetic geographical inspiration.

I cannot, however, help thinking that its position on the planisphere, is very conclusive evidence that the Strait was actually known to the geographers of the 16th century, a hundred years before Henry Hudson rediscovered it.

The Portuguese also, and with a great deal of justice, may fairly establish a claim, if not to the actual discovery of the Strait, at any rate to a knowledge of its existence, half a century prior to the sailing of Hudson on his last memorable and fatal voyage; for on maps which
are still in existence, and which bear the date of 1558, the Strait, leading
to a broad expanse of water to the westward, is clearly shown.

As additional evidence in support of what I am now advancing, I
may mention that a fair delineation of the coast line of Hudson's Bay is
shown on the map of Ortelius, which was published in 1570, which proves
that its existence was then known, though by whom discovered I have
not been able to ascertain.

When Martin Frobisher sailed to the north-west in 1576, for the
purpose of discovering a short route to India, he sought for a channel
that was indicated on the chart with which he was supplied, and which,
he thought, would lead him to the South Sea. This inlet, with which
his name is now associated, he actually found in latitude 63°, and sailed
up it for a distance of about 200 miles, when his further progress was
arrested by ice.

In the following year Frobisher entered another strait, between the
parallels of 60° and 62°; but as his instructions were somewhat stringent,
confining him to the discovery of gold, and did not admit of his prose-
cut ing a search for the north-west passage, however favourable appeared
the prospects of success, he did not avail himself of the chance afforded
him of exploring what was undoubtedly Hudson's Strait.

That able and accomplished navigator, John Davis, must also have
had a knowledge of the existence of the Strait five and twenty years
before Hudson entered it; for we are told that during his third voyage
for the discovery of a north-west passage, in 1587, after making nume-
rous discoveries to the northward, he steered in a southerly direction,
and discovered and named Cape Chidley (or Chudleigh), the headland
forming the south point at the eastern entrance to the Strait; and,
if I am not much mistaken, he also discovered and landed on Resolution
Island, the name subsequently given (but on whose authority I am
ignorant—probably Sir Thomas Button's) to the island that forms the
north point of the mouth of the Strait. Cape Chidley, I may here
mention, was named after Mr. John Chudleigh, of Chudleigh, one of the
principal promoters and supporters of the expedition entrusted to the
command of John Davis, whose name was often spelt Chidley, and who
subsequently died in the Strait of Magellan whilst on a voyage that
had for its object the circumnavigation of the globe.

During the same voyage, Davis, on his return from the high latitude
which he reached on the west coast of Greenland, was off the entrance
to Hudson's Strait on the 1st of August. The circumstance is thus
alluded to in his report:—"Which inlet or gulf this after noone, and
in the night, we passed over: where to our great admiration we saw the
sea falling down into the gulf with a mighty overfall and roaring, and
with divers circular motions like whirlpools, in such sort as forcible
streames passe throw the arches of bridges."

Again in the year 1602, Captain George Waymouth, who was
employed by the Worshipfull Merchants of London trading into the East Indies, in an attempt to discover a north-west passage to India, in reporting the result of his voyage, states that he entered an inlet in latitude 61° 40', which he represents as being 40 leagues broad, and up which, he asserts, he sailed a distance of 100 leagues. This inlet, from the position assigned to it by Waymouth, could have been no other than the one that is now known as Hudson's Strait.

I think I have brought forward sufficient evidence, and of a more or less authentic and reliable nature, to show that the Strait was, without doubt, known, although perhaps not explored, prior to the departure from England of the expedition commanded by Henry Hudson, and which sailed in 1610. And I think we may safely infer, that this very knowledge of its existence, was the inducement that led Hudson to attempt further exploration in that direction—feeling assured, as in all probability he did, that the opening in question offered the most likely chance of a successful issue to his undertaking, namely, a navigable passage to the South Sea.

In thus bringing forward the supposed claims of discovery of previous navigators, it is far from my intention to detract from the credit which is undoubtedly due to Henry Hudson. I am only desirous of pointing out that he was, in reality, guided to his discoveries by the beacons established by those who had preceded him; or, in the words of that quaint writer, and enterprising seaman, Captain Luke Fox (who subsequently commanded an expedition into Hudson's Bay), who, in writing of Captain Waymouth, says:—"These two, Davis and he [Waymouth] did, I conceive, light Hudson into his Straights."

As the men I have enumerated were before Hudson in the Strait and Bay that now bear his name, so, also, were others before him in the river named after him, and with the discovery of which he is generally accredited.

As far back as the year 1524, Verazzano, an Italian, was entrusted by Francis I. of France with a small squadron of ships, with directions to reach Cathay by the north-west. Whilst engaged in searching for a passage, Verazzano reached the mouth of what is now called Hudson river, and entered the harbour, on the banks of which is now situated the commercial capital of the United States of America. He was much impressed with its capacity, natural advantages, and the extreme loveliness of the scenery. A sudden and violent squall, however, compelled him to take a hasty departure, and he was thus prevented from making further exploration in that direction.

During the same year, a Portuguese pilot, named Estevan Gomez, was employed by the King of Portugal in endeavouring to discover a short route to the Spice Islands by the north-west, and, whilst so engaged, is reputed to have also sailed into the Hudson river; but the reports of this expedition are so vague and conflicting, that but little credence can be
placed in them. I have, however, considered it desirable to make a brief allusion to them here.

Although the name of Henry Hudson is invariably associated with that of a skilful and adventurous Arctic explorer, and although he is known to fame as a great discoverer of unknown regions, still the whole period of his known life extends only over a little more than four years, viz.: from April 1607 (prior to which he is absolutely unknown to history) until June 1611, when he was treacherously cast adrift on the scene of his explorations, by his mutinous and cowardly crew. Yet in that brief period, although unsuccessful in the achievement of the special work which he had undertaken to accomplish, namely, the discovery of passages to India by the north-east, by the north-west, and even across the North Pole itself, he has left a name which will always occupy a foremost place in that list of naval worthies who have done so much to promote the maritime supremacy of this country, by their heroic courage, their dauntless energy, and their skill and ability as seamen.

I fully endorse the remarks of the talented editor of *Voyages towards the North-West*, published by the Hakluyt Society, and which, perhaps, I may be pardoned for quoting here. He writes: "Yet Henry Hudson's name is not forgotten. It is borne by his Strait, and by the Bay in which he wintered and died. It is inscribed on the vast territory between the Bay and the Pacific Ocean. It is affectionately remembered by the millions of human beings now living on those banks which he found scantily inhabited by savage races. Nor have his labours been fruitless. He has given to his own country the fisheries of Spitzbergen, and the fur trade of the Hudson's Bay Territories. The Dutch owed to him their North American colony, which has, afterwards, fallen into English hands, and is now peopled and ruled over by the united descendants of both nations.

"Thus, in spite of his failures, Hudson has created himself a far prouder monument than he would have dared to hope for. These successes may well be held out as an encouragement to those who, like him, labour earnestly and steadfastly in some great cause that may seem hopeless. Such labour is never cast away, if only they, like Henry Hudson, prescribe to themselves the rule, To achieve what they have undertaken, or else, to use his own words, 'to give reason wherefore it will not be.'"

It was in consequence of the reputation and experience that Hudson had obtained as a skilful seaman, and an intrepid Arctic navigator, during the three voyages he had made to the northern regions, that he was selected in 1610 for the command of the *Discovery*, which had been fitted out and equipped—chiefly at the expense of Sir Dudley Digges, Sir Thomas Smith, Mr. John Wolstenholme, and a few other gentlemen—for the purpose of attempting the discovery of a north-west passage.

All that was then known of Hudson was that in the year 1607 he
made a bold and daring attempt to reach India by sailing across the North Pole. His vessel, the little Hopewell, is described as a cockboat of about 50 tons, and his crew consisted of ten men, besides himself and son, the latter being a mere boy. This expedition was undertaken in the interest of "certain worshipful merchants of London."

Although unsuccessful in the main object in view, still with such skill and energy did he conduct his little craft, that the latitude he then attained in the neighbourhood of Spitzbergen (viz. 81°), was never exceeded, or in fact ever reached, until Sir Edward Parry passed it more than 200 years afterwards.

In the year following (1608) Hudson was employed by the Muscovy Company, but on this occasion he was engaged in seeking a north-east passage to India and China.

This likewise resulted in failure, but it was during this voyage that a part of Novaya Zemlya was explored.

On his return his services were again called into requisition. This time it was on behalf of the Dutch East India Company, but it was again with a view of discovering the north-east passage. Meeting, however, with an impenetrable barrier of ice, which defied all his efforts to get through, he relinquished the attempt, and sailing across the Atlantic, discovered, and explored, the river that now bears his name, and at the mouth of which the present city of New York is situated.

This is the extent of Hudson's known service, prior to his being selected for the command of the Discovery. That he was a man of some note and a seaman of ability is evident, for we hear of him as being in command of a ship belonging to the Muscovy Company, an association whose reputation stood so high, that the very fact of a man being in their employment, and in command of one of their ships, was a sufficient guarantee of his skill and ability as a seaman.

It may not be out of place here to observe that it was the Muscovy Company, at the instigation and under the direction of Sebastian Cabot, that introduced a form to be carefully filled up on board all the ships in their employ, with certain daily observations to be kept under the immediate superintendence of the captain, from which has evolved the log books which every ship is now compelled to use.

The following clause directs the insertion of the observations in this parent of log books. "Item, that the marchants and other skilful marchants in writing shall daily write, describe, and put in memoire the navigation of every day and night, with the points and observations of the lands, tides, elements, altitude of the sunne, course of the moone and starres, and the same so noted by the order of the master and pilot of every ship to be put in writing, the captains generall assembling the masters together once every week (if winde and weather shall serve) to conferre all the observations and notes of the said ships, to the intent it may appear wherein the notes do agree, and wherein they dissent, and upon
good debate, deliberation, and conclusion, determined to put the
same into a common ledger, to remain as record for the company."

The clear, concise, and valuable narratives of the voyages of Davis,
Hawkins, Lancaster, Baffin, Hudson, and other navigators, are, in a
great measure, due to the adoption of the instructions which were first
generally issued by the Muscovy Company.

Not only was Hudson a practical and experienced seaman, but he
was also a skilful observer; for in spite of the many disadvantages under
which he laboured, and the rudeness of the instruments in use at that
time, the position of places laid down by him were ascertained with a
fair degree of accuracy. I may also mention that Hudson has the reputa-
tion, although I believe it is a disputed one, of being the first English-
man who made observations on the dip, or inclination, of the magnetic
needle.

The ship which he had been selected to command was a small vessel,
or fly-boat as she is sometimes called, of 55 tons burden, named the
Discovery, presumably the same that Captain Waymouth had commanded
in 1602, when dispatched in quest of a north-west passage.

Her crew consisted of twenty-one men besides himself and son, who
invariably appears to have accompanied him on his adventurous voyages.
No less than four of the men, including the mate Robert Juet, had
previously served under Hudson, two of whom nobly supported their
chief when the mutiny broke out, and, electing to share his fate,
accompanied him in the boat when she was cast adrift.

The Discovery sailed from London on the 17th April, 1610, and, after
sighting the coast of Greenland, reached Resolution Island about the
24th of June, and entered the Strait which now bears his name. They
were at first much troubled by the amount of ice they encountered, and
for some time experienced great difficulty in making their way to the
westward. To the land on the south side of the Strait, Hudson gave the
name of "Desire provoketh," he being then in latitude 60°.

On the 11th July, fearing the approach of a storm, Hudson anchored
under shelter of three small and rocky islands in lat. 62° 9', to which
he gave the name of the "Isles of God's Mercies." These are undoubt-
edly those islands marked on our present charts as the Middle Savage
Islands. I do not know who is responsible for this change of name, a
senseless and somewhat confusing one, as we already have on the north
side of the Strait, two other clusters of islands named respectively, the
Upper and Lower Savage Islands. The original names should, I submit,
in justice to their discoverer, be restored; the exact position of these
islands is given by Hudson, so that there can be no doubt regarding
their identity. On the present Admiralty Chart the name of the "Isles
of God's Mercies," has been allotted to a group of Islands which was
never seen by Hudson, but which was subsequently sighted by Baffin,
and to two headlands of which he gave the names of Fair Ness and
Broken Point. I would suggest that the name of Fair Ness Islands be given to this group. Sir Edward Parry, in the account of his second voyage, was unaware that this particular cluster of islands was the group discovered and named by Hudson the "Isles of God's Mercies," for he alludes to them in the following words:—"The small cluster of islands to which this [Saddle Back Island] belongs, is called in the charts the Middle Savage Islands, a name by which Mr. Davidson (the captain of the Hudson's Bay Company's vessel Prince of Wales) did not know them, nor can I find any authority for it, but which may serve to distinguish them as well as any other."

Leaving these islands, Hudson steered to the south-west for some distance, and then to the north-west until he reached the latitude of 61° 24', when he sighted land (to the southward?), which he named "Hold with Hope," but it is difficult now to assign even an approximate position for this land. In about latitude 62° he again saw land to the southward, to which he gave the name of Magna Britannia, and this name should, I think, be reintroduced on our charts, as appertaining to that large extent of coast situated between Capes Hope and Wolstenholme.

On the 2nd of August Hudson sighted a prominent headland, to which he gave the name of Salisbury's Foreland, being evidently under the impression that it formed part of the north shore of the Strait. It was, however, an island which is now shown on the chart as Salisbury Island.

I cannot help thinking, from the context in Hudson's narrative, that the land thus named was really the south part of Nottingham Island, of which he, otherwise, makes no mention; yet, unless the weather was extremely foggy, which does not appear to have been the case, he must have been in sight of it during his passage to Cape Wolstenholme. The distance between this island and the main land, also lends support to my assumption.

On the 3rd of August, Hudson sailed between the islands now known as the Digges Islands and Cape Wolstenholme, and this is the last recorded incident in his journal.

For an account of the remainder of the voyage we have to trust solely to the narrative written by one of the survivors, a man named Abacuk Prickett, which, although of thrilling interest, contains but little geographical information, and even that little is of a very vague and unreliable nature. The places mentioned by this historian, such as Prince Henrie's Cape or Forland; King James his Cape, and Queen Anne's Cape or Foreland are quite unrecognisable, and therefore impossible to locate.

After passing Cape Wolstenholme, it seems quite certain that Hudson sailed to the southward, and eventually wintered in the neighbourhood of James Bay, but not before he had experienced some trouble with his
men, who, on more than one occasion, evinced a mutinous and insubordinate spirit. In fact, matters had come to such a crisis that Hudson considered it necessary to displace both the mate and the boatswain, and to appoint others to perform their duties. Affairs must have indeed been critical, when it was deemed essential, for the preservation of discipline and the maintenance of good order, to reduce the two officers holding rank next to the captain.

Considering the feeling that existed on board, and the fact that the Discovery was but ill supplied with stores and provisions, Hudson did not certainly act on the dictates of wisdom and prudence when he decided upon wintering. We have it on the authority of Abacuck Prickett, that when the Discovery left England she was only provided with provisions to last for an estimated absence of six months, although Hessel Gerritz informs us, that she was provisioned for eight months: in either case the supply of provisions was totally inadequate for passing a winter, for five months had already elapsed, since leaving England, when the decision to winter was announced.

I think, under the circumstances, it is not surprising that a spirit of insubordination was exhibited by some of the crew, for it can only be regarded as the act of an insane and infatuated man, to endeavour to eke out two or three months' provisions over a period of nearly twelve months, more especially when the rigours and hardships incidental to what may very fairly be regarded as an Arctic winter, are combined to a poor and insufficient supply of food.

On the 1st of November the ship was secured in winter quarters, and nine days after, she was completely frozen in.

The provisions, or rather what remained of them, were then portioned out in equal shares, and arranged on such a scale as to last during the winter; and a reward was offered to every man who could procure anything in the shape of game.

Shortly after the ship had been established in winter quarters, the gunner, John Williams, died; and, as is customary in such cases, then as now, his effects were sold by auction before the mast. According to Prickett, the bickerings and discussions between Hudson and the majority of his crew, which eventually resulted in open mutiny, were mainly caused by a dispute, between Hudson and some of the men, concerning the purchase of a "gray cloth gowne" belonging to the defunct gunner. From Prickett's showing, Hudson appears to have exhibited such a spirit of obstinacy, and want of tact, that would stamp him as being utterly unfit to be a leader and ruler of men; but then it must be remembered that Prickett may have had interested motives for concealing the truth, and for disparaging his chief. In whatever light, however, Hudson's conduct is viewed, I am afraid he did not show the sagacity of a wise and discreet leader when he resolved to remain out for the winter, knowing, as he must have known, that even with the exercise of the
most careful and rigid economy, his provisions would barely suffice for more than a few months; and if he trusted to the prospect of replenishing his supply by the slaughter of birds and animals in the spring, he was indeed depending on a very precarious chance of subsistence.

Fortune, however, seems to have favoured them in this particular, for we are told that for three months during the winter, they were able to provide themselves with an abundant supply of ptarmigan, no less than one hundred dozen of these birds being shot, or otherwise obtained, during that time; and, subsequently, they succeeded in shooting some swans, geese, and wild duck, although not without some trouble and difficulty. When these birds left, they were reduced to eating moss which they picked off the ground, and also some frogs, which they do not appear to have relished, for Prickett, referring to them, writes that they "were as loathsome as toads." On the breaking up of the ice in the early summer, they succeeded in catching some fish "as big as herrings, and some troutes." These additions to their slender stock of provisions, were as providential as they were unexpected.

At length the long and dreary winter came to an end, the ship was released from the icy bondage in which she had for so many months been imprisoned, and sailed away from her winter quarters in about the second week in June. On the 21st of that month the mutiny broke out, and Hudson with his son, and seven unfortunate companions (the majority of whom consisted of the sick and helpless) were put into a small boat and mercilessly cast adrift.

Thus perished Henry Hudson on the scene of the most important of his discoveries. No prouder tablet, or more imperishable epitaph, could better immortalise the name of a great man than he has, for his name is associated with that great inland sea that has in all probability a prosperous and, we will hope, a great future before it; a river that is already known to fame for its lovely scenery and commercial importance; and a vast extent of territory that only requires population and capital, to develop its mineral wealth and boundless resources.

Nothing more was ever seen, or heard, of Hudson and his companions, and so his actual fate will always remain wrapped in mystery.

A month after the heartless abandonment of the captain, the Discovery with the mutineers reached the neighbourhood of Digges Islands, with the object of replenishing their supply of provisions, by obtaining some looms (Guillemots) which they knew to abound there. Shortly after her arrival some of the men, whilst on shore, were attacked by the Eskimos, who killed four of their number. By a curious coincidence, or by what perhaps may be regarded as a judicial act of Providence, these four men happened to be the principal ringleaders in the mutiny, and thus was the outrage on Hudson avenged by a prompt and retributive justice. Of the remaining seven that formed the crew of the Discovery, one died of starvation during the passage across the Atlantic, whilst the other
six succeeded in reaching the coast of Ireland, alive it is true, but in a most woe-begone and emaciated condition, having subsisted for many days on sea-weed fried with candle-ends, and the skins of the birds that had previously been shot and eaten. To such an extremity of weakness had these men been reduced by the sufferings they had experienced, that only one man was capable of steering the ship. A new crew having been engaged in Ireland, the vessel was taken to Plymouth, and thence to Gravesend.

There does not appear to have been any inquiry made on the return of the ship to England, regarding the circumstances connected with the atrocious abandonment of Hudson. Perhaps the pitiful condition of the survivors, and the intense miseries they had experienced, were considered as sufficient atonement for their insubordinate and unjustifiable conduct; at any rate, we are told that two of the survivors, viz. Bylot the mate, and Abacuk Prickett the historian of the voyage, were actually employed in the expedition that sailed the following year to Hudson's Bay, under the command of Sir Thomas Button.

This expedition was despatched by the Company of Merchant Adventurers, with the sanction and under the immediate directions of the Prince of Wales, who drew up the instructions to be observed.

The following are extracts from the “Charter granted to the Company of the Merchants Discoverers of the North-west Passage. Alfred Bletsoe, July 26th, 1612.”

“A. Beginning.

James, by the grace of God King of England, &c. Whereas we are credibly informed that our Cozen’s and Councillors Henry Charles Earl of Northampton, Keeper of the Privy Seale; Charles Earl of Nottingham, Admirall of England; Thomas Earl of Suffolk, Chamberlain of our own household; our right trusty and well beloved Cozen Henry Earl of Southampton; William Earl of Salisbury, our right trusty and well beloved Theophilus Lord Walden, Sir Thomas Smith Maunseall, Sir Walter Hope, Sir Dudley Diggs, Sir James Lancerote, Knights; Rebecca, Lady Romney, Francis Jones one of the Aldermen of our City of London; John Wolstenholme, Esq., John Edred Robert Sandy, William Greenwell, Nicholas Seats, Hovet Stapers, William Russell, John Merricks, Abraham Chamberlaine, Philippe Burlomathis, merchants of the Cittie of London, the Muscovy Company and the East India Company of the sixth voyage did in Aprill one thousand six hundred and tene, with great charge sett forth a shippe called the Discoverye, and certaine persons under the command of Henry Hudson, to search and find out a passage by the north-west of America to the Sea of Sur, commonly called the South Sea, and have in that voyage found a streight or narrow sea by the which they hope and purpose to advance
a trade to the great kingdoms of Tartaria, China, Japan, Solomons Islands, Chili, the Phillippines, and other crountryes in or upon the said sea. ..."

At the bottom of this charter appears

"B. Summary of the grant.

"This bill conteyneth your Majesty's grant unto the merchants of London, discoverers of the north-west passage, to be made and treated a corporate body, and to be invested with powers and capacities thereunto incident, so that the trade through that passage may be managed with some order and government, and not loosely at the discretion of every private adventurer. The frame and constitutions of this company is not restrained to any number certain, nor confined to any particular city, town or place, nor tending to any degree of monopoly. The Prince is the supreme protector, under your Majesty, of this Company. The custom subsidy, and impost accruing to your Majesty of all goods and merchandize shipped outwards and homewards through the said passage, in the 7th year after the date of the present patent (by which time it is conceived the trade may settle and grone somewhat beneficially) are therein granted to the first discoverers, in consideration of their charges in the discovery; and the like grant to Captain Button, and the masters and marines in the two shippe lately sett forth for the perfecting of the said discoverye, of the customs subsidy and impost happening in the 5th year after the date of the present patent (which as supposed will be a lesse matter) in consideration of their services therein."

The main object of the expedition that was sent forth under the command of Sir Thomas Button was, undoubtedly, the discovery of the North-west Passage, but let us hope, in the name of humanity, that the expedition was also undertaken with a view of searching for Hudson and those who shared his fate, although no mention of it is made in the brief account that has been handed down to us of this voyage.

The expedition consisted of two ships, the Resolution and the Discover.

The leader, Sir Thomas Button, was a gentleman in the service of Prince Henry, and, we are informed, was an able and skilful seaman, and a man of considerable talent. Most elaborate instructions for his guidance were drawn up under the superintendence of His Royal Highness. The ships were provisioned for eighteen months, and sailed from England early in May 1612. On arrival in Hudson's Strait, they proceeded with all despatch, and without much hindrance from ice, to Diggles Island, where they remained for eight days, and, we will hope, that during that period a diligent search was instiituted for the unfortunate castaways, but no mention of such a search is recorded in the narrative of the expedition, although Bylot and Prickett were both
serving in one of the ships. Natives were, however, seen and communicated with, and it is sad to relate that, instead of ingratiating themselves with these people, our countrymen came into serious collision with them, and in attempting to seize some of their boats, five of Button's men were slain by the Eskimos.

So hostile were the natives in this neighbourhood reputed to be (although in all probability their hostility was the result of the high-handed behaviour of the men of the expedition), that I fear it only too plainly shows what the fate of Hudson and his companions would have been had they fallen into their clutches.

From Digges Islands they proceeded to the westward, where the land was discovered to which the name of “Cary's Swan's Nest” was given, but which is now known as Southampton Island. Thence they continued their course to the westward, until land was again fallen in with in lat. 60° 40', which was called “Hopes Check'd,” because they were disappointed in not finding the passage they were in search of. This land is, I think, that headland marked on our present charts as Cape Esquimaux. It is much to be regretted that the only account obtainable of the voyage of Sir Thomas Button, should be so meagre and so wrapped in needless mystery.

After sighting Hopes Check'd, the ships steered to the southward, when, being assailed by a violent storm, they anchored for shelter and to repair damages off the mouth of a river, which was called Nelson river, after the master of the Resolution, who died and was buried there. The mainland received the name of New Wales, after the Prince of Wales, and the bay into which the river emptied itself was called Button's Bay. Sir Thomas Button may, I think, fairly claim the honour of being the first navigator to sail across Hudson's Bay.

Although it was only the middle of August when the Nelson river was reached, it was decided that the winter should be passed there, and the necessary preparations were made for doing so. Apparently there was abundance of game obtainable, for we are told that, among other things, 1800 dozen white partridges (ptarmigan) were killed in the neighbourhood of their winter quarters. During the month of February, and subsequently, the cold was intensely severe; many of the men died from the effects of it, whilst the survivors were reduced to a very weak and sickly condition.

In April the ice commenced to break up, but it was not until June that the ships made a move. They then steered to the northward, and discovered land in lat. 60°, which was called Hubbart's Hope, after the pilot of the Resolution, because a strong tide race that was observed was hoped to be indicative of the passage for which they sought. In July they were off Hope's Advance, seen and named the previous year, and on the 26th of the same month, Ne Ultra, in lat. 62° 42', was named. Three days afterwards, they reached their highest latitude, which is
reputed to be lat. 65°. Sailing then to the eastward, Mansel's Island was discovered, and named—not Mansfield Island, as in our present charts—and the west extreme of Southampton Island was named Cape Southampton, whilst the east end was called Cape Pembroke.

I am not quite sure as to whether Mansel Island was named after Sir Thomas Smith Maunsell, one of the Company of Merchant Discoverers for the North-west Passage, and referred to in the charter granted by James I, or whether it was named after Sir Robert Mansils.

No difficulty from ice was experienced in sailing through the Strait on their way to England, but instead of emerging from what may well be considered as the main entrance to the Strait, namely, between Resolution Island and Cape Chidley, the ships were taken through a strait which was then, for the first time, found to exist between the island, of which Cape Chidley forms the northern extreme, and the main coast of Labrador. This channel has lately been named M'Lellan Strait, after the Canadian Minister of Marine and Fisheries, under the impression that it was a new discovery.

The insularity of the land, on which is situated Cape Chidley, having without doubt been determined by Sir Thomas Button, it would, I think, only be appropriate, and a graceful act of recognition of the many services performed in these waters by a ship bearing the name of Discovery, to name the island Discovery Island. We should then have the entrance to Hudson's Strait marked, on its north and south sides, by the names of vessels that have done good service in the Arctic Regions and elsewhere, and the names of the two first ships, the Discovery and Resolution, that ever passed a winter in Hudson's Bay, would thus be commemorated.

The fact of Sir Thomas Button's ships having sailed through the strait referred to, is thus, on the authority of Abacuk Prickett, alluded to by Captain Luke Fox:—"They came not through the maine channell of Fretum Hudson, nor thorow Lumley's Inlet; but through into the Mare Hyperborum betwixt those ilands first discovered and named Chidley's Cape by Captain Davis, and the north part of America, called by the Spaniards, who never saw the same, Cape Labrador, but it is meet by the north-east point of America, where was contention among them, some maintaining (against others) that them ilands were the Resolution, which Josias Hubbart withstood, untill he stood himselfe into the danger of displeasure; but at length it proved a new Streight, and a very streight indeed to come through which resolved all doubts."

Sir Thomas Button's expedition was undoubtedly a failure; no discoveries of any importance were made; no light was thrown on the existence of a north-west passage in the locality in which he was supposed to be exploring, and he failed to succour Hudson, or to ascertain any particulars regarding his fate and that of his unfortunate companions.

That he felt keenly his want of success is certain, and that he did not regard the discovery of a passage as impossible is also assured, on the-
authority of a fragment of his journal, which was communicated to
Captain Luke Fox by Sir Thomas Rowe. In it Button writes:—"That
God that made us all of dust, will not fail to raise up some good spirits
for the future prosecution of this business: as that by their honest
endeavours, and religious resolutions, they will effect that which is not
ripe for his sickle. God which best knows what the truth of his
endeavours have been in this action, will not fail to give a blessing to
some that follow; and for his part he desires to be blest no otherwise
than as he hath sincerely laboured; and therefore he must conclude and
even believe according to the word, that Paul plants, Apollo waters, and
God gives the increase. So that until his good will and pleasure is, all
that we doe cannot in this aught else prevale."

His predictions, however, have never yet been realised, at least in the
sense that he anticipated, for no practical north-west passage has been
discovered, so we may infer that it is not yet "ripe for the sickle."

The next expedition to Hudson Strait sailed in 1614, and was
entrusted to the command of a Captain Gibbons, who had served as a
volunteer in Button's voyage. The records of this expedition are
exceedingly brief, and may be summed up and dismissed in the follow-
ing somewhat laconic and quaint account of it given by Luke Fox. He
says:—"Little is to be writ to any purpose, for that hee was put by the
mouth of Fretum Hudson, and with the ice, driven into a bay called
by his company 'Gibbons his Hole,' in latitude about 57°, upon the
north-east point of Stinenia, where he laid twenty weekes fast amongst
the ice, in danger to have been spoyled, or never to have got away, so as
the time being lost, hee was enforced to returne."

The bay in which Gibbons passed so many idle and fruitless weeks, is
supposed to be somewhere in the neighbourhood of Nain, on the coast of
Labrador, where there is now a Moravian mission establishment.

In no way discouraged by previous want of success, the enterprising
company of merchant adventurers again, the following year, despatched
the little Discovery with the object of renewing the search for a North-west
Passage. Robert Bylot, who had served in the three preceding voyages,
namely, those under Hudson, Button, and Gibbons, was placed in com-
mand, but William Baffin, an experienced and accomplished navigator
and a skilful and scientific observer, was appointed as pilot and mate,
and, I think, shared with Bylot the responsibility of command. It is
at any rate, to Baffin that we are indebted for an account of the
voyage.

The Discovery left England on the 16th of April, 1615, with a crew con-
sisting of fourteen men and two boys. On the 27th of May Resolution
Island was sighted, and the Strait entered shortly after. On the 8th of
June the Savage Islands were reached and named, and it was observed that
they had "a great sound or indraught between the north shoare and
them." I make particular allusion to this because a claim has recently
been made of the discovery of this strait. Baffin's claim, however, dates back 270 years, and is undeniable. The strait I allude to is also referred to as being well known by a Captain Coats, who was for many years employed by the Hudson's Bay Company in command of one of their ships. In a MS. entitled "The Geography of Hudson's Bay," written by him in 1750, he calls this channel the "White Streights."

On the 19th of June the Discovery reached Broken Point, and an adjacent headland was named, by Baffin, Fair Ness. The neighbourhood of these two capes, or points, is memorable as being the place where the first lunar observation for finding the longitude was taken by the untiring Baffin.

This incident is thus referred to by Sir Edward Parry:—"On the 29th we were off a point of land having several islands near it, and exactly answering the description of that called by Baffin, in the year 1615, Broken Point, it being indeed a point of broken island. This headland is memorable on account of a lunar observation made off it by this able and indefatigable navigator, giving the long. 74° 05', which is not a degree to the westward of the truth."

Alluding to the fact of his having succeeded in taking a lunar observation at this place, Baffin makes the following very pertinent remark:—"If observations of this kind, or some other, were made at places far remote, as at the Cape Bona Esperanza, Bantam, Japan, Nova Albion, and Magellan Strayts, I suppose wee should have a truer geography than we have." Unfortunately, however, those days did not produce many such skilful and practical seamen and such scientific observers as Baffin undoubtedly was. His practical knowledge enabled him, during the passage of the Discovery through Hudson's Strait, to produce a most interesting chart on which the coast line and prominent points and islands are very accurately delineated, in fact, some of the positions on Baffin's map are even more correctly placed than on the present Admiralty Chart. A facsimile of his chart is reproduced in Mr. Clements Markham's "Life of William Baffin," published for the Hakluyt Society.

Although the Discovery was somewhat delayed during the passage through the strait by loose ice, they found that by adhering to the north side of the channel, the difficulties were materially lessened, and such good progress did they make, that by the 1st of July they succeeded in reaching the neighbourhood of Salisbury Island. On that day the Mill Islands were discovered and named by Baffin "by reason of the great extremitye and grindinge of the ice, as this night we had profe-thereof." The position of the main island of this cluster was ascertained to be in latitude 64°. During the month of June the winds were variable, but the weather was extremely fine; a steady set to the westward was experienced, for Baffin reports that the ship was set more into the strait during one flood, than two ebb tides would set them out.
This entirely accords with the experience of the majority of those who have subsequently navigated the strait.

In the vicinity of the Mill Islands, however, Baffin reports the flood tide as coming from the south-east, but this, I cannot help thinking, is an error, and north-east is really meant. He must, I think, have been sorely perplexed by the eddies and tide-rips which are well known to exist near this cluster of islands, and was, therefore, in all probability, unable to determine with his usual accuracy, the exact direction of the flood tide. He thus writes of these eddies: "The ilande or ilies lying in the middle of the channell, havinge many sounds runninge through them, with dyvers points and headlands, encountering the force of the tyde, caused such a rebounde of water and ice that unto them that saw it not is almost incredible. But our ship being thus in the pertition, betwene the eddy which runne one way, and the streame which runne another, endured so great extremetye, that unless the Lord himselfe had beene on our side we had shurely perished; for sometymes the ship was boused aloft; and at other tymes shee havinge, as it were, got the upper hand, would force greate mighty pieces of ice to sinke doune on the one side of her, and rise on the other. But God which is still stronger than either rocks, ice, eddy or streame, preserved us and our shippe from any harme at all. And I trust will still contynue his love to us, that we may performe some more acceptable servis to his glory, and to the good of our common welth."

From the Mill Islands, Baffin sailed up, what is now known as, Fox Channel. On his way he landed on a point of land on the west side, which he named Cape Comfort, in consequence of the discovery that the tide flowed from the northward, which, to use his own words "put us in great hope of a passage this way." According to his observations this cape was situated in 65° N. lat. and 85° 20' W. long., but Sir Edward Parry in 1821 determined the position of this headland as 64° 54' N. lat. and 82° 57' W. long.

On the following day Baffin's joyful anticipations of discovering a passage, received a severe and sudden check, for they found the land trending away to the north-east by east; the water also shoaled considerably; they were much hampered by ice, and there was but little tide. All these indications were unfavourable to the supposition that they were in the eagerly sought-for passage, and only too surely proved that they were in a large bay. Under these unpropitious circumstances, the hopes of finding a passage in the direction they were seeking were abandoned, and the ship's head was turned to the southward. On their way south, Seahorse Point was sighted and named by Baffin, from "the Store of Morses" which he there saw.

But little, after this, was done in the way of exploration, and on the 30th of July the Discovery commenced her homeward voyage. In four days' time she reached Resolution Island, thus showing that at that
particular time of the year there was but little, if any, ice in the Strait to impede her progress.

During the voyage, the account of which I have just related, the indefatigable Baffin took no less than twenty-seven observations for ascertaining the variation of the compass, besides the daily observations for determining the position of the ship and various points of land.

The great mistake that Baffin, and indeed all the old Arctic navigators made, was relinquishing exploration so early in the navigable season, but it must be remembered they were then unaware of what we now well know, namely, that the best months for exploring in high latitudes, when there is a minimum amount of ice, are August and September, and even in October, in spite of the short days and long nights that are experienced in the last-named month. They thought, and it is very natural they should think so, that the navigable season commenced to wane when the sun reached its greatest northern declination, and, warned by the increasing shortness of the days, and the corresponding increase of the nights, they invariably sought winter quarters or made preparations for their homeward voyage, at the very time they should have been diligently engaged in exploratory work.

In 1619 Captain Hawkridge, who had acquired a reputation as a seaman and a navigator whilst serving under Sir Thomas Button, was entrusted with the command of a ship, and despatched in search of a north-west passage via Hudson's Strait. This voyage, however, appears to have been barren of important results. It seems that the expedition sailed up the Strait, with but little hindrance from ice, as far as Charles Island, and then cruised about for some time off some coast, but where is not clearly shown. There is only a very meagre account of this expedition in existence, written by Captain Luke Fox, from information obtained at the time "by manuscript or relation."

During the same year (1619) the Danes, their attention having in all probability been directed to the recent discoveries of Hudson, Baffin, and other English navigators, also despatched an expedition, but whether the object of it was the discovery of a north-west passage, or whether it was sent out for the purpose of searching for the lost Danish colonies in Greenland has never very clearly been ascertained. The command of it was entrusted to Captain Jens Munk, and the two ships that composed it were, we are told, manned chiefly by English sailors, men who had, very likely, been engaged in the whale-fishery, or who had perhaps served in some of the many voyages of exploration that were undertaken in the early part of the century to the north-east, as well as to the north-west.

The ships sailed from Denmark on the 18th May, and sighted Cape Farewell (the south point of Greenland) on the 20th of June.

They then attempted to sail up Davis Strait, but meeting with much ice, Captain Munk steered to the westward, proceeded up Hudson's
Hudson’s Bay and Strait.

Strait, and thence into Hudson’s Bay. He gave new names to places that had already been discovered and named by previous navigators, but these Danish names have long ceased to exist on the charts. At length they reached the west side of Hudson’s Bay, and here Munk decided upon wintering in a bay which he called Munk’s Winter Harbour, and which is supposed to be one of the many bays or harbours in the neighbourhood of Chesterfield Inlet. They appear to have been wretchedly provided and equipped in every respect; long before the winter was over their provisions were expended, although they had been exceptionally fortunate in shooting several bears, besides foxes, hares, ptarmigan, and other birds before the winter set in. Scurvy also attacked them with such virulence that many died, and the survivors were so emaciated and reduced by disease as to be absolutely helpless. Famine now stared them in the face, for their provisions were all expended, and they had no strength left to organise hunting parties for their relief, although with the return of spring, animals and birds appeared in great numbers.

Captain Munk, who occupied a small hut by himself, was reduced to a similar condition, and lay weak and helpless, daily expecting, and hoping, that death would soon terminate his sufferings. At last, overcome by the cravings of hunger, he managed to crawl out, when, to his horror, he found that all his companions, the crews of both ships, save two men, had perished from the combined effects of disease and starvation. The three miserable survivors, summoning up a little courage and energy, scratched away the snow from the ground on which they lay, and finding some plants and roots, devoured them eagerly. In course of time they succeeded in catching some fish in the river, which so revived and strengthened them that they were soon after able to shoot some birds and other animals.

Eventually, equipping the smaller vessel of the two from the stores of both, and laying in a stock of provisions sufficient to take them across the Atlantic, these three men embarked and started on their homeward voyage. Passing through Hudson’s Strait with little or no difficulty, after an adventurous passage, they arrived safely at a Norwegian port on the 25th September, 1620, and were subsequently received in Denmark, as they well might be, as men risen from the grave. I will not vouch for the authenticity of this story; its genuineness has been frequently questioned; I simply give it here for what it is worth. If true, this expedition was, I believe, the first, and last, Danish one that ever ventured into Hudson’s Bay.

After the failure of the expeditions of Button and Baffin, the excitement regarding the discovery of a North-west Passage appears to have, for a time, subsided, nor does the subject seem to have been revived again until the year 1631, when Captain Luke Fox, who, somewhat conceitedly, called himself “North-West Fox,” by dint of much perseverance, succeeded in so far interesting a few London merchants, that,
backed up as they were by the powerful support of Sir Thomas Roe, Sir John Wolstenholme, Sir John Brooke, and Mr. Henry Briggs (the famous mathematician) they determined upon the despatch of another expedition.

Not only did Captain Fox persuade these gentlemen to assist him in the venture, but he also induced the two last named to present a petition to Charles I., supplicating the loan of one of His Majesty’s ships, and “for his countenance of the voyage,” and we are pleased to find that His Majesty “graciously accepted and granted both.”

A ship named the Charles, of 80 tons burden, was selected. Her crew consisted of twenty men and two boys, and she was provisioned for an anticipated absence of eighteen months. As Captain Fox informs us, in his quaintly written account of the expedition, “I was victualled compleatly for eighteen months; but whether the baker, brewer, butcher, and others were masters of their arts or professions or no, I know not; but this I am sure of, I had excellent fat beefe, strong beere, good wheaten bread, good Iceland ling, butter and cheese of the best, admirable sack and aqua-vite, pease, oatmeal, wheatmeal, oyle, spice, suger, fruit and rice, with chyrurgerie, as sirrups, juleps, condicts, trichisis, antidotes, balsons, gummies, unguments, implaisters, oyles, potions, suppositors, and purging pills, &c.” In fact, he seems to have been excellently well supplied with every requisite.

Fox sailed from Deptford on the 3rd of May, 1631, and arrived off Cape Chidley on the 20th June. He at once pushed on through the Strait, and with apparently such haste and energy as to provoke a protest from his officers, who were induced to ask him his reasons for hastening on so fast, and why he did not give them more rest. The reply was characteristic of the man: he said, “that it fared with him as with the mackerell men of London, who must hasten to market before the fish stinke.”

His description of the ice that he encountered in the Strait is so good, and so exactly coincides with my own experience of the ice in the same locality, that I make no apology for introducing it here.

He writes that the ice in the Strait consists of two kinds, one of which is “as mountainous ice, which is a huge piece, compact, of a great quantity, some of more, somme of lesse; but in this frett you seldome have any bigger than a great church, and the most thereof lesse;” this, of course, has reference to the icebergs met at the entrance, and in the eastern part, of Hudson’s Strait. He then describes, as follows, the floe, or pack, ice that he saw. “The other is smaller, and that we call masht or fleacht ice. Of this you shall there have numbers infinite, some of the quantity of a rood, some a pearch, \( \frac{1}{2} \) an acre, some 2 acres; but the most is small and about a foot or 2, or more above the water, and 8 or 10 or more under the water, and those are they which doe inclose you; so as in much wind, from the topmast head you shall hardly see any water for them, but while you lie amongst them, it is so smooth as you shall not feele the ship stirre.”
It would not be possible to give a more accurate description of the conditions of the ice in Hudson's Strait at the present day than this account furnished by Captain Fox more than 250 years ago. It exactly describes the peculiar nature of the ice that is usually met with during the navigable season in this channel, and which I have not observed in any other part of the northern regions.

Captain Luke Fox was evidently a man of humour, as the following anecdote will show. Having to reprove one of his officers publicly for showing discontent at being called up earlier than usual one morning to get the ship under weigh, he says, "I told the rest that the matter was not great, for the children did so when they were awaked out of their sleep." He goes on to say that "this fayre dayes west wind blew cold and uncouth from out the passage [meaning probably the north-west passage that he hoped to discover]. Wee are all upon kind tearmes, drinking one to another. God hold it. This morning (July 3) the sunne lickt up the fogges dew, as soon as hee began to rise, and made a shining day of it; I cannot say hot, it being counter-cheet by a coole top-sayle gale from west north west, which made our noses runne."

Fox, apparently, experienced but little opposition from the ice during his passage through the Strait, for in about three weeks after entering it he was in the vicinity, or had already passed, Cape Diggles, Nottingham, and Mansel Islands. On the 21st July he was off Cary's Swan's Nest, thence sailing along the north-west coast of Hudson's Bay, he discovered an island which he named Sir Thomas Rowe's Welcome.

This name was subsequently applied, not only to the island originally so called, but also to the strait, or channel, in which it is situated, and which is now invariably alluded to as "The Welcome."*

From the Welcome, in accordance with his written instructions, Fox sailed to the south-west, in order to search for the passage which was supposed to exist south of the 63rd parallel. On his way he discovered an island, which he called Brooke Cobham, and a small group of islands adjacent which he named "Brigges his Mathematickes," after the two gentlemen who were mainly instrumental in presenting the petition to Charles I.

On the 2nd of August he was off an island which he assumed to be the Hopes Check'd of Sir Thomas Button, and on the 10th he entered the Nelson river, where he anchored in a snug berth that afforded the necessary facilities for refitting his ship, and for constructing a small pinnace that had been brought out in pieces from England.

Here he found, and restored, a cross that had been put up in 1612 by Button, as a symbol of his having taken possession of the land.

After leaving the Nelson river, Fox sailed along the coast to the southward, meeting on the 30th August the Maria, which ship had that

* This island was, in all probability, that to which the name of Ne Ultra was given by Sir Thomas Button.
year been despatched by the merchants of Bristol, under the command of Captain James, also for the purpose of discovering a north-west passage. This was the first meeting of the two ships, although they had been very close to each other on several occasions in the Strait, and also off Resolution Island, without, however, being aware of it. They remained in company for a day, exchanging visits, &c., when they separated, Fox continuing his course to the southward. In latitude 55° 14’ he was in sight of land, which he named “Wolstenholme’s Ultima Vale,” and then, having made up his mind that no prospect offered of discovering a passage between latitude 65° 30’ and 55° 10’, he steered to the north-east. This was on the 3rd of September, when the days were already becoming perceptibly shorter, and the navigable season drawing to a close.

On the following day he discovered an island in latitude 57° 55’ which he named “The Sleepe.” On the 7th he saw the “Cary’s Swan’s Nest” of Button, and the next day he sighted Cape Pembroke in latitude 62° 23’.

Thence shaping a course to the north-east, he discovered and named two points of land, respectively, Cape Linsey and Point Peregrine. On the 14th he was off Seahorse Point, and saw the Mill Islands the following day; he appears to have taken the ship through some channel or strait, to the westward of these islands, to which he gave the name of “Hurin’s Through-let.”

In this neighbourhood he remained for three days, when he continued his course northwards, naming two prominent headlands “King Charles his promontory” and “Cape Maria,” the former in latitude, by estimation, 64° 46’, and the latter in 65° 13’.

Three islands to the northward of King Charles Promontory were called the Trittie Islands, and a fourth was named Isle Cooke.

On the 20th September, a headland was passed in latitude 65° 50’, to which Fox gave the name of Lord Weston’s Portland, and on the 22nd he reached a point, which he places in latitude 66° 47’, where, he says, the land trended south-east, and to which he gave the name of “Fox his farthest.”

Here Fox having, from observations taken, arrived at the conclusion (subsequently ascertained to be an erroneous one) that the flood tide came from the south-east, and that there was, in consequence, no hope of a passage in that direction, and as several of his men were attacked by scurvy, resolved to discontinue further research and to sail for England. He, like his predecessors, imagined that the navigable season in high latitudes terminated in August, although his own experience ought to have convinced him that such a reasoning was fallacious, for it was not until late in September that he decided to return, up to which time his progress had been but little impeded by ice; indeed the word ice, as an obstacle to navigation, does not even appear in his narrative during the entire month of September. He was, however, evidently appre-
hensive of being caught by the winter, and although he does not mention seeing ice in large quantities, he writes, as his reason for relinquishing further exploration, that "the weather had beene for about 3 weekes before, nothing but snowe, frost and sleet at best, ourselves, ropes and sayles froaze, the sun seldom be seene, or once in five dayes, the nights 13 hours long, the moone wayning. And in conclusion, I was enforced either to seeke for harbour, or freeze to death in the sea." This was rather an exaggerated view to take of his position, although it is one that we cannot blame him for accepting, but we now know that the months of September and October, in spite of the indisputable fact that the days are getting shorter and the temperature decreasing, are the best months for navigating the Strait, as it is then practically clear of ice.

In connection with the decision arrived at by Fox with regard to the tides, Sir Edward Parry, an unquestionable authority, writes:—"There can be little doubt that this irregularity is principally occasioned by a meeting of the tides hereabouts, for there is tolerable evidence of the flood coming from the northward down the great opening leading to Fox's Farthest, and which I have called Fox's Channel. This tide meeting the rapid stream which sets from the eastward, through Hudson's Strait, must of necessity produce such a disturbance as has here been noticed."

Further on, Sir Edward writes:—"Baffin particularly insists on this being the case (viz. the northerly set of the tide down Fox's Channel) both near Trinity Islands and off Southampton Island, and I think, notwithstanding a contrary opinion held by Fox and Gourin, our observations of the tides in this neighbourhood, and subsequently at Winter Island seem to confirm those of Baffin."

There is yet much to be learnt regarding the direction and force of the tides, in the regions that are situated immediately to the northward of Hudson's Bay, and also in Hudson's Strait itself. Later experience, however, goes very largely to prove that Sir Edward Parry's deductions, based on observations made during a sojourn in the neighbourhood of three summers and two winters, were correct, and that Fox's conclusions were erroneous.

Although Fox had abandoned all hopes of discovering the North-west Passage, he continued his explorations during the return journey, and did not fail to name several promontories, headlands, islands, &c., in his quaint fashion.

Standing to the south-east on the 22nd September, he discovered a headland and named it Cape Dorchester. Passing Baffin's "Prince Charles's Foreland," he observed a "faire sound," to which he gave the name of "The Prince his cradle," whilst an island situated to the westward was called "The Prince his nurse."

A headland, E.S.E. ten leagues from Prince Charles's Foreland, he
named Cape Dorset, whilst another cape three leagues further to the eastward he called Cape Cooke. Between these two last-named capes, in a deep bay, he named an island Isle Nicholas.

Capes Linsey, Portland, Dorset, and Dorchester were named after the Lords Commissioners of the Admiralty, * Nicholas Island was called after the Secretary of the Admiralty, whilst two islands in the vicinity of Queen's Cape, were named respectively Sackfield and Crowe, after Sir Sackfield Crowe, late Treasurer of the Navy.

On the 27th September, only five days after reaching his furthest position, so little were his movements hampered by ice, he passed through the Strait and was off Resolution Island, and on the 31st October, the Charles reached England.

Captain Fox concludes his narrative in the following words:—"The 31, blessed be Almighty God, I came into the Downes, with all my men recovered and sound, not having lost one man nor boy, nor any manner of tackling, having beene forthe near six months. All glory be to God."

Captain Fox's voyage, in spite of the sneers and sarcasms that have been levelled at it by modern writers, added greatly to the scant geographical knowledge that was then possessed of Hudson's Bay, Strait and adjacent waters, and whatever may be said of his conceit and quaintness, there is but little doubt that he was a skilful sailor, a keen observer, and an energetic and enterprising explorer.

I have given the narrative of this voyage, together with those of Hudson and Baffin, in some detail, because I regard these men as being essentially the pioneers of geographical discovery in Hudson's Bay, for they did more towards the exploration of that region, than has subsequently been performed by later navigators. I shall not allude at such length to the doings of their successors.

The merchants of Bristol, not to be behind those of London in their praiseworthy endeavours to accumulate wealth by geographical discovery, also despatched a ship named the Maria of 70 tons, for the purpose of searching for the North-west Passage through Hudson's Strait. She was commanded by Captain James, and sailed out of the Severn on the same day that Captain Fox left the Thames in the Charles, namely the 3rd of May, 1651.

Of the antecedents of Captain James, little or nothing is known, prior to his being selected by the Bristol merchants to command this expedition. He does not, however, appear to have been a man fitted for the conduct of such an enterprise, being, from all accounts, devoid of skill, energy, and judgment. After being nearly destroyed by the ice off Cape Farewell on the 6th of June, the Maria reached Resolution Island on the 24th, but in consequence of striking on a rock, and being much hampered

* In 1628 the office of Lord High Admiral had been placed in commission, for the first time in our history.
by ice, it was not until the middle of July that the vicinity of the Digges Islands was reached.

The account of getting the ship off the rock is thus described: "We made fast cables and hawsers aloft to the masts, and so to the rocks, straining them taut with our tackles; but as the water ebbed away, the ship was turned over, that we could not stand in her. Having now done to the best of our understandings, but to little purpose, we went all upon a piece of ice, and fell to prayer, beseeching God to be merciful unto us." The following general advice to those navigating Hudson's Strait is gratuitously given by Captain James, by which his capacity as an explorer may fairly accurately be gauged: "I advise no one to come near those dangerous shores, for fear he lose his ship." Comment on such advice is unnecessary.

On the 16th of August they were off Port Nelson, whence steering a south-easterly course they sighted a cape on the 2nd of September in latitude 55° 5', which was named Cape Henrietta Maria.

Prior to this, on the 30th, as already related, they sighted and communicated with the Charles, under Captain Luke Fox, with whom they remained in company for seventeen hours.

On the 12th of September they again contrived to run the ship on shore off the coast of America, in latitude 52° 30'. Eventually, after numerous perils, the result of ignorance and inexperience, they reached an island, subsequently named Charlton Island, in latitude 52°, where they decided upon wintering.

The hardships and privations that were endured by these unfortunate people were most appalling. Nothing seems to have gone right, and a most dismal account is given of the manner in which the winter was passed. Indeed the whole narrative is replete with complainings of the sufferings they were subjected to.

As it was impossible, from the position and leaky condition of the ship, to live on board, a house was constructed with much labour and difficulty on shore, in which they passed the winter, but even here their troubles ceased not, and on one occasion, through negligence or carelessness, their house was nearly destroyed by fire.

A curious story is related of the gunner of the ship, who was so seriously injured on the 21st of August as to necessitate the amputation of one of his legs. The poor man lingered until the 22nd of November, when he died, and was committed to the deep at some distance from the ship. On the 18th of May, six months after the committal of the body to the sea, the master who, it is related, "was looking about him, discovered some part of our gunner under the gun-room ports. The 19th, in the morning, I sent men to dig him out. He was fast in the ice, his head downwards and his heel upwards, for he had but one leg; and the plaister was yet at the wound. In the afternoon they had digged him clear out, and he was as free from noisomeness as when we first committed him to the sea. This alteration had the ice, and water, and time only
wrought on him, that his flesh would slip up and down upon his bones like a glove on a man's hand."

In February, to add to their miseries, scurvy broke out, and reduced them all to a very helpless condition.

It is needless to follow them through all their sufferings during a long and hard winter; suffice it to say, that they succeeded in breaking out of winter quarters during the first week in July, and eventually, without any further adventures worth mentioning, they reached Bristol on the 23rd of October.

It would not be amiss to wind up the narrative of Captain James’s expedition with the following quotation from his journal, and the accompanying lines, which were inspired by his poetical muse on visiting, for the last time, the graves of the men belonging to the Maria, who died during the winter at Charlton Island.

"July, 1632. I (Captain James) went to take a look at our dead. I uttered these lines, which, though they may procure laughter in the wiser sort, they yet moved my young companions with some compassion:

"I were unkind, unless that I did shed
Some tears before I part from our dead.
And when my eyes be dry, I will not cease
In heart to pray their bones may rest in peace.
Their better parts (good souls) I know were given
With an intent they should return to Heaven.
Their bodies they spent to the last drop of blood
Seeking God's glory and their country's good.
So have they spent themselves, and here they lie—
A famous mark of our discovery.
We that survive, perchance may end our days
In some employment merit no praise,
And on a dunghill rot, where no man names
The memory of us, but to our shames.
They have outlived this fear, and their brave ends
Will ever be an honour to their friends.
The winter's cold that lately froze our blood
Now, were it so extreme, might do this good,
To make these tears bright pearls which I would lay
Tomb'd safely with you, till Doom's fatal day.
So grieved, I kiss your graves and vow to die,
A Foster-father to your memory.

"We cast from shore that afternoon, and I never saw that dreary island of our discovery again."

Captain James's narrative, which was published at some length, has very aptly been described by Sir John Barrow as a "book of lamentation and weeping and great mourning"—a better description of it is impossible. The result of the expedition in a geographical, or other scientific point, was practically nil; from first to last it was a sadly mismanaged affair, and need not further be alluded to.
The failure of Fox and James to discover a North-west Passage seems, for the time, to have been accepted as conclusive evidence of the non-existence or, at any rate, the impracticability of a route being found through Hudson’s Bay to the Pacific, and no further attempts were made until the year 1668, when the enterprising and energetic Prince Rupert, supported by a number of wealthy men, obtained by charter from King Charles II. the rights and privileges over all lands that might be discovered in the neighbourhood of Hudson’s Bay. This charter is dated 2nd May, 1669, and, although its contents have recently been questioned, it practically remains in force at the present day. It was granted to the “Governor and Company of Adventurers of England trading in Hudson’s Bay,” and the formation of this company was, in reality, the nucleus of what afterwards became the rich and powerful corporation known as the Hudson’s Bay Company. By the terms of this charter, the company obtaining it became possessed of that enormous tract of country which has been known generally as the Hudson’s Bay Territory, and which stretches from the Atlantic to the Pacific, and from the shores of the Polar Sea to the 50th parallel of latitude. It was given to the Company and their successors in perpetuity, for “the sole trade and commerce to Hudson’s Bay and Straits, with territorial rights and jurisdiction over all the land and countries on the coasts and confines of the same, which were not actually possessed by the subjects of any other Christian prince or state, to be reckoned and reputed as one of the British plantations or colonies in America under the name of “Rupert’s Land.”

It is, I believe, an incontrovertible fact that France, long before the issue of this charter, in about 1598, laid claim to those vast regions in the immediate neighbourhood of Hudson’s Bay, and letters patent were granted by Henry IV. of France to a M. de la Roche, appointing him lieutenant-governor over the countries of Canada, Hochelaga, Labrador, and the river of the great bay of Norrembegue, &c., and the country was in actual occupation by the French, but there is no record of their having regularly established themselves on the shores of Hudson’s Bay, although the region was undoubtedly visited, and traversed in various directions, by French voyageurs.

Mr. Fitzgerald, in his work on the Hudson’s Bay Company, says that the French Fur Company of Quebec, established forty years before the Hudson’s Bay Company, appears to have traversed the whole of the country which the Hudson’s Bay Company now claims. For many years, when the English Company never ventured to leave the shores of the Bay, when their establishment consisted of only four or five insignificant stockaded posts on its shores, the voyageurs of the French Company were travelling over the whole of the country, north-west of the Canadas as far, it is said, as the Saskatchewan river.

Among these adventurous travellers was an enterprising Frenchman
named de Grosseliez, who, foreseeing the great advantage that might be gained by trading on a large scale with the natives of the Bay region, prevailed upon some of his countrymen to join with him in the equipment of a ship, provided with the necessary articles for trade, in which he would himself proceed to Hudson's Bay from Quebec. He appears to have experienced but little difficulty in sailing through the Strait, although it was somewhat late in the season before he reached the Nelson river. Here, whilst looking for game and searching the country generally, some of his men reported that they had discovered an English settlement, which M. de Grosseliez immediately determined to attack and capture.

On approaching the spot indicated, a small solitary hut was seen, in which were found half-a-dozen starving wretches on the verge of death, suffering from disease and famine.

The tale they had to relate was a piteous one. They stated that they had formed part of the crew of a Boston vessel, and that they had been despatched from her for the purpose of selecting a suitable place in which the ship could be secured for the winter. Whilst engaged on this duty, the ship had been blown off by a storm, and had not since been seen by them. They were left with hardly any provisions, and would undoubtedly have perished, had they not been rescued and succoured by the French.

Having explored the country in the neighbourhood of the Nelson river, de Grosseliez sailed for Canada, leaving his nephew and five men to pass the winter in Hudson's Bay. Being unsuccessful in his attempt to induce his countrymen, either in Canada or in France, to co-operate with him in his endeavours to establish a settlement on the shores of Hudson's Bay (the account given of the climate by Captain James being in all probability the principal cause of the indifference displayed), he, at the instigation of Mr. Montague, the English Minister at that time in Paris, sought an interview with Prince Rupert, who immediately engaged him to go out in one of His Majesty's ships, not only with the view of trade, but also with the object of discovering a North-west Passage.

The ship selected for this service was the Nonsuch, and Captain Zachariah Gillam was appointed to the command, with instructions to take de Grosseliez to Hudson's Bay, and to explore to the northward. Sailing in the summer of 1668, they claim to have reached the latitude of 75° in Davis's Strait, but there is nothing that I can find on record to substantiate such a statement.

The Nonsuch then passed through Hudson's Strait, and entering the bay, sailed to the southward, where she passed the winter at the south extreme of James's Bay, in Rupert's River. Here Fort Charles was established. This appears to be the first English fort, or settlement, formed in Hudson's Bay, and was, therefore, the beginning of the
Hudson's Bay Company. Captain Gillam may, in consequence, be regarded as the pioneer and founder of what eventually became an influential and powerful corporation. Little else appears to have been done by the expedition, and the Nonsuch returned to England in 1669.

From this date, for a period of fifty years, no interest appears to have been taken in geographical research in the region of Hudson's Bay, although the Company's ships were frequently employed in making the voyage from and to England. In the year 1719, at the instigation of a Mr. Knight, an official in the Hudson's Bay Company, an expedition consisting of two ships, named the Albany and Discovery, was despatched by the Company, partly for the purpose of discovering a North-west Passage through the Straits of Anian to the South Sea, but more, I think, with a view of discovering a rich mine of native copper, which the Indians reported to exist to the northward.

Captains Barlow and Vaughan were appointed, respectively, to the command of the Albany and Discovery, but they were also accompanied by Mr. Knight, who, it is said, was, at the time, nearly eighty years of age.

They sailed from Gravesend in 1719, but as three years elapsed without receiving any tidings of them, the Hudson's Bay Company despatched one of their ships, the Whalebone, in quest. She sailed from Churchill on the 22nd June, 1722, under the command of Captain John Scroggs. There is but a very brief account of the proceedings of this cruise extant. The ship appears to have reached the latitude 64° 56', when they anchored under the lee of a promontory, to which the name of Whalebone Point was given. The land from this point trended to the southward of west, and the rise and fall of the tide was observed to be 30 feet. They do not appear to have troubled themselves very much about searching for their missing countrymen, their minds apparently being more fully occupied in endeavouring to discover the locality of a rich copper-mine, the existence of which had been brought to their knowledge by some Indians. They returned to Churchill the same year, without having achieved anything of interest or importance.

It was not until 1767 that the melancholy fate of those in the missing ships Albany and Discovery was ascertained.

During that year, some of the boats of the Hudson's Bay Company were engaged in the whale fishery as far north as Marble Island, when they discovered, in a harbour near the east end of the island, a number of guns, anchors, and other ships' stores. The ruins of a house were also found, whilst the remains of the hulls of two ships were seen under water. From the articles found, and also from information obtained from the Eskimos, but little doubt remained that these were the vessels commanded by Barlow and Vaughan, who, with their unfortunate crews, had all perished from scurvy or starvation.

The next important expedition that was despatched for the exploration of Hudson's Bay, was that commanded by Captain Middleton, which left
England in 1741. It consisted of the Furnace bomb, and the Discovery pink, the latter commanded by Mr. William Moor.

The despatch of this expedition was due entirely to the exertions of a Mr. Arthur Dobbs, who prevailed on the Admiralty to allow the Furnace, a ship of the Navy, to be appropriated for the service. The first winter, through some unavoidable detention, was passed at Churchill. Thence they sailed on the 1st July, 1742, and proceeding northwards, sailed up the Welcome, until they reached the entrance of the Wager river in latitude 65° 23'. After vainly searching for a passage for some days, they stood to the southward and eventually sailed for England. This expedition, like so many of the preceding ones, was also barren of results. On its return to England a long and acrimonious controversy was carried on between Mr. Dobbs and Captain Middleton, regarding the direction of the tides and other matters, the former accusing Captain Middleton of having acted treacherously, and for having given a false account of his proceedings; and even for having been largely bribed by the Hudson’s Bay Company not to make any discoveries.

The Admiralty called on Captain Middleton to reply to these charges, which he did at some length, but he does not appear to have done so to the satisfaction of their lordships.

In the year following, viz. 1743, an Act of Parliament was passed, offering a reward of 20,000l. for the discovery of a North-west Passage.

Stimulated by this reward, a company was formed which succeeded in raising, by subscription, a sum of 10,000l., divided into 100 shares of 100l. each.

Two vessels were purchased, the Dobbs galley, of 180 tons burden, and the California, of 140 tons. Captain William Moor, who had sailed with Middleton in the previous expedition, was selected for the command, and Captain Francis Smith was appointed to the California.

The account of this expedition is related by Mr. Henry Ellis, who, although a seaman, accompanied it in the capacity of agent. Elaborate instructions were drawn up for their guidance, and they sailed from Yarmouth on the 31st May, 1746. Resolution Island was reached on the 8th of July, and although they encountered but very little ice at the entrance to the Strait, their progress was subsequently considerably hindered by it. On the 2nd of August they passed Digges Islands, and then shaped a course for the west side of the Welcome, but being under the impression that the season was too far advanced for further exploration, they proceeded to York Factory, which they reached on the 26th August.

Here, in spite of the inhospitable protestations and incivility, to use no harsher term, of the Hudson’s Bay officials, they passed the winter, having hauled the ships into Hayes river. Huts were built on shore in which the officers and men were accommodated. During the winter they were attacked with scurvy, produced in all probability by an inordinate
use of spirituous drinks, for they appear to have been only too well supplied with brandy and beer.

On the 24th June, the ships left York Factory, and proceeded to Marble Island, where they remained comfortably at anchor, whilst a boat, specially fitted for the purpose, was sent to explore, but without any important results. Further exploration was relinquished in August, and the ships proceeded to England, passing Resolution Island on the 9th of September, without hindrance from ice in the Strait.

Regarding the alleged dangers and difficulties in navigating Hudson's Strait, Mr. Ellis writes—"We know that this navigation is far from being so perilous, as it is represented; and it will be shown that there are very good grounds to expect that this passage (viz. the North-west Passage) is not either narrow or encumbered with ice, but may be both passed and repassed in the compass of the same summer."

Captain Middleton also makes light of the difficulties of getting through the Strait; he writes, "We make no account of conquering the current, fogs, &c., in Hudson's Bay and Straits. As to observing the latitude in foggy seasons, I have seldom missed two days together."

In 1748 a Mr. Wales was sent to Churchill by order of the Royal Society.

He reached Resolution Island on the 23rd of July, and saw many icebergs, but had no difficulty in getting through the Strait, and was actually off Cape Churchill on the 7th August. He sailed from Churchill on the same day the following year, and reached England on the 11th of October. He was only nine days going through the Strait, during which time they met with no ice to interfere with their progress, but were much delayed by contrary wind and calms.

During the whole of the eighteenth century, vessels belonging to the Hudson's Bay Company made annual voyages to and from England, to York and Moose Factories. It was very rarely that they failed to make the voyage, and but few of their ships were lost.

One of the masters in the Company's service, a Captain Coats, who had been many years employed in the service, wrote a very practical and interesting treatise in 1750, which he named the Geography of Hudson's Bay. This has, within the last few years, been reproduced by the Hakluyt Society. It contains very clear and concise sailing directions for vessels navigating the Strait and Bay.

In 1791, at the instance of the Governors of the Hudson's Bay Company, a vessel called the Beaver was fitted out, and sailed from the Thames on the 2nd of May, with the object of discovering the North-west Passage, round the north-eastern extremity of America, by proceeding up the Welcome. The command was entrusted to a Mr. Duncan, a master in the Royal Navy. He is reported to have encountered much ice in Hudson's Strait, which so delayed him that it was not until the 5th of September that he reached Churchill, where he passed the winter.
They left on the 15th July the following year, and sailing up as far as Chesterfield Inlet returned again to Churchill in August, the crew having mutinied and refused to go any further. It is said that they were encouraged in their rebellious attitude by the first mate, who was an officer of the Hudson's Bay Company.

This was the last expedition undertaken for geographical discovery in the region of Hudson's Bay, until the one sent out by the English Government in 1821, commanded by the late Sir Edward Parry. This was followed in 1824, by that under Captain Lyon in the Griper, and, twelve years after, by the one despatched under the command of the late Sir George Back.

The events of these three memorable voyages are matters of history, and are so well known that it would be superfluous on my part even to give, in the very briefest detail, an outline of the work performed by them. I shall therefore content myself with a simple reference to what has been written by the distinguished officers who commanded those expeditions as bearing on the navigation of Hudson's Strait.

The ships under Sir Edward Parry, it will be remembered, were the Fury and Hecla. Much ice was encountered at the entrance of Hudson's Strait on the outward journey, and nearly the entire month of July was occupied in getting through; but the delay was occasioned as much by adverse winds and calms as by the ice. On the 21st July, Parry writes, "bodies of ice became less and less numerous as we advanced up the Strait from Resolution Island, and none were seen after we had proceeded a few leagues beyond the Upper Savage Islands." On the 25th, he reports "the sea almost free from ice." On the 26th, "saw no ice this day, except a few streams here and there." On the 27th and 28th he writes:—"Ice in great quantities, but the pieces so loose as easily to allow the passage of a ship with a free wind. This ice was so honeycombed and rotten that it appeared in a fair way of being entirely dissolved in the course of a few weeks." This was, in all probability, ice that had drifted down through Fox Channel? The weather on the whole was fine and clear, only four foggy days being recorded during the month of July.

During the return journey of the Fury and Hecla, they were only five days, namely, from the 17th to the 23rd September, passing through the Strait, during which time no ice whatever was to be seen.

Regarding the best time for navigating the Strait, Sir Edward Parry says:—"Long experience has brought those who frequent this navigation to the conclusion that in most seasons no advantage is to be gained by attempting to enter Hudson Strait earlier than the first week in July, the annual disruption of the ice, which occupies the upper and middle parts of the Strait, being supposed not to take place till about this time. In the course of our single year's experience in these parts, we have seen nothing to recommend a practice different from that at present pursued."
by the ships of the Hudson's Bay Company." I cordially concur with every word in this quotation, for it exactly corresponds with my own experience and my own views; but the fact must not be overlooked that this advice is addressed to those who attempt the navigation of the Strait in sailing ships. Steam has made a great revolution in ice navigation. A well-found steamer is able to make her way with ease through the ice in Hudson's Strait in June and July, when a sailing ship would be hopelessly beset, and incapable of pushing on. With regard to the practice pursued by the ships of the Hudson's Bay Company, alluded to by Sir Edward Parry, it stands to reason that the captains of those ships would naturally delay their passage across the Atlantic, so as not to reach the Strait before July or August; for they were well aware that every extra day spent on the passage was a day nearer the disruption of the ice. Their experience told them that a policy of waiting was the wisest, when the chances would be more in their favour of getting through without hindrance from ice.

In 1824 Captain Lyon, in the Griper, passed through the Strait in fourteen days, namely, from the 6th to the 20th of August. He sighted some loose heavy ice off Resolution Island, but otherwise experienced no difficulty in getting through. On his homeward journey no ice whatever was seen in the Strait, and he averaged, in his dull old bluff-bowed sailing ship, 150 miles per diem, as he passed through, from Cape Wolstenholme to Resolution Island.

During Sir George Back's memorable and eventful voyage in the Terror, in 1836, he encountered much ice in the Strait. But this appears to have been an exceptionally bad ice year. Still he was not more than a fortnight in getting through, namely from the 1st of August, when he was off Resolution Island, to the 14th, when he passed Nottingham Island. His course was then directed up Fox Channel, where his ship was closely beset by heavy ice, in which, helplessly drifting at the mercy of the winds and currents, he was compelled to pass the winter. During a period of six months, the ship drifted 234 miles in a generally south-eastern direction. It is almost impossible for us to conceive, much less to describe, the anxiety that must have been experienced by those on board the Terror during those long dark months, when officers and crew were, it may truly be said, momentarily expecting the destruction of their floating home. It was only by the merciful dispensation of an all-wise and protecting Providence that their ship survived the terrible injuries that were inflicted on her by the ice, and she succeeded in making one of the most miraculous voyages on record across the Atlantic. The principal object of this expedition was the delineation of the northern boundary of the North American Continent, or, in other words, to connect the discoveries of Sir John Franklin from Point Turnagain, to those of Sir Edward Parry in Prince Regent's Inlet, but this was unfortunately frustrated by the ice in Frozen Strait.
Although the amount of geographical information obtained was not very great, yet the voyage was exceedingly instructive as showing the general drift of the ice down Fox Channel into Hudson's Strait.

The account of the Terror's voyage home embraces one of the most thrilling stories of sea adventure that has ever delighted the readers of this country. When all hope of saving the ship and the lives of the crew had almost died out in the breast of the Captain, the coast of Ireland was sighted; Captain Back then succeeded in running the Terror on shore off Buncrana, in Lough Swilly. The men were harassed and worn out by their exertions in keeping the ship afloat, and the vessel herself, leaking like a sieve from the injuries she had sustained in the ice, was only held together by the stream cable being passed round the after part, and so binding her timbers and planking together.

This was the last Government expedition, having geographical research solely for its object, that entered Hudson's Bay. But its waters have been, year by year, navigated by the ships of the Hudson's Bay Company. These vessels were annually despatched from England to York and Moose Factories, at the rate of two, and sometimes three, per annum.

They rarely failed to reach their destinations, for arranging, as they invariably did, to reach Hudson's Strait on their outward voyage in about the first week of August, they experienced but little difficulty from the ice. On their return voyages in September and October, they always found the Strait comparatively clear.

I have in my possession an official record of the voyages out and home, of the Hudson's Bay Company's ship, Prince Rupert, for a period of eleven consecutive years, namely, from 1835 to 1846 inclusive. I find that the average time of getting through the Strait, on the outward voyages during this period (and it must not be forgotten that the Strait is 500 miles in length) was 16 days. The longest time was 31 days (probably an exceptionally bad ice year). The shortest time was eight days; the delays in getting through the Strait were invariably caused by calms and adverse winds, and not by the ice. On the homeward passages, no difficulty was experienced from ice in the Strait, and the vessels usually reached London in about five weeks after leaving York Factory. The earliest date for sailing from York Factory was the 6th September, and the latest the 3rd of October. In the latter case the Prince Rupert was 38 days on the passage to London; so that it is impossible she could have had any serious detention from ice in the Strait.

It must be remembered that this vessel, and all others then employed by the Hudson's Bay Company, were sailing ships, dependent entirely on wind as the motive power by which progression could be made. Without wind they were helpless; with a foul wind their progress was of course proportionately slow. Wind, therefore, was a matter of great importance in those days, when a vessel was endeavouring to make way
through fields of loose ice; for when the wind falls, the ice invariably loosens, or, as the technical expression is, "goes abroad;" But in such a case, as there is no wind, the unfortunate sailing vessel, being deprived of its only propelling force, is unable to take advantage of the ice being loose to push on. On the other hand, when a breeze springs up, which on ordinary occasions would possibly enable her to make good way, the wind has the effect of packing the ice, thus rendering progress nearly impossible.

Steam has now, however, effected a complete revolution in ice navigation, and the most advantageous time for pushing on is, of course, in calm weather, when the ice is loose. Under similar conditions a sailing vessel would be utterly helpless. It is, therefore, only reasonable to infer that what has been performed regularly, and year after year, for more than 200 years, by wretchedly equipped and ill-found sailing ships, can be accomplished with greater regularity and certainty, by well-found steamers, specially constructed for ice navigation and provided with powerful machinery.

A channel which has been navigated for 270 years, first by the frail little fly-boats of the seventeenth century, then by the bluff-bowed, slow-sailing, exploring vessels of Parry's days, and for a long period by the Hudson's Bay Company's ships, cannot be very formidable, and if sailing ships can annually pass through it, à fortiori, steamers will find less difficulty in doing so. But it would, of course, be necessary that such steamers should be specially built and equipped for the service, and it is desirable that despatch should be used in making the voyage.

The nature and consistency of the ice in Hudson's Strait (which will be more fully described further on) are such that, with an efficient steamer, the passage could be accomplished with very little delay or difficulty.

This being the case, it is not surprising to hear that the people of the North-west are to have a seaport on the shores of Hudson's Bay, and to secure the construction of a railroad to connect such a port with Winnipeg or some other equally convenient depot on the newly established line of the Canada and Pacific railroad.

The achievement of such an undertaking would result in shortening the distance that the produce of the country, destined for exportation, would have to be transported by one-half! As the cost of transport by rail is governed by the distance that goods, or passengers, have to be conveyed per mile, it will be at once understood that if the mileage is reduced by one-half, the cost of conveyance will also be diminished in the same proportion. It has been estimated that the result of the construction of a railroad from Winnipeg to Hudson's Bay, would be a clear gain to the farmers and producers of the North-west, of about 3½ per head on all cattle exported, and 5s. upon every quarter of grain sent for shipment.
These are large items in the profit and loss accounts of those immediately concerned; therefore it is not surprising to hear that the feeling in Manitoba is unanimous in the desire for the immediate construction of a railroad.

What, then, is to prevent the realisation of their wishes, if such pecuniary benefit to all concerned is to be derived from the undertaking? There must be some good reason for not carrying out the work at once, otherwise it would long, ere this, have been commenced.

The serious, in fact the only, obstacle to the establishment of a seaport in Hudson's Bay is, and has been, the supposed formidable character of the ice that it was thought would have to be encountered in Hudson's Strait, and the limited duration of the navigable season.

These were the knotty questions that had to be solved satisfactorily, before action in the desired direction could be taken.

Monopolists, and persons interested in other routes, represent the difficulties offered by the ice in Hudson's Strait as fatal to the success of the project. The question is a purely geographical one, its solution depends on physical considerations, and the controversy is, therefore, a clear gain to the science of geography.

In order to obtain full and accurate information on these important points, the Dominion Government of Canada, with commendable energy, and a praiseworthy determination to solve the long-disputed problem as to the practicability of navigating the Strait annually, resolved upon despatching a vessel for the purpose of establishing stations on both sides of Hudson's Strait, at which continuous daily observations could be taken and recorded on the weather, tide, temperature, condition and movements of the ice, and other facts connected with the meteorology of that region, for a period of at least twelve consecutive months.

With these objects in view, the *Neptune*, a steamer that had been built for, and employed in the sealing trade, was chartered and despatched in the year 1884.

She was in every way admirably adapted for the work she was required to perform, having been specially constructed for ice navigation.

Her voyage was eminently successful; she experienced but little difficulty in passing through the Strait, and she succeeded in establishing stations at the following places:—One named Port Burwell near Ungava Bay, on the south side of the Strait, close to the entrance. Another in the vicinity of the Upper Savage Islands, at Ashe Inlet. Another was immediately opposite, on the south side of the Strait, called Steepart Bay. The fourth was on Nottingham Island; and a fifth was established on one of the Digges Islands, at the opening into Hudson's Bay.

An observer, with a couple of attendants, was placed in charge of each of these stations, with a supply of provisions to last over twelve months.

In the official report of the voyage of the *Neptune*, whilst engaged on
this service, her commander states that had he been making the passage
direct to Churchill, instead of coasting and visiting specially-selected
places on both sides of the Strait, he is of opinion that he would not
have been delayed by ice for more than about forty-eight hours! On
the homeward voyage there was no delay whatever in the Strait, no
field ice having been encountered.

The Neptune can, I believe, fairly lay claim to the honour of having
been the first steam vessel that has ever crossed the waters of Hudson’s
Bay.

On the return of the Neptune to Halifax, steps were immediately
taken to secure the despatch of a vessel to Hudson’s Strait the follow-
ing year, for the purpose of visiting and relieving the stations established
there. In order to assist the Canadian Government in their praise-
worthy endeavours to obtain reliable and accurate information regarding
the navigation of the Strait, and we will hope also as a recognition of
their appreciation of the service that was being carried out, the Imperial
Government of England placed H.M. ship Alert, a vessel which had
already gained a reputation for herself in Arctic research, at their
disposal. She was officered and manned by the Canadian Government,
and sailed from Halifax in the early part of June, 1885.

She reached the entrance to Hudson’s Strait on the 16th June, but
through some mismanagement, or want of experience in ice navigation
on the part of those who were occasionally entrusted with the charge of
the ship, she was allowed to be beset by the ice. No advantage appears
to have been taken of her steam power to extricate her. In fact, the
reverse seems to have been the case, for in the official report of this
voyage we read that, instead of utilising the power that was at their
disposal to release her from her imprisonment, they “banked the fires and
left the ship to pull under a fore-topsail and foretop-staysail.” I am
simply quoting the official report!

The “pull,” however, does not appear to have been in the desired
direction, or, if so, it was misapplied, for we learn that shortly afterwards
the stem of the ship was so seriously injured by coming into contact
with the ice, that it was considered, not only desirable, but necessary to
return to the southward, and they put into St. John’s, (Newfoundland),
in order to effect the requisite repairs.

These were, however, easily and speedily executed, and by the first
week in August the Alert was again in Hudson’s Strait. The next few
days were employed in visiting the stations established the previous
year, which was done without much difficulty, and on the 31st of the
same month the Alert reached Port Churchill, having spent a few days
at each station.

Her work being accomplished, she sailed for Halifax, meeting no ice
whatever during the return journey, although it was the 7th of October
before she was clear of the Strait.
The reports obtained from the different stations regarding the presence and conditions of the ice in the Strait, supplemented as they were by those received from the *Neptune* and *Alert*, were, on the whole decidedly satisfactory, in so far as they bore on the question of the safe navigation of Hudson's Strait during a certain period of the year.

In the following year, namely in 1886, it was again resolved by the Dominion Government to despatch the *Alert* to Hudson's Bay. But this time it was with the object of dismantling the stations in the Strait, and taking the observers back to Halifax, as it was considered that the work for which they had been engaged was accomplished.

By a fortunate accident I was able to avail myself of an invitation I had received to take a passage in the *Alert* during this cruise.

I considered myself very fortunate in having the opportunity afforded me of doing so, for it had long been my wish to visit Hudson's Bay, and I had almost decided upon accomplishing this object by travelling from Winnipeg by land and by canoe. The offer, therefore, of going in the *Alert*, which would enable me to make the passage of the Strait, as well as of the Bay, was too good to be refused, and I eagerly availed myself of it. There was only one stipulation, and that was that I should, in return for the passage offered, at the termination of the voyage, submit a report on the state and conditions of the ice, as observed by me, in Hudson's Strait, and my views generally regarding the practicability of the route as a commercial highway, and my opinion relative to the duration of the navigable season. I had no hesitation in acceding to these conditions.

I might observe that I was quite ignorant of the controversy that had been carried on for some time between those who were in favour of Hudson's Strait as a commercial route, and those who were opposed to it. I was untrammelled by orders or suggestions, and felt myself a free agent from whom a perfectly impartial and unbiased opinion was expected.

Under these circumstances I joined the *Alert* at Halifax, and sailed in her from that port on the 23rd of June.

On the 5th July we reached the entrance of Hudson's Strait, where we were detained for four days, partly by thick weather and partly by loose streams of ice; but the latter were never packed sufficiently close to prevent even a slow steamer like the *Alert* from making fairly good progress. The ice that we encountered was of a soft brashy consistency, the greater part of it being honeycombed from the action of the water, and in an advanced state of disintegration. Whilst thus delayed at the entrance of the Strait, we observed the same curious commotion of the water that had been commented on by Davis, Parry, Back, and other navigators. Davis called it, on the globe of 1593, the "furios overfall." It is not easy to account for these turbulent eddies and overfalls, unless they be caused by the rapidity of the water rushing over an irregular and rocky bottom. Frequently we would
see comparatively large pieces of ice being swept, with great velocity, in opposite directions, although in close proximity to each other. The ice, on these occasions, was evidently very much influenced by local forces, such as tides. So far as we were able to discover, the flood—or west-going—tide caused the ice to slacken, whilst a contrary effect appeared to be exercised on it by the ebb. From the 9th to the 11th of July scarcely any ice was seen, and a distance of over two hundred miles was accomplished in about thirty-six hours. This fact alone, without further comment, is in itself sufficient evidence to show how free the eastern part of the Strait was from ice; for the Alert, if driven at her full speed, could only steam about six knots an hour.

Early on the morning of the 11th of July we arrived off the station on the north side of the Strait, and anchored in a snug little bay at one of the Savage Islands called Ashe Inlet. The observers were found to be in perfect health, and they had spent a pleasant winter, having been well supplied with reindeer meat by the Eskimos. They informed us that the ice did not form in the Strait before December, and that the channel was perfectly free for navigation during the entire month of November. Game appeared to be plentiful in the neighbourhood of the station. Numerous herds of reindeer were met with during the winter, and hares were reported as abundant on an adjacent island; whilst bears, seals, and walrus were frequently seen.

After a brief stay at the Savage Islands, the Alert continued her voyage through the Strait, but her progress was so retarded by ice that it took her nine days to accomplish a distance of about three hundred miles. This slow progress was mainly caused by the absence of sufficient steam power to enable her to thread her way through the loose ice, and also by a want of vigilance in taking advantage of the diurnal and other movements of the ice to push on. A knowledge of ice navigation, like everything else, cannot be acquired at once. Practical experience, unceasing vigilance, and a happy knack of doing the right thing at the right moment, are essential qualifications for those seamen who desire to become successful ice-navigators.

The ice that we encountered in the western part of the Strait was somewhat different and heavier than the ice we passed at the eastern entrance. It was composed chiefly of small pieces, packed loosely together, appearing as if the floes, by some sudden, or even gradual convulsion, had been broken up into small pieces, and then drifted together into one large pack. This peculiar feature of the ice in Hudson’s Strait is one that I have never observed in other parts of the northern seas, and it is worthy of consideration when the question of the practicability of navigating the Strait is under examination. For it is these innumerable small pieces that, in a great measure, deprive the pack of the power of seriously injuring any vessel that may be beset in it—for when any pressure takes place, the smaller pieces, being composed of soft brashy ice, act as
cushions between the ship and the larger floes, and thus protect the vessel from a violent squeeze or nip.

The greater part of this ice was, I think, formed in Fox Channel, whence it drifts down to the Strait after the disruption of the ice in the summer. Occasionally a few large floes were seen, some of which I estimated to be about half a mile in length, but a floe of this size was quite exceptional. The thickness of the floe ice was from 6 to 12 feet, but it was all more or less rotten, and advancing rapidly towards dissolution; some of the pieces were, apparently, of unusually deep flotation, but this was mainly due to their complete saturation by water, owing to their soft and brashy consistency.

A peculiar feature in connection with the heavier and larger floes that we met, was the irregularity and unevenness of their surfaces. A perfectly level floe of any extent, having a flat level surface, was rarely seen; they were usually crowned with a succession of excrescences resembling small hillocks. This gave me the impression that these floes were composed of innumerable small pieces of ice, which, having escaped dissolution during the preceding summer, had been cemented together into one large mass by the snow and frost of the succeeding winter—the mounds that we observed being the hummocks that had formed round the edges of the smaller pieces, round which heaps of snow had accumulated, which in process of time had been converted into ice.

Many of these floes were discoloured by dirt and débris blown off from the shore; on a few of them I noticed thick mud adhering, evidence, in my opinion, that they were formed in the immediate neighbourhood of land, and did not, therefore, form part of the ice that had been made in the Strait during the winter. This heavy ice that we encountered had probably drifted down from Fox Channel, where large thick floes are known to exist.

No icebergs were seen to the westward of the Savage Islands, which seems to show that all those we passed to the eastward and at the entrance of the Strait had floated down from Davis Strait, or, at any rate, were the produce of glaciers north of Resolution Island.

During the time that we were in the Strait, the weather was generally fine, the average temperature being about 35° Fahr., although on some days the thermometer would rise to 50°; but again, on others, it would fall as low as 20°. The prevailing wind was from the westward, but from whatever direction it blew, it appeared to have but little effect on the movements of the ice, which were invariably erratic and uncertain, and governed by no regular appreciable laws. When we have more accurate information regarding the tides in Hudson’s Strait, further light will, in all probability, be thrown on the movements of the ice, tending to simplify navigation.

After being in the ice for upwards of eight days, the Alert arrived at Digges Island (where one of the observatories had been established) on
the 20th July. This island, which forms a leading feature in the story of Hudson’s voyage, consists of bare hills of gneiss, rising to a height of about 500 feet. The hills are intersected by broad valleys, carpeted with moss and coarse grass. The vegetation compares very unfavourably with that of some of the small islands on which I have landed off Novaya Zemlya, and which are in a much higher latitude. On the coasts of the latter the southern current warms the air and produces a comparatively luxuriant flora, while the former is exposed to cold Arctic streams.

After leaving the Diggles Islands, where a few days were spent in overhauling the machinery of the ship, &c., the open water of Hudson’s Bay was reached, and from that time, with the exception of passing through a few loose streams of broken-up stuff, no ice was seen. The Alert dropped anchor in Churchill Harbour on the 29th of July, without encountering any further difficulties from the enemy with which she had for ten days been contending.

From Churchill the Alert proceeded to York Factory, where I left her, travelling on to Winnipeg by canoe.

On her return passage through Hudson’s Strait the Alert revisited the different stations without experiencing any difficulties from the ice, and having embarked the observers and their attendants and dismantled the stations, she returned to Halifax.

The result of all the experience gathered from voyages during two centuries, and from more recent observations at the stations, is that Hudson’s Strait is perfectly navigable and free from ice in August and later in the season. It must not be forgotten that the passage of the Strait has been successfully accomplished nearly every year for the last 200 years, and the vessels that have been employed on this service have been ordinary sailing ships, dependent entirely on wind and weather. It is very rare indeed that they have failed to get through, and still more rare that any of them have been destroyed by the ice.*

The percentage of losses by shipwreck of those vessels that have been employed in both mercantile and exploratory service in Hudson’s Bay, is far less than would have to be recorded in a like number of ships engaged in general ocean traffic. I am not far wrong in saying that since the keel of Hudson’s good ship ploughed the waters of the Strait, the passage has been made over 500 times, whilst the losses due to the ice might be summed up on the fingers of one hand, and some of these losses were due to causes with which the ice had nothing to do. For instance, the recent loss of the Cam Oene was in no way connected with ice.

It must not be forgotten that the ships employed on the service were

* According to the official records of the Hudson’s Bay Company, it appears that Moose Factory, at the south extreme of Hudson’s Bay, has been visited annually by a ship since 1735, with but one exception, namely, in 1773, when the vessel for once failed to achieve the passage of the Strait.
not only, as I have said before, sailing vessels, but they were also small, frail, and but indifferently found and equipped. Steam has now robbed ice-navigation of many of its difficulties and dangers; and it is only fair for us to assume that, with the facilities and appliances that science has since revealed to us, we can, in these days, achieve with greater ease and celerity, and with more assured certainty, as much as was accomplished by Hudson and Baffin, by Button and Luke Fox, and others, in their rude and poorly-equipped fly-boats, more than 200 years ago.

The vessels, however, to be employed on such a service should be specially constructed to resist an ordinary ice-pressure, and should be provided with sufficient power to be able to steam from ten to twelve knots at least. We, in the Alert, were frequently detained for many consecutive hours at a time, for want of sufficient power to propel the ship through loose streams of ice, which an ordinary steamer would have had no difficulty in penetrating. It is necessary that all vessels employed in ice navigation should be strengthened, especially in the bows, not so much for the purpose of resisting the pressure of the ice, if beset, as to repel the severe blows which must occasionally be inflicted by unavoidably striking unusually heavy pieces, whilst threading their way through a stream of ice.

In conclusion, I would remark that if the railroad from Winnipeg to Hudson’s Bay becomes an fait accompli, there is but little doubt that the terminus of the line should be at Churchill, and not at York Factory as has been suggested, notwithstanding that the length of the line would have to be increased by about fifty miles through an unproductive country.

Churchill possesses a fine natural harbour, perfectly land-locked and protected from all winds, and is admirably adapted for commercial purposes—piers, wharves, &c., being easily constructed.

York, on the other hand, has no harbour; is a perfectly open roadstead, exposed to all winds; and in the event of a north-east gale it is an anchorage from which ships would be compelled at short notice to put to sea. The anchorage is also some eight to twelve miles, according to the draught of the ship, from the shore.

There is no comparison between the fitness and adaptability of the two places for the terminus of the railway.

I sincerely trust that the ensuing year will see the question of the practicability of navigating Hudson’s Strait solved, by the construction of a railroad from Winnipeg to Port Churchill. This is really the only practical solution of the difficulty, and the only way this hitherto vexed question can be settled.

The case then can be very briefly summed up as follows: If sailing ships have annually taken the furs and other merchandise of the Hudson’s Bay Company through the Strait for the last two centuries, à fortiori it may be looked upon as certain that powerful steamers will
be able to do the same for the produce brought to the west coast of Hudson's Bay by a railway from Winnipeg.

The establishment of new routes for commerce is always a gain to the science of geography. In some cases new regions have to be discovered and explored. In others, the physical aspects of an already known region must be more carefully studied, and many points of interest relating to the action of climate, or of winds and currents, may be ascertained. The proposed Winnipeg and Hudson's Bay Railroad is a striking instance. The objections of opponents to the route have had to be carefully examined. All former experience had to be collected, maturely considered, and passed in review. Observatories had to be established at several points, to make certain whether the historical records actually coincided with physical facts as they now exist. The route itself had to be sailed over and explored. All these various researches have been as great a gain to geography as to commerce. They have enriched our science with a fresh stock of information, have revised previous conceptions, and confirmed, or rejected, as the case may be, the theories and views which may, from time to time, have been put forward. From this point of view, and from this point of view alone, can commercial or political questions receive consideration here. The study of the Hudson's Bay route involves a problem for which physical geography alone can furnish a solution; and on these legitimate grounds I have ventured to submit it for the consideration of our Society. My labours will be more than rewarded if I have succeeded in my endeavour to give a new point of interest to a region which, although already well known, is exceedingly interesting, and is the direct road to unknown parts of the earth.

If the undertaking is carried out and brought, as I have no doubt it will be, to a successful issue, I shall feel that my trip to Hudson's Bay has not been either labour or time thrown away; and I shall feel myself amply rewarded for a journey that has not been unattended by certain hardships and privations, by the knowledge that I have been instrumental in assisting in the carrying out of a great work that cannot but be beneficial to our brethren residing on the opposite side of the Atlantic, and therefore an undertaking in which we, on this side, should feel deeply interested.
MAP OF
TRIPOLI AND THE CYRENAICA
To accompany the Bibliography of
THE BARBARY STATES
By Sir R. Lambert Playfair, K.C.M.G.
Scale of Statute Miles.
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