

contained the one essential principle of systematic maintenance. Moreover, it is not enough that breakages of wire be promptly repaired, but the efficient performance of a line-man's duty demands that he should at stated periods patrol his district and remove the possible causes of interruption in the shape of branches of trees and other obstacles to perfect communication before they have time to bring about disaster. His must be the duty of making minute examination of the supports, lest rapid decay at the ground line render even a single post too weak to withstand a sudden shock, and the chain of communication be abruptly severed. He must paint and otherwise preserve these posts, and secure them by the attachment of ample stays against normal or exceptional strains. In a word, a man will find abundant work to fill up his allotted time in a district no more extensive than a day's walking will suffice for him to cover.

Now all this is not mere theorizing, but the relation of what has been done and is being daily carried into effect in Japan, and it is for these reasons that we assert that the Government of that country may claim to possess a telegraphic system worthy the name. At the present time the telegraphic organization extends to every town of any importance within the Mikado's dominions. In the majority of cases these stations are distinguished as being the head-quarters of the local government or prefecture, and all are thus brought into instantaneous communication with the departmental offices at the capital. The four islands are connected by submarine cables, and the Great Northern Telegraph Company's lines form a medium of communication between Nagasaki and the Western world. The Japanese engineer their own service, educate their operators and travelling linemen, manufacture their own apparatus, even of the most complex character, their own batteries, and the galvanized iron fittings for their poles. The insulators in use are of Japanese porcelain, the finest in quality ever produced, capable of withstanding the most severe tests that it is possible to subject them to. Iron poles are not used, because the pine and cedar flourish everywhere, and are obtainable on short notice; moreover, it is often cheaper to replace them, if decay sets in, than to invest in iron, which is costly at the outset, and heavy to transport inland. The rates for telegrams are sufficiently low to bring the convenience within the reach of all classes. Messages are transmitted in either Japanese or foreign languages with equal facility. Finally, the finances of the department are administered in such a way as to show a substantial balance at the end of the fiscal year.

When may we look for this in China?

With the advantages the pioneers of the service there possess we trust we shall not now have to wait long. But it will inevitably be discovered, if the maintenance of the lines be not provided for efficiently from the outset, that a mighty engine of Western civilization is being hampered and thwarted in its progress, and that among the mercantile classes, who ought to be its principal supporters, there will spring up a feeling of distrust which years of success will not entirely counterbalance. There is no reason why China should not manufacture for herself almost everything she requires in the way of apparatus and material, as Japan is now doing; for men of more deft and skilful touch, combined with high intelligence, than the Chinese do not exist. But all their perfection of workmanship will avail the State little if it be not supported by strict perseverance in those duties which appertain to efficient maintenance. Long lines hastily set up across country, with stations few and far between, and without competent workmen to look after them, under substantial control, will soon cease to convey an electrical current. As suggested before, it is one thing to build a line, but quite another matter to preserve it in working order, and it is to be hoped the example of the Japanese will not be lost upon their near neighbours.

J. M.

FLORA OF THE BAHAMAS.

AT the Manchester meeting of the British Association a Committee was appointed, with a grant of £100, for the purpose of exploring the flora of the Bahamas. The vegetation of this group has long been known to present some very peculiar features, but it is poorly represented in European herbaria. The Committee were fortunate in securing the assistance of Baron Eggers (some-time Commandant at the Danish colony of St. Thomas), who had lately returned from an important botanical exploration in St. Domingo.

Baron Eggers started at the end of last year, and the following letter gives an interesting account of the progress which he had made up to the time of writing.

W. T. THISELTON DYER.

Royal Gardens, Kew, February 25.

"Fortune Island, Bahamas, February 6, 1888.

"I finally succeeded in reaching here, and as this part of the Bahama Archipelago most likely is less known still than the islands nearer Nassau, I propose to explore this group (Fortune, Crooked, and Acklins Islands), which are not far from the centre of the whole, and which, especially the two latter, are of a good size and fairly wooded. From the day of my arrival I have been exploring this island, which is of a longitudinal form, 9 miles long by 1 to 2 miles broad, highest elevation 110 feet, entirely covered with a low forest or scrub about 10 to 16 feet high. The largest trees do not exceed 25 feet, and that height is rare.

"Partly on account of the season of the year, partly from the protracted dry weather, some of the shrubs and trees have neither flower nor fruit, whilst at the same time the herbaceous vegetation is almost absent. Yet I have succeeded in finding a good number of most interesting plants in flower or seed, and have made, besides, collections of woods and seeds. Cycads I have seen none of here in this island. *Guaiacum sanctum* seems to be common here. Some very curious composite shrubs I have met with. On the shore *Ambrosia crithmifolia* seems very common, as also *Passiflora pectinata*.

"Of palms are found *Sabal umbraculifera*, and another, probably *Sabal Palmetto*, called palmetto here by the inhabitants, which is common and used for making hats. A shrubby *Phyllanthus* is very common, as also a very small-leaved *Erythroxylon*. *Croton Ujalmarsonii* is frequent. Several species of *Cassia* are found, as also some acacias. One *Psychotria*, a *Phoradendron*, growing on *Byrsonima lucida*, *Svietenia Mahagoni*, two species of *Coccoloba*, a large-leaved *Euphorbia*, a *Cordia*, and a number of other shrubs and small trees. Of Epiphytes I have seen two *Tillandsias* and an *Epidendrum*, which latter grows among rocks. No mosses, but some lichens.

"Among common trees is to be noted chiefly *Hippomane Mancinella*, as also *Conocarpus erecta* in two forms, the glabrous and the silvery-haired ones, both growing indiscriminately together in small woods.

"Almost the whole surface of the island is covered with a layer of limestone, coarse, mixed with sand, about 6 inches thick, which appears to have formed a smooth cover over the whole whilst under water. It is now generally broken to pieces, but the pieces are still close together, and only separated by fissures, in which trees and shrubs grow, sending their roots down into the sandy, and sometimes marly, soil beneath. In many places there are hollows, in which a light red soil has been accumulated, and where a few attempts at cultivation are made.

"As a rule, the only cultivation here is on the sandbank that forms the western shore, and on which also the little town is situated. Here is raised some Guinea corn (*Sorghum*) and sweet potatoes, as well as cocoa-nut trees, which seem to thrive remarkably well. This whole north-

western shore, for at least 6 or 7 miles, might be one vast forest of cocoa-nut trees. The small plantations of fifty or sixty near the dwellings present a very healthy appearance, and are in full bearing.

"Otherwise the population of the place, amounting to about 500 I should suppose, support themselves by trading, sailing, collecting sponges, and going abroad as labourers for steamers in the West Indian trade. Some salt is made from an extensive salt-pond that stretches for 4 to 5 miles just inside the north-western shore. Another smaller pond is found on the south-eastern shore.

"The town is a decent little village, with a good church, school, post-office, jail, and very creditable dwellings. The people are very well behaved and decent on the whole. Among cultivated plants around dwellings I can mention *Poinciana regia*, *Casuarina equisetifolia*, *Terminalia Catappa*.

"It is very gratifying to see the spirit of neatness and order that pervades everything in the English islands, and which forms such a contrast to the squalor and utter wretchedness that marks much richer islands, like Hayti, Porto Rico, and Cuba. As the coloured population is of the same race in all these places, it can only be ascribed to the example set by the governing race in this case.

"As you may imagine, the vegetation of this, as of most of these islands, possesses a strong uniformity and sameness, as there are no elevations of any extent to produce variety, and partakes in fact of the character of the vegetation of the sea-shore. I therefore can hardly expect to add much to my collections in this place now, and therefore intend to pass to Crooked or Acklins Island as soon as an opportunity offers.

"In a certain sense, of course, locomotion is easy enough from one island to another, yet you must always wait for an opportunity if you do not want to hire a vessel or a boat for your own use.

"After I have finished this group I propose to go to Nassau, and from there to pass over to Andros, which, from what I have been able to gather, is somewhat different from the other islands, especially on account of its being full of swamps and fresh-water lakes, which ought to give the vegetation a somewhat different character. Andros, too, is heavily wooded, both with pine forests as also with other trees, of which many are cut and exported for timber.

"As the season advances I also expect to find a greater proportion of plants in blossom than at present, so as to make my collections from these islands as complete as possible. Still a number of trees will most likely be represented by their leaves only or at best in fruit, which of course cannot be avoided, unless the exploration were continued through the year, and this, as you may imagine, cannot be done for the amount at my disposal, of which necessarily a part has already been consumed by the voyage hither.

"From what I have collected already, I think, however, I am able to say that I shall get together a considerable herbarium, which I hope will contain no few novelties, and give a fair representation of the flora of this archipelago. I need hardly add that I make copious general notes on the vegetation, as well as on the natural history and physical conditions of the islands in general.

"Yours very faithfully,
"EGGERS."

NOTES.

WE understand that, in accordance with the arrangement made on March 24, an important deputation, consisting of Sir Henry Roscoe, Sir Lyon Playfair, Sir John Lubbock, and Mr. Howorth, met Mr. Stanhope and Lord Harris on Monday last, to discuss the regulations for the selection of Woolwich cadets,

so far as they relate to natural science. We believe that the proposals submitted by the deputation will receive favourable consideration.

THE late Mr. Thos B. Curling, F.R.S., has bequeathed £200 free of legacy duty to the Scientific Relief Fund of the Royal Society.

A FRESH case of specimens from the borings in the Delta of the Nile has just been received at the Royal Society.

PROF. HOFMANN, the chemist, celebrated his seventieth birthday on Monday. The Emperor Frederick sent him a patent of nobility, and among many other birthday gifts were portraits of Queen Victoria and the German Empress. From the Prince Regent of Bavaria Prof. Hofmann received a high decoration.

DR. EMIL HOLUB, the African traveller, intends to open a South African Exhibition in the old Exhibition building known as the Rotunde, in Vienna, in May 1889. The industries, exports, and dwellings of the natives will be exhibited, as well as the collections made by Dr. Holub.

A YEARLY pension of 800 roubles has been granted by the Russian Government to M. Potanin in recognition of his work as an explorer in China and Mongolia.

THE question as to the best means of promoting technical education is being earnestly discussed in Russia. A Congress, summoned by the Permanent Committee for Technical Education, is about to meet at St. Petersburg for the consideration of the subject. The sum of £500 has been granted by the Government for the expenses of the Congress.

A RUSSIAN zoological station has been established at Villafranca, a few miles from Nice. The Bay of Villafranca is well known for the work that has been done there by some of the most prominent Continental biologists, and it certainly offers great advantages for the study of marine fauna. An old Italian prison, which was formerly sold to the Russian Government, and used as a kind of naval station for repairs of ships of the Russian Navy, has now been transformed into a zoological station, supported by the Russian Naval Ministry. It has two spacious and well-lighted halls for microscopical work, five smaller rooms, and accommodation for men of science who may wish to carry on biological investigations. It is under the direction of Dr. Korotneff.

WE regret to learn that Captain Temple has been compelled to discontinue the issue of his most interesting and valuable periodical, *Indian Notes and Queries*. His duties at Mandalay, where he is playing an important part in the work of reorganization in Upper Burmah, so occupies his time that he is quite unable to put together periodically the notes sent to him by many contributors. His other periodical, the *Indian Antiquary*, is to be maintained, and contributions to the now defunct serial will be diverted to it.

A DEPUTATION from the "Australian Natives' Association" waited recently on the Minister of Education of Victoria to urge that an Australian series of school-books should be published, so that fuller information on purely Australian subjects should be made available to the children in State schools. It was argued that there was virtually no special information about Australian geography in the books used. The Minister was asked to bear in mind that 650,000 of the total population of Victoria were native born, and that the vast majority were growing up in ignorance of the geography of their native land. Australian literature, like Australian geography, was neglected by the Education Department. The deputation laid particular stress on the argument that the Government would stimulate the Federal sentiment by giving Australian subjects prominence in the State schools.