

A farmer in the neighbourhood of Bordeaux has recently converted waste land worth 300 francs per annum into enclosures for leeches, which now bring him in 25,000 francs annually. Besides the well-known brown and green leeches, a communication to the Société Zoologique d'Acclimatation of Paris, by M. de Filippi, describes a new genus, *Hementaria*, from Mexico and the Amazon, which possesses the valuable property of leaving no mark on the skin to which they are applied; acting not by biting but by suction.

AN interesting paper on the introduction of Maize into China, by Dr. Hance and Mr. W. F. Mayers, appears in a recent number of the *Pharmaceutical Journal*. The authors are inclined to believe that Asia may rank as a native country of this cereal; "the remote date assigned by Chinese records to its introduction, and the circumstance that the introducer is unknown," being, in Dr. Hance's judgment, "irreconcilable with the supposition that it was brought to this country by the Portuguese, their first arrival here under Ferdinand Perez d'Andrada being in 1517, and the earliest notice of maize in European literature dating later than 1530. Mr. Mayers gives translations of passages from Chinese authors bearing upon the subject, as well as facsimiles of early Chinese engravings of the maize and millet.

MR. EDWARD NEWMAN, in the *Field* for December 31, directs attention to the fact that during 1870 there has been an unusual immigration of quails to this country, and that a still more unusual number have stayed to breed; and desires to acquire materials for what he terms "a census of quails" during this exceptional year. The statistics particularly desired are: The number of quails bagged, and the dates; the number of nests found; the number of eggs in each nest; and especially remarks as to the period and direction of flight, both on the arrival and departure of the migrants. The occurrence of the quail in Britain in such unusual numbers is, as Mr. Newman observes, a matter of great ornithological interest.

MUCH good would accrue to our peasantry and working classes generally, if a better knowledge of the value of Nature's products were diffused amongst them. Blind prejudice prevents the proper application of a host of "unconsidered trifles." We in England might take a lesson from what is done in Sweden by a Public Society, who, during a time of scarcity of food, and for the purpose of diffusing a knowledge of the edible Fungi and Lichens of that country, prepared, published, and distributed to the public schools no less than 10,000 copies of a pamphlet on the Fungi illustrated with coloured figures, and 4,000 copies of one on Lichens illustrated by actual specimens.

THAT the *Boehmeria nivea*, or China Grass fibre, will, ere long, become a regular article of import to this country, is highly probable, both from the fact of the recent reward of the Indian Government for the invention of machinery suitable for its cleaning and preservation: and from the nature of the plant being such that the climate and soil of many of our colonies are quite suited for its culture. There is no doubt that it is well adapted for a variety of uses, and could, by careful preparation, be applied to purposes for which our present commercial fibres, though to some extent used, are nevertheless unsuited. The Chinese bestow an immense amount of care and labour upon its preparation, hence the very fine fabrics which are produced in that country. In Sumatra, also, much care is given to its cultivation and preparation: the stems are usually cut when they are about six feet high. They are sometimes allowed to dry before the fibre is taken from them, but the most common practice is to take it as soon as the stems are removed from the ground. A viscid gum is found on the stem which, in Macassar, is scraped off and used as a mild sort of arrow poison. In China three crops of the stems are usually obtained in one year, but the second crop is considered to yield the best fibre.

#### ON THE GEOLOGY OF NOVA SCOTIA\*

THE author, in treating on the Laurentian Rocks of Arisaig, Nova Scotia, discovered by him in 1868, referred to the occurrence of pebbles of diorite, syenite, and granite in the conglomerates of the Lower Carboniferous area of the townships of Arisaig and Antigonish, and the highly micaceous character of their grits and sandstones. He had experienced difficulty in accounting for these appearances. It appeared singular, especially, that the mica seemed to increase in those strata in proportion as they became removed from known granites. The lithological character of the discovered Laurentian band appeared to account satisfactorily for the occurrence of those constituents of the Lower Carboniferous strata. There are some gneisses and porphyritic diorites; hornblende rock in great variety; serpentines, black quartzite strata with veins of quartz, with abundance of crystals of mica (some would be disposed to call them granite veins); white syenite with stripes of green felspar and red syenite, both very sparingly hornblende. South of these lies a Carboniferous area which seems to overlie the Laurentian band unconformably. This area is bounded on the south by a subtriangular band of metamorphic Arisaig, or middle and upper, Silurian rocks. This band is disposed in two anticlinal folds with an intermediate synclinal. The author designates it the Antigonish Sugar-loaf Band, so named from a prominent mountain of 710 feet elevation. The extreme breadth of this band, *i.e.* N. and S., is about five miles. The axes run easterly and westerly. The S. side of the Carboniferous area referred to rests unconformably on the N. side of the northern anticlinal, the strata in contact being Lower Carboniferous conglomerates. This area extends to St. George's Bay and Cape St. George on the Gulf of St. Lawrence; it is basin-shaped, and is said to contain seams of coal. This area may be called the Arisaig area. South of the Silurian area lies the Antigonish Carboniferous area. The lower part of this area consists of conglomerates, limestone, and gypsum. The conglomerate lies unconformably on the Silurian slates of the S. side of the southern anticlinal. The slates dip  $< 55^{\circ}$  S. 5 E.; the Lower Carboniferous conglomerates and limestones dip  $< 30^{\circ}$  S. 35 W. The observations made are at variance with two theories that have been advanced by different geologists to the effect—1st, that the Upper Silurian and Devonian formations of Nova Scotia have been thrown into a few *great* folds, synclinal and anticlinal; 2nd, that the Carboniferous and underlying Devonian or Upper Silurian formations acquired their present positions simultaneously, the mountains having had a thick Carboniferous saddle, which had been subsequently removed by denudation. This theory supposes that the Carboniferous areas of Nova Scotia had been once united with each other and those of other countries. The Nova Scotia areas that are now separated have always been so, the only connection ever existing having been merely geological.

The author discovered an interesting outcrop of Laurentian syenite in the Silurian area. This forms, in conjunction with limestone, a noticeable hill of 300 feet elevation, in the middle of the Antigonish area of Carboniferous limestone and gypsum. This syenite is seen to a large extent in direct contact with limestone of Lower Carboniferous age, having abundance of cyrtoceras, conularia, dentalium, and *Leperditia okeni*. The limestone and its fossils have not been altered by contact with the syenite, showing, as a consequence, that the syenite had its existing constitution when the limestones were formed upon it in the bottom of the sea of the Lower Carboniferous era. A specimen from the summit of the hill in the collection of rocks in the Provincial Museum is reddish, like specimens in the same collection from the Arisaig Laurentian rocks. It is more hornblende, and shows green mica, like that of a specimen of granite from a mountain in Baddeck, Cape Breton. The author made interesting observations on supposed Laurentian rocks in the Island of Cape Breton, which lies to the N.E. of Nova Scotia, being separated from the latter by a narrow strait called the Gate of Canso. In the Nova Scotia department of the Paris Exhibition of 1867, there was a specimen of serpentine from a rock at St. Annez, Cape Breton. Prof. Wyville Thomson detected in this specimen supposed eozoöal structure. The author lately received specimens of granite from White Head, Aspy Bay, Cape Breton; and also from a position seventeen miles S., and seventy-three W. from White Head. He also referred to the existence of auriferous slates, like those of Nova Scotia, at Middle River,

\* Abstract of a paper read before the Nova Scotian Institute of Natural Science by the Rev. D. Honeyman, D.C.L., F.G.S., &c., Professor of Geology in the Provincial Museum.

Cape Breton. He observes that, if a line were drawn from the granite mountain at Big Baddeck already referred to, bisecting the granite district at Aspy Bay, the Middle River gold-field would be five miles distant from the line on the one side, and the St. Anne serpentine (ezoöñal?) three miles distant from the line on the other side. Here we have what is supposed to be Laurentian serpentine, granite, and auriferous argillite in no respect different from the argillite of Wine Harbour and other gold-fields of Nova Scotia, all in close conjunction. The existence of Laurentian ezoöñal serpentine in this locality is in accordance with a forecast of Dr. Sterry Hunt, to the effect that a line from the Arisaig Laurentian to Newfoundland will pass through Cape Breton. We may now expect, he observes, to find limestone with ezoöñ there; and, on the contrary, the same facts appear to be at variance with his "Terra-Novan" theory. As the local name Arisaig has been applied by Dr. Dawson to the Middle and Upper Silurian of Nova Scotia, the author would suggest that, as Cape Breton appears to be *in a manner* the meeting place of the Laurentian of Arisaig, Nova Scotia, and the granites and argillites of the Nova Scotia gold-fields, the local term "Cape-Bretonian" should be adopted as their designation, and that "Terra-Novan" should be reserved for other countries. The one term is equally euphonic with the other, and much more ancient. It was observed that there was a great gap between the Laurentian of Arisaig and its Middle and Upper Silurian and Devonian. In searching for formations to fill the gap, it was necessary to look to the gold-fields of Nova Scotia. The evidence of fossils was much desiderated in the investigation. The grits and argillites of the gold-fields were lithologically different from the Middle and Upper Silurian and Devonian (fossiliferous or metamorphic), and stratigraphical evidence showed what the author regarded as constructive unconformability. He expects in the further prosecution of investigations which are to be recorded at a subsequent meeting of the Institute, to be able to bring the evidence of fossils indirectly to his aid, and to point out direct sequence. It was observed that the upper and middle Silurian rocks of Nova Scotia had as yet failed to show gold even in the very smallest quantity—that various localities having metamorphic slates and quartz-veins of Clinton or Middle Silurian age had received a short-lived celebrity in the provincial newspapers, but the report had invariably been found incorrect. The author hailed the decisions of Prof. Hind in reference to the age of the Grenoid (granite) grit and argillite of the gold-fields, and considered that he had rendered very important service in completing the Azoic (or Eozoic) and Palæozoic systems of Nova Scotia.

#### LETTERS FROM CENTRAL AFRICA\*

SERIBA GHATTAS IN DJUR, July 29, 1870

AFTER an absence of nearly eight months I have arrived here once more, considerably reduced in bulk in consequence of the privations and fatigues which I have had to undergo, but otherwise thoroughly well and active. A poultry yard and a milch cow, which I intend to provide myself with, will, in addition to a few weeks' rest, restore my lost strength completely. The journey to the Niam-Niam country, which I undertook as the guest of my friend, Mohammed Abu Tsammat, with his ivory caravan of 300 men, and whose acquaintance I made during the river journey, was successfully completed, as we had no losses to deplore, except a few female slaves who were taken away whilst fetching water; and besides the wounding of the leader, Mohammed, only one of my people was injured by an arrow, which struck him in the arm, but fortunately the wound was speedily healed.

The climate of the country traversed by us is an exceedingly salubrious one, and my people as well as myself enjoyed the best of health. I had only reason to complain, and that bitterly, of two things, viz. the numberless, excessively tedious, and disagreeable passages across the rivers, rivulets, and swamps, and the want of a sufficiency of food, which I experienced during the whole of the journey. In the southern part of my route such passages occurred every quarter of an hour, taking sometimes hours to complete. My donkey, which I have brought back in thorough good health, was consequently of little or no use to me, as I should have had to dismount continually. The waters are here, contrary to the otherwise steppe-like character of the country through which we journeyed, invariably surrounded and

\* Translated from the *Cologne Gazette*.

overshaded by dense masses of trees; a small footpath leads through the thicket; broken boughs and stems of trees from three to four feet thick lie about in all directions, over which it is necessary to clamber or stumble. Wading up to the hips in the black mud of the swamp, and at the same time passing through the prickly bushes, especially the Pandanus and Kotany (Calamus or bamboo) which fetched blood at every step, I was unfortunately not able, like Speke, to take my clothes under my arms, as the hands were as essential as the feet in helping one forward. My large hat was my only clothing. At length, when I had crossed over, clean water had to be sought for ablutions; then when I had got rid of the black tint, which made me look like a moor, I had frequently to remove leeches, of the thickness of one's finger, which had fastened themselves to my legs. How greatly I regretted not being able to dispense with my trousers, at least, to avoid the excessive annoyance which the constant dressing and undressing caused, but the sensitive epidermis of the adult European does not so easily accustom itself to the roughness of the path, and the sudden changes in temperature require to be guarded against as carefully as a Russian summer does.

Our dietary arrangements were, as I have already hinted, but of a very moderate character. Amongst the real Niam-Niam people there was, it is true, durrah corn, and upon the outward journey there was abundance of root-vegetables, such as cassavi, colocasia, and admirable yams (on the return journey, unfortunately, all these had been devoured or returned to the earth); but, on the other hand, there was an utter absence of cattle, the only flesh that could be obtained being that of fowls. At King Munsa's there were goats, but no corn. If I had not occasionally found time for hunting—in which, upon my return journey, I was successful in meeting with large numbers of antelopes—I must have starved. This want of provision was the more keenly felt, through the constant partial immersions sharpening the appetite; and on account of the difficulties of the march we were only able to have one meal a day, so that one's stomach was never thoroughly satisfied. My butter, which I had exhausted, I was compelled to substitute with goat-fat, and later on even with oil. Fortunately I always preserved a stock of tea and salt.

I travelled from here to Seriba Sjabbi, several days' journey to the south-east. After travelling for days through nothing but desert, we reached the territory of the principal chief of the Niam-Niams, called Nganji, with whom Abu Tsammat stands upon a friendly footing. Farther on, we passed through a district which is quite under the subjection of the latter, and governed by a former Niam-Niam soldier placed there by him. A Seriba and thirty warriors suffice to maintain his authority in this tolerably populous district. From here we traversed the country under the rule of the powerful chief Uando. Notwithstanding threatening rumours, we found him peaceably inclined, and he offered me as a present a large pot containing the entrails of an elephant a hundred years old, which my people, to whom I handed the delicacy, assured me was very tough and rather high. After passing through another desert for several days, we reached the territory of the Mombutu King, Munsa, whose residence was the most southern point reached by me, situated a little beyond the third degree north latitude. The southern part of it lies on the great Uelle river, which appears to me to be the upper Chari, flowing into the Tschad lake, and which resembles the Blue Nile, near Chartum.

I could fill volumes were I to relate all my experiences at the court of this wild brown Cæsar, covered all over with red copper spangles, and looking like a well-furnished kitchen; of his numerous wives, painted in all the colours of the rainbow; of his immense palace, resembling a railway station, one of the rooms of which, and where I was first received, being 100 feet long by 50 feet broad, and 40 feet high. It would be impossible for me, however, to pass over in silence the horrible cannibalism which is here, as well as among the real Niam-Niams, everywhere in vogue. Munsa dines off human flesh every day of his life; the Mombutu people make regular battues upon the wilder negro races in the south, where those that are killed are at once cut up, the fat is melted down, and the flesh dried. Those that are captured are driven off to be slaughtered at convenience.

The Niam-Niams are thrown more upon their own resources. If, however, there should happen to be a cessation of internecine feuds, they attack the Nubian caravans, although it should be to their interest to keep the peace, as they are well paid for their ivory and provisions with copper and glass beads, and their