

porous cell prevents this from mixing with the fresher strong solution outside, and thus enables the operator to remove the exhausted portion.

AN adaptation of the telephone to the needs of deaf persons has been brought out by one H. G. Fiske of Springfield (Massachusetts). To the centre of the disk of the receiving telephone is attached a short rod of wood, ebonite, or other elastic hard material which can be held between the teeth. The sonorous vibrations imparted to the disk by the magnet are thus transmitted mechanically to the auditory nerves through the teeth and the bones of the skull. The advantages are probably limited, since, as experiments with the audiphone have shown, only a small percentage of truly deaf persons retain the power of hearing through the teeth. In the greater majority of cases it is the auditory nerve itself, not the mechanical adjustments and auditory apparatus of the ear, that is the cause of deafness.

GEOGRAPHICAL NOTES

SOME modifications have been made in the composition of the fifth International Expedition to Central Africa. Lieut. Harou, who was to have formed part of the expedition, will only join his companions at a later period on the Upper Congo. He is charged, meantime, with a secret mission to Africa, for the accomplishment of which about ten months are necessary. After the termination of this mission he will join the expedition. M. Harou will embark about the 23rd for his new destination. We learn that Dr. Dutrieux, who had to return from Africa to Belgium to recruit his health, is about to return to Africa to take part in the service for the abolition of slavery, at the head of which is Col. Sala. He had begun when in Africa a dictionary of the Suaheli language, so common all over Central Africa. Although incomplete, the Executive Committee of the Association have decided to print the dictionary as it is, and put it in the hands of travellers for correction and completion.

THE *Bereg* states that next autumn Baron Nordenskjöld will visit St. Petersburg to make preparations for his proposed expedition to the New Siberian Islands in 1882, the expenses of which will be borne by the Russian merchant, M. Sibiriakoff. Nordenskjöld will go to the mouth of the Lena overland, and thence embark for his destination.

THE Congress of French Societies of Geography was held this year at Nancy during the first week of August. M. Levasseur, honorary president, gave an address, in which he reviewed the progress realised by the creation of so many geographical societies. In the evening the members were invited to the Town Hall, where they were entertained by M. Volland, the mayor. A number of toasts were delivered by his Worship, as well as by M. Levasseur and others.

A LETTER from Dr. Matteucci, written in May last, intimates the arrival of the expedition under Prince Borghese at El Fasher, the capital of Darfur, and the approaching departure for Wadai. Dr. Matteucci remarks on the almost absolute want of water in Darfur, and the consequent recent cultivation of water-melons by the natives as far as the arid soil will permit. They also utilise the Baobab tree in a curious manner. Hollowing out the huge trunk of the older trees by fire, they by some prehistoric primitive method get the hollow trunk filled with water during the rainy season, the water keeping sweet for eight months. The people of Darfur, Dr. Matteucci says, are still in a primitive uncorrupted condition, a contrast to the Egyptianised natives of Kordofan.

M. BISCHOFFSHEIM pays the expenses of M. G. Capu, a young geologist and botanist, who will accompany M. de Ujfalvy on his new mission to Central Asia, referred to last week; M. Gabriel Boyval, as topographer and naturalist, will also accompany the mission.

THE ALGÆ OF THE SIBERIAN POLAR SEA¹

BEFORE the voyage of the *Vega* our knowledge of the algæ of the Siberian Polar Sea outside the Kara Sea was limited to the fact of their existence in Tschau Bay and along the coast between that bay and the mouth of the Kolyma. This information was obtained by Baron Maydell, the leader of a scientific expedition sent out in 1869, under the auspices of

¹ Abstract of preliminary communication by Dr. F. R. Kjellman in "Öfvers. af Kongl. Vet. Akad. Förhandl.," 1879.

the Russian Geographical Society, to explore the Tchuktchi Peninsula. A statement previously made by Matuschin, one of Wrangel's companions during his Siberian journey, that algæ exist at Tschau Bay, was thereby confirmed. Maydell brought home with him only three incomplete specimens of algæ, which he obtained from a native living at Cape Schelagskoj. From the description given by him they appear to belong to the genera *Alaria* and *Laminaria*.

From observations made during the voyage of the *Vega* it appears that algæ exist at several places along the whole coast of the Siberian Polar Sea. They occur almost exclusively within the sublittoral region. In the littoral area, which was the best and most completely examined during the expedition, Dr. Kjellman found only at two places, viz., between Port Dickson and Tajmur Island, an exceedingly scanty flora consisting of three species, two Floridææ—*Lithothamnion polymorphum* and *Phyllophora interrupta*—and a Phæozosporaceæ—*Lithoderma fatiscens*. The littoral region along the north coast of Siberia is, like that of the coasts of Novaya Zemlya and clearly for the same reasons, nearly everywhere devoid of algæ. Only at two places did Dr. Kjellman find traces of a strand vegetation. They consisted of two small green algæ, *Enteromorpha compressa* and *Urospora penicilliformis*, both known from the same region in other parts of the North Polar Sea. Fucaceæ occur nowhere within the littoral region, not a single individual of this group having been found at any of the places visited between Port Dickson and Koljuschin Fjord near Behring's Straits. To the east of this fjord there was found in the sublittoral region in limited quantity *Fucus evanesens*, which is extensively distributed in the North Polar Sea. In the sublittoral belt of the bottom, too, the vegetation in the Siberian Polar Sea is very scanty. Dr. Kjellman had not an opportunity of examining any region where the flora was not considerably poorer in individuals than in those places on the coasts of Spitzbergen and Novaya Zemlya where algæ are pretty abundant. The eastern portion of the sea appears to be somewhat less poor in algæ than the western. The places where they most abounded were Cape Irkajij—Cook's North Cape (N. L. 68° 55' W. L. 179° 25'), and the mouth of Koljuschin Fjord. From the natives settled between this fjord and Cape Serdze, situated about fifty miles to the east of it, Dr. Kjellman repeatedly obtained during the first half of 1879 very large masses of algæ, which appears to show that a pretty abundant vegetation of algæ is to be found at certain places along this part of the coast. There are not wanting, however, in the western part of the Siberian Sea some comparatively very good places for algæ. One such at least was found, viz., the region round Tajmur Island, between Port Dickson and Cape Chelyuskin.

The species that occurred most frequently were *Polysiphonia arctica*, *Rhodomela tenuissima*, a variety of *Rhodomela subfusca*, *Sarcophyllis arctica*, *Phyllophora interrupta*, species belonging to the family Laminariææ, *Sphaecetaria arctica*, and *Phloeospora tortilis*. The Laminariææ give in general their stamp to the vegetation; at one place however *Phyllophora interrupta*, at another the above-mentioned variety of *Rhodomela subfusca* occurred in quantity surpassing that of the Laminariææ.

Of this family six species were found, viz., four species of Laminaria: *L. Agardhii*, *L. cuneifolia*, *L. solidungula*, and one belonging to the digitata group, in which Dr. Kjellman believed that he recognised the *L. atro-fulva* of J. G. Agardh, and two species of *Alaria*, one standing near to *A. esculenta*, the other corresponding in much to *A. muscifolia*, but probably belonging each to species allied to these, and yet incompletely known, which occur in the north part of the Pacific. The distribution of the Laminaria along the north Siberian coast is different. *Laminaria solidungula* occurs both east and west of Cape Chelyuskin. *Laminaria Agardhii* was found only at that promontory and at a couple of places west, but nowhere east of it. Eastward it is replaced by *L. cuneifolia*, found first at Irkajij and afterwards east of it in comparatively large quantities. Both the two species of *Alaria* and *Laminaria atro-fulva* appear also to be confined to the eastern portion of the Siberian Polar Sea. None of them were seen west of Irkajij. Some of the species already mentioned as occurring most frequently enter into the composition of the vegetation in different proportions east and west of Cape Chelyuskin. *Polysiphonia arctica* and *Phyllophora interrupta* were more common west; *Rhodomela tenuissima* again more numerous east of the northernmost point of Asia. *Phloeospora tortilis* was nowhere seen east of Tajmur Island, nor *Sarcophyllis arctica* and the variety of *Rhodomela subfusca* west