

the plain for a considerable distance. When winged they make for the nearest burrow, and when once within it, it is impossible to dislodge them." It is commonly said that rattlesnakes are likewise abundant in these "Prairie-dog villages," and that the beast, bird, and reptile, may not unfrequently be seen here in harmonious juxtaposition. In the pampas of South America, this little owl associates with another Burrowing rodent, which lives in communities in a similar manner to the Prairie-dog. This is the Vizcacha (*Lagostomus trichodactylus*). During the open day, Mr. Darwin tells us, but more especially in the evening, these owls may be seen in the pampas of the Argentine Republic in every direction, standing by pairs on the hillock next to their hole. If disturbed, they either retreat under-ground, or move with an undulatory flight to a short distance, and then turning round, steadily gaze at their pursuer.

The Burrowing Owl is, however, perfectly capable of making its own burrow, as Mr. Darwin tells us it always does where the Vizcacha is not found, and as it has done in the Zoological Society's Gardens. The first individual of this species which was received in 1868 from the same donor, was no sooner placed in a cage with a sandy floor than, "true to its habits, it excavated a hole in the soil at the bottom, into which it always retreated when threatened." The same habit may be witnessed on alarming the specimens of this bird now in the Society's gardens, although the burrow in the present instance has been, at all events partially, made artificially for their use.

(4.) An example of a rather rare Antelope from Western Africa—the Woodioving Antelope (*Cephalophus sylvaticus*)—received in exchange March 24th. This is a representative of a group of Antelopes of small size which are found only in tropical or subtropical Africa, and are peculiar for having a little tuft of hair between their horns, as their generic name imports. Some eighteen or twenty species of this genus are known to science, and several of them are usually represented in the Zoological Society's collection. But the present animal, which is well marked by its white dorsal streak, has not been previously received alive by the Society. P. L. SCLATER

#### NOVEL TELEGRAPHY—ELECTRIFICATION OF AN ISLAND

A CURIOUS discovery has been made by Mr. Gott, the superintendent of the French company's telegraph station at the little island of St. Pierre Miquelon. There are two telegraph stations on the island. One, worked in connection with the Anglo-American company's lines by an American company, receives messages from Newfoundland and sends them on to Sydney, using for the latter purpose a powerful battery and the ordinary Morse signals.

The second station is worked by the French Transatlantic Company, and is furnished with exceedingly delicate receiving instruments, the invention of Sir William Thomson, and used to receive messages from Brest and Duxbury. These very sensitive instruments were found to be seriously affected by earth-currents; *i.e.*, currents depending on some rapid changes in the electrical condition of the island; these numerous changes caused currents to flow in and out of the French company's cables, interfering very much with the currents indicating true signals. This phenomenon is not an uncommon one, and the inconvenience was removed by laying an insulated wire about three miles long back from the station to the sea, in which a large metal plate was immersed; this plate is used in practice as the earth of the St. Pierre station, the changes in the electrical condition or potential of the sea being small and slow, in comparison with those of the dry rocky soil of St. Pierre. After this had been done, it was found that part of the so-called earth-currents had been due to the signals sent by the American company into their own lines, for when the delicate receiving instrument was placed between the earth at the French station and the earth at the sea, so

as to be in circuit with the three miles of insulated wire, the messages sent by the rival company were clearly indicated, so clearly indeed, that they have been automatically recorded by Sir William Thomson's syphon recorder. Annexed is a facsimile of a small part of the message concerning the loss of the steamship Oneida, stolen in this manner.

It must be clearly understood that the American lines come nowhere into contact, or even into the neighbourhood of the French line. The two stations are several hundred yards apart, and yet messages sent at one station are distinctly read at the other station; the only connection between the two being through the earth; and it is quite clear that they would be so received and read at fifty stations in the neighbourhood all at once. The explanation is obvious enough: the potential of the ground in the neighbourhood of the stations is alternately raised and lowered by the powerful battery used to send the American signals. The potential of the sea at the other end of the short insulated line remains almost if not wholly unaffected by these, and thus the island acts like a sort of great Leyden jar, continually charged by the American battery, and discharged in part through the short insulated French line. Each time the American operator depresses his sending key, he not only sends a current through his lines, but electrifies the whole island, and this electrification is detected and recorded by the rival company's instruments.

No similar experiment could be made in the neighbourhood of a station from which many simultaneous signals were being sent; but it is perfectly clear that unless special precautions are taken at isolated stations, an inquisitive neighbour owning a short insulated wire might steal all messages without making any connection between his instrument and the cable or land line. Stealing messages by attaching an instrument to the line was a familiar incident in the American War; but now messages may be stolen with perfect secrecy by persons who nowhere come within a quarter of a mile of the line. Luckily, the remedy is simple enough.

All owners of important isolated stations should use earth-plates at sea, and at sea only. This plan was devised by Mr. C. Varley many years ago to eliminate what we may term natural earth-currents, and now it should be used to avoid the production of artificial earth-currents which may be improperly made use of.

FLEEMING JENKIN

#### NOTES

WE regret to hear that Baron Liebig is very ill.

WE are informed that Messrs. Lyon Playfair, C.B., M.P., B. Samuelson, M.P., and Dr. W. A. Miller, will probably be among the members of the Royal Commission to inquire into the Present State of Science in this country.

PRINCIPAL DAWSON, of Montreal, who is now on a visit to this country, will deliver the Bakerian Lecture to-night before the Royal Society. The subject is the Pre-carboniferous Flora of North Eastern America. The opportunity of listening to so eminent a geologist on a subject which he has made especially his own, will doubtless draw together a large assembly of our men of science anxious to do honour to their distinguished *confidère*.

THE following gentlemen have been appointed by the University of London examiners and assistant examiners for 1870-