

where great magnifications were desired. This last difficulty might to some extent be surmounted by using as a secondary instrument the two strips of a bolometer, so that fluctuations would make proportional changes in both strips, whereas a deflection gives a differential effect. Experiments, however, on the application of the principle are in progress.

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The University, Birmingham, June 24.

#### Wireless Antennæ.

IN recent issues of NATURE several correspondents, in referring to the fact that a metal bedstead or a few wires stretched a few feet above the ground will make a wireless antenna, have overlooked a most important point, viz. that with such an antenna the ordinary methods of tuning are quite useless.

A piece of wire netting suspended a few feet above the ground makes a most effective aerial, and enables one to receive loud signals from long-distance stations, but signals from Eiffel Tower, C'eehorpes, &c., will all be mixed up, and the ordinary tuner will not separate them effectively. It seems to me that this proves that the usual theory of the waves travelling through space in the air above the earth's surface and being cut by the aerial does not *wholly* account for the facts.

Wireless signals that are feeble when the surface of the earth is dry, becoming much stronger after rain, and the well-known fact that these waves travel much better over sea than over land, all seem to indicate that the aerial waves are *at least* supplemented by waves that travel along the surface of the earth, and that the wire netting, bedsteads, &c., act as counter capacities, allowing these waves to flow from the earth through the receiver. The capacity of a small piece of wire netting near the ground is much greater than a very extensive aerial high up.

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#### The Occurrence of "*Anomalocera pattersoni*," Temp., in Mounts Bay.

It is stated by Mr. L. H. Gough ("Report of the Plankton of the English Channel," 1903), that the copepod *Anomalocera pattersoni*, R. Temp., may generally be regarded as an oceanic species. Gough's observations tended to show that Gran was correct in assuming this to be the case, although Cleve considered the species to be neritic. Sars, in his "Crustacea of Norway," speaks of the occurrence of this copepod "off the south and west coasts of Norway, generally congregated in great shoals," but throughout the reports published in connection with the international fishery investigations, no record occurs of its similar abundant occurrence in the English Channel.

It is interesting to record, therefore, that during an intensive survey of the planktological conditions of Mounts Bay, performed from the s.y. *Mera* on June 2, an extensive shoal of the species was met with at the surface on a position  $50^{\circ} 4' 20''$  N.  $\times$   $5^{\circ} 27' 55''$  W. The product of a five minutes' haul with the coarse tow-net amounted to 34.75 c.c. of material, of which at least three-fourths was made up of *Anomalocera*, both in its adult and developmental stages. The visitation of this copepod, in association with several other oceanic forms of phyto- and zooplankton, to a comparatively close inshore position may possibly serve as an indication of somewhat abnormal hydrographical conditions, but unfortunately no physical observations are yet to hand to enable a comparison to be formed.

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S.y. *Mera*, R.Y.S.

G. E. BULLEN.

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#### Artificial Hiss.

LORD RAYLEIGH'S "sound more like an *f* than an *s*" (NATURE, May 29, p. 319) is due, according to Köhler's observations (*Zeits. f. Psych.*, 64, p. 93), to a slightly too high pitch. A Galton whistle, set for a tone of 8400 v.d., will give a pure *s*.

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#### THE BICENTENARY OF THE BOTANIC GARDEN OF ST. PETERSBURG.

THE bicentenary of the foundation of the Imperial Botanic Garden at St. Petersburg was celebrated with unusual pomp on June 24. The history of the garden, its share in the botanical exploration of north, central, and east Asia, and the practical completion of its reorganisation on modern and truly liberal lines justified the festive character of the proceedings. They were initiated on the eve of the jubilee by a special service, attended by the staff of the garden, in the Peter-Paul's Cathedral, and the laying down of a wreath of roses at the tomb of Peter the Great, the founder of the garden, and on the following morning by a little shower of honours for the director and his staff.

The principal ceremony took place in the afternoon in a building attached to the old herbarium, in the presence of a brilliant gathering, including the Princes Peter and Alexander of Oldenburg, Prince Gagarin, representing Princess Eugenia of Oldenburg, under whose patronage the garden is placed, the Ministers of Agriculture, Commerce, Justice, Public Cults, and Marine, and other prominent officials, and a large number of delegates from the Russian academies, universities, botanic gardens, and kindred institutions, and from foreign countries. The solemn meeting was preceded by a Te Deum, and formally opened by the Minister of Agriculture, Mr. Kriwoshein. A rescript from the Emperor was read, in which it was announced that the garden would henceforth be known as the Imperial Botanic Garden of Peter the Great. Then followed an eloquent address by the director of the garden, Prof. A. Fischer von Waldheim, in which he traced the history of the garden and its present organisation and object; the reception of the delegates, and the presentation of medals and souvenirs commemorating the jubilee.

The next day was reserved for the inspection of the garden, museum, and laboratories, and in the afternoon a visit to Peterhof, where the guests experienced an exceptionally cordial reception. In the evening the festivities came to a conclusion with a gala performance in the opera house in the Narodni Dom.

Most of the botanical gardens and many of the other botanical institutions sent their congratulations, whilst Bulgaria, Denmark, England (Kew and Chelsea), Germany, and Sweden were represented by delegates.

The garden was founded by Peter the Great about 1713, so that it is practically as old as the