

and to India, as well as to persons in London, some weeks may elapse before I am able to answer the main points in Lieut.-Col. Manners-Smith's letter.

I would, however, inform Lieut.-Col. Manners-Smith that Mr. James Buckland, who had collected all or much of such evidence affecting the Government of Nipal, sought to lay this before his Highness the Prime Minister of that country, when Maharaja Sir Chandra Shamsher Jang visited this country not long ago, but Mr. Buckland was not accorded an interview and not permitted to submit, with all due respect, the case of the rare birds of Nipal, either to the Maharaja or to his English advisers.

I am sincerely glad that any article of mine should have directed the attention of the Government and British Resident of Nipal to the preservation of the Nipalese avifauna, even though that Government may have already dealt effectively with the question. This large independent Himalayan State contains within its limits some of the most wonderful birds in the world, none of which are in any degree whatever harmful to man, and most of which are of exceptional interest and beauty. The whole of the fauna of Nipal stands out as being perhaps the most remarkable of any Asiatic State. The independence of Nipal is scrupulously respected by the British Government, the country is not thrown open to access on the part of foreigners, and it might well be the national ambition of the Nipalese Government that their land should become a refuge for the wonderful birds and mammals still existing in tropical Asia, which are rapidly being exterminated elsewhere. So soon as I have the information asked for, I will forward it for publication in the columns of NATURE.

H. H. JOHNSTON.

#### Atomic Volume Curves of the Elements.

In his interesting review of Prof. Letts's book on "Some Fundamental Problems of Chemistry," in NATURE of May 21, Prof. Meldola states that an atomic volume curve which includes the inert elements is there published for the first time.

Will you allow me to say that in our book on "Systematic Inorganic Chemistry," first published in 1906, Dr. Lander and I included an atomic volume curve in which the inert elements were shown; and that in our 1911 edition the curve was amended to indicate the position of helium, then recently liquefied, so that lithium was seen no longer to occupy the crest of the first wave. I may add that in Kipping and Perkin's "Inorganic Chemistry" (1911) a curve similar to ours appears.

R. M. CAVEN.

University College, Nottingham, May 25.

I AM sorry inadvertently to have done an injustice to Drs. Caven and Lander, whose claim for priority over Dr. Letts for having constructed an atomic volume curve comprising the inert elements is certainly justified. At the time of writing the review I was remote from libraries, and I had an impression that the Letts curve had been published by its author long before its inclusion in the work noticed, in which it is referred to as the "new curve" (p. 63).

R. MELDOLA.

#### Transmission of Electric Waves Round the Bend of the Earth.

I BEG leave to amend a sentence in my letter which appeared in NATURE of May 28. I wrote that the existence of a most favourable wave-length for transmission to a given distance appeared to be contradicted by the diffraction theory. A more leisurely study of Prof. MacDonald's paper shows me that I have in this

respect misinterpreted his integrals, and that it is not impossible that the existence of an optimum wave-length may yet be explained by his analysis. This emendation in no way affects the table of ratios I gave or the wording of the conclusion drawn therefrom.

W. ECCLES.

University of London, University College,  
June 1.

#### SCIENCE AND THE STATE.

AT a time when our Government is embarking on large schemes of social legislation at a heavy cost to the community, it seems a fitting opportunity to direct attention to one branch of the public service which has hitherto failed to obtain official recognition or financial support.

It is difficult to realise what our state of civilisation would have been were it not for scientific researches conducted mainly at their own expense by private individuals. The progress which has changed the conditions of our life from those prevailing in the so-called barbaric ages has been effected largely at the expense of a body of reformers who have sacrificed their own prosperity for the benefit of the community in a way which no modern Cabinet Minister would dream of doing, and who have been rewarded for their enthusiasm by neglect and discouragement.

The position of these workers has been ably put forward in the article on "Sweating the Scientist," which appeared in *Science Progress* for April, and was mentioned in the Notes column of NATURE on April 30 (p. 219). A further contribution on the same subject appeared in the form of correspondence by Sir Ronald Ross in the *British Medical Journal* from February 7 to March 28. Let us take Sir Ronald Ross's experiences first, and let us then extend the case to the university workers mainly considered in *Science Progress*.

Sir Ronald Ross was in the Indian Army Medical Service from 1881 to 1899, and not only did he discharge his official duties efficiently, but, at great trouble and expense to himself, he instigated his series of investigations on malaria and its transmission by mosquitoes—a task which prevented him from accepting a civil post which was offered him. The success of his researches led to the foundation in 1899 of the schools of tropical medicine in London and Liverpool, and though the scheme received every encouragement from Mr. Joseph Chamberlain and Mr. Austin Chamberlain, practically the whole of the money was raised by private subscription, although we do read of at least one Government grant of 3,550*l.* in 1899. As against this, we contrast the action of the German Government in financing the Hamburg Tropical School.

Sir Ronald Ross became chief lecturer of the Liverpool School, and thus had to resign his Indian commission on a small pension of under 300*l.* The work of the school was of an altogether exceptional character, involving expeditions to West Africa, teaching of students, publication of reports, and maintenance of experts on Government committees. In the expeditions Sir