

may be due to slight differences of complexity in the hydrogen-line images (*Astrophysical Journal*, vol. xxxiv., No. 4).

THE SPECTRUM OF THE OUTER PLANETS.—In No. 4537 of the *Astronomische Nachrichten* Dr. Otto Bury publishes a note in which he shows that the well-known characteristic absorption-band spectrum of the outer planets can be fairly well matched by combining Chappuis's and Schöne's ozone spectra with the spectrum of the higher oxides of nitrogen obtained by Chappuis. As shown on the plate accompanying the paper, the chief bands in Vogel's spectrum of Uranus, for example, are fairly well represented in the ozone and peroxide spectra; such differences as exist might perhaps become explained if the terrestrial spectra were experimented with more exhaustively under different temperatures and pressures; for Chappuis has shown that the ozone spectrum is sensitive to such changes.

SUN-SPOTS AND CLIMATE.—Considering the climate of Berlin as depicted in the temperature records from 1756 to 1907, and the precipitation records from 1848 to 1907, Herr Otto Meissner finds a possible connection between these climatic features and the periodicity of sun-spots. In a table which he gives in No. 4533 of the *Astronomische Nachrichten* he arranges the years of the eleven-year period from 1 to 11, and opposite each gives the departures of the year's temperature and rainfall from the means. This indicates that the sun-spot maximum years are cold and wet, while the minimum years accord fairly well with the mean. A further investigation considering pressure is to be undertaken.

#### PROPOSED MEMORIAL TO PROF. P. G. TAIT.

ON Thursday last, November 30, a representative meeting of former students and friends of the late Prof. Tait was held at Edinburgh University, to consider the question of extending the memorials to him. His former colleague, Principal Sir William Turner, K.C.B., presided. About 150 apologies for absence were intimated, amongst these being expressions of approval and support from the Rt. Hon. A. J. Balfour, M.P., the Chancellor of the University; the Right Hon. Lord Aberconway; Sir Archibald Geikie, K.C.B., President of the Royal Society; Sir John Murray, K.C.B., and the Right Hon. Lord Haldane of Cloan, P.C. Lord Haldane wrote:—"I cannot be with you on the 30th, but I wish to say that I am very glad indeed that you are taking the step of raising a memorial fund in connection with Prof. Tait. The publication of his Life affords a suitable occasion for doing this. I shall be glad to be a contributor, for I feel that a record should be preserved of the regard in which his old students and the nation generally held this remarkable man. We have too few figures of the stature of Tait to let them pass away without endeavouring to keep a permanent memorial of their greatness."

As it is now almost a decade since Prof. Tait's death, his successor in the natural philosophy chair (Prof. J. G. MacGregor) made the following statement:—"In explanation of the present state of this movement, it may be pointed out that Prof. Tait's main work can be divided into three portions: (1) his educational work, (2) his own experimental researches, and (3) his work in mathematical physics. An appropriate memorial might be raised in connection with any one or more of these. When he entered upon the work of the natural philosophy chair he was deeply impressed by the soundness of Prof. Tait's educational policy, and by the difficulties in the way of applying and extending it; and he suggested as a fitting memorial a fund which would make it possible to carry it out. Without the aid of any appeal, this suggestion led to the receipt of subscriptions to the amount of about 1500*l.* But before action could be taken, it was found that the University itself was organising, and could not defer, a general extension scheme. It was the unanimous opinion of those who had charge of this scheme that it would be unwise to carry on two competing movements at the same time; and the Tait memorial was for this reason made a department of the general extension scheme.

As such it could not be brought to the attention of old students and associates generally, but only to a compara-

tively small number of them. Nevertheless, additional subscriptions were made to the original fund to the extent of about 500*l.*, and a special fund, yielding about 200*l.* per annum, was provided by Sir John Jackson, to be called a Professor Tait's Memorial Fund, and to be used, under the direction of trustees, for research on the lines of Prof. Tait's experimental work.

There are thus memorial funds connected with two of the chief departments of Prof. Tait's activity, but none connected with the third.

The best form for a memorial connected with the professor's work in mathematical physics would obviously be a Tait chair in that subject; and Tait himself advocated the establishment of such a chair. In 1872 he wrote in an article in *Macmillan's Magazine*:—"Would it were not absolutely hoping against hope to proceed as follows. In the Scottish universities, let there be in each a professor of experimental physics and a professor of applied mathematics, in place of the present solitary professor of the enormous subject of natural philosophy."

Many old students have intimated that they would like to have the opportunity of contributing to a memorial. He was satisfied that a very large proportion of them would be found to share this feeling.

It will thus be seen that, as a Tait memorial has been founded, the question before this meeting is, shall we take for ourselves, and arrange to give to the whole body of the professor's students and associates and admirers, the opportunity of contributing towards the memorial, and, by enlarging the original fund, or founding a Tait chair, or in any other way that may be determined, making the memorial more worthy even than it now is of the man whose great work, personal and scientific, it is intended to commemorate?

On the motion of Mr. B. Hall Blyth, seconded by Sir G. M. Paul, a resolution agreeing to the proposal was carried.

A general and an executive committee were then appointed. Information will be willingly furnished by Prof. J. G. MacGregor, Edinburgh.

#### BIRD-NOTES.

IN the October number of *British Birds* another straggler is added to the British list—this time in the shape of the slender-billed curlew (*Numenius tenuirostris*), a small flock of which was observed towards the end of September, 1910, on Romney Marsh, Kent. Of these, an immature pair were shot on September 21, while an adult male was killed two days later. Two of them were examined in the flesh by Mr. M. J. Nicoll. Although stragglers have occurred in Heligoland, Holland, Belgium, northern France, and Germany, the slender-billed curlew is a native of the Mediterranean countries, whence it travels to Siberia to breed. Approximating in size to the whimbrel, the species is distinguished by its short and slender beak and the pear-shaped dark markings on the flanks. The colouring of the crown is unlike that of the whimbrel, showing black and buff streaks like those of the curlew.

In the same issue Dr. E. Hartert points out that English green woodpeckers differ from the central European representative of the species (*Picus viridis pinetorum*) by the still shorter and more slender beak, and on this character proposes that it should be recognised as a separate race (*P. v. pluvius*). Scandinavia, Russia, and eastern Prussia are the home of the typical race; the Italian form, on account of the beak being slenderer than in English birds, is named *P. v. fronus*, and the Spanish *P. v. sharpei* has long been recognised as distinct.

Most ornithologists, when pointing out the features in the plumage by which young partridges may be distinguished from old ones, content themselves with the statement that the tip of the first flight-feather of the wing is pointed in the former, but rounded in birds which have undergone their second autumnal moult. Dr. Louis Bureau, director of the Nantes Museum, in an article (in French) published in the October *Zoologist*, goes, however, much further than this. After stating that there are ten primary wing-quills, he observes that the tenth of the first plumage is the first to fall, this taking place about the end of the first month; when the replacing quill (second plumage) has attained a