

WE are requested to state that the annual Students' *Conversazione* will take place at the Finsbury Technical College on Friday evening, July 2, commencing at 7 o'clock. A good exhibition of apparatus, models, and specimens has been arranged to illustrate the various branches of applied science and art comprised under the College scheme of technical education.

A SWEDISH geologist, Dr. H. Sjögren, is about to proceed to the naphtha regions on the Caspian Sea, in order to prosecute geological studies.

WE have received from Messrs. Griffin and Co. the third annual issue of the "Year-Book of the Scientific and Learned Societies." It gives a brief chronicle of the work done during the year by the various Societies, together with the necessary information as to official changes.

THE Saghalien Ainos do not exhibit the same uncouthness as those of Yezo; there is a greater absence of beards and of hairy bodies generally. The hue of the skin very closely resembles that of the Caucasian; the foreheads are high but narrow, and their general bearing and facial expression denote an intelligence much superior to that of the Yezoiners. As for the theory of an ethnical connection between the Ainos and the Japanese, Mr. Penhallow says that an examination of the pure types would not permit such a belief to be entertained. There is a mixture of the two in places, but the half-breed is as easily recognisable there as elsewhere in the world. The Japanese, he concludes, are unquestionably Mongoloid, while the facts show the Ainos to be physically distinct, while the best authorities agree in the great resemblance which they bear to Europeans, the prevailing view being that they are distinctly Aryan.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♀) from India, presented by Mrs. George Willing; two Tcheli Monkeys (*Macacus tcheliensis* ♂ ♀) from Junz-ling, near Pekin, presented by Dr. S. W. Bushell, C.M.Z.S.; a Wild Swine (*Sus scrofa* ♀) from Tangier, presented by Mr. John Brooks; four Sparrow Hawks (*Accipiter nisus*), British, presented by Mr. J. Rowland Ward, F.Z.S.; an Egyptian Goose (*Chenalopex aegyptiaca*), a Robben-Island Snake (*Coronella phocarum*), a Hoary Snake (*Coronella cana*), an Infernal Snake (*Boodon infernalis*), a Rhomb-marked Snake (*Prammophylax rhombeatus*), a Horned Viper (*Vipera cornuta*), eight Geometric Tortoises (*Testudo geometrica*), a Leopard Tortoise (*Testudo pardalis*), three Areolated Tortoises (*Homopus areolatus*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; a Crowned Horned Lizard (*Phrynosoma coronatum*) from California, presented by Mr. S. Upton Robins; a Common Viper (*Vipera berus*), British, presented by Mr. W. H. B. Pain; a Tuatera Lizard (*Sphenodon punctatus*) from New Zealand, presented by Capt. R. Sutherland; a Tarantula Spider (*Mygale*, sp. inc.) from Bahamas, presented by Mrs. E. Blake; a Peruvian Thicknee (*Edicinus superciliaris*) from Peru, two White-backed Piping Crows (*Gymnorhina leuconota*) from Australia, deposited; a Balearic Crane (*Balearica pavonina*) from West Africa, purchased; a Japanese Deer (*Cervus sika*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE ABSORPTION SPECTRUM OF OXYGEN.—About three years ago M. Egoroff was able to show that the great groups A and B in the solar spectrum were due to the absorption of oxygen. More recently the *a* band was also found to be due to the same gas. M. Janssen, studying the absorption of oxygen has now discovered that under certain conditions the gas yields another spectrum, composed no longer of lines easily separated, but of shaded bands which can only be resolved with great difficulty. This system of bands appears for moderate pressures

much later than the spectrum of lines, but it shows itself very quickly with increase of the density: the two systems are so different that it is possible to obtain either the first without the second or *vice versa*. M. Janssen was at first unable to explain how it was that these bands were not visible in the solar spectrum when they were easily obtained by passing light through thicknesses of oxygen far less than the sun's light has to traverse before reaching us. But further experiments showed that these bands did not develop in proportion to the thickness of the stratum of oxygen producing them, multiplied by its density, but in proportion to the thickness multiplied by the square of the density. The density of our atmosphere being small as compared with some of the pressures at which M. Janssen worked, the non-appearance of these bands amongst the telluric lines of the solar spectrum is readily explained.

POTSDAM OBSERVATORY.—The fifth volume of the *Publications* of the Astrophysical Observatory of Potsdam is occupied with a very careful determination, by Drs. Müller and Kempf, of the wave-lengths of 300 of the principal lines in the solar spectrum. Four gratings were used in this inquiry—one with about 2500 lines to the inch, the second with 6250 lines, and the third and fourth with about 10,000 lines to the inch. Eleven normal lines were first measured with all four gratings and in the spectra of three or four orders with each grating, every observation being carefully corrected for temperature, &c. The computation of the wave-lengths of the 300 lines follows, and the details of the reduction of the observations of the eleven normal lines, and a catalogue of the wave-lengths of 2614 lines as given in the Potsdam Atlas of the spectrum, and as now corrected, concludes the work. The following are the wave-lengths of the selected normal lines, expressed in millionths of a millimetre:—C, 656'314, 640'035, 612'247; D, 589'625, 562'475, 545'580; *b*<sub>2</sub>, 517'284, 495'770, 470'321, 441'534, and 407'186. It would seem from these determinations that Angström's wave-lengths require small but sensible corrections.

THE BINARY STAR γ CORONÆ AUSTRALIS.—With reference to our note on this double star (*NATURE*, vol. xxxiii, p. 425), in which we pointed out the large difference in the position-angles computed, for the present year, from the orbit of Mr. Gore and from that of Mr. Downing, we may draw attention to a communication by Mr. H. C. Wilson, of the Cincinnati Observatory, printed in the *Observatory*, No. 111, pp. 234-235. Mr. Wilson gives the mean results of observations of the binary in 1881 and 1883 as follows:—

1881'72	...	...	...	45'53	1'38
1883'62	...	...	...	37'75	1'62

The angles computed from Mr. Gore's elements for these two epochs are respectively 47°29 and 36°49, which may be regarded as agreeing fairly well with the observations. It appears, therefore, that of the two orbits referred to above, Mr. Gore's is by far the most satisfactory.

OBSERVATIONS OF THE COMPANION OF SIRIUS.—Prof. Young has communicated to the *Sidereal Messenger* (No. 46, p. 182) a series of measures of the companion of Sirius made at Princeton, for the most part with the 23-inch refractor, with powers of 460 and 300. Prof. Young remarks that during the present year the companion has been a difficult object, except when the seeing was good, and there have been fewer good nights than usual. The mean annual results are:—

Position-Angle			Distance		
Epoch	Measure	No. of nights	Epoch	Measure	No. of nights
1883'105	39'0	1	1883'105	9'41	1
1884'273	36'30	5	1884'270	8'70	4
1885'112	34'06	7	1885'089	8'09	8
1886'047	29'77	4	1886'049	7'59	3

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 JUNE 27—JULY 3

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on June 27

Sun rises, 3h. 47m.; souths, 12h. 2m. 44'1s.; sets, 20h. 19m.; decl. on meridian, 23° 20' N.; Sidereal Time at Sunset, 14h. 42m.



Moon (three days after Last Quarter) rises, 1h. 6m.; souths, 7h. 59m.; sets, 15h. 4m.; decl. on meridian, 9° 31' N.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian
Mercury ...	5 1	13 17	21 33	23 25 N.
Venus ...	1 42	9 18	16 54	17 22 N.
Mars ...	11 20	17 30	23 40	1 11 N.
Jupiter...	11 17	17 31	23 45	2 3 N.
Saturn...	4 16	12 26	20 36	22 34 N.

June  
28 ... 10 ... Mars in conjunction with and 0° 59' south of Jupiter.  
29 ... 0 ... Venus in conjunction with and 2° 57' north of the Moon.

July  
2 ... 16 ... Sun at greatest distance from the Earth.

Variable Stars

Star	R.A. h. m.	Decl.	h. m.
U Cephei ...	0 52.2	81 16 N.	June 29, 0 54 m
S Leonis ...	11 5.0	6 5 N.	July 3, M
δ Libræ ...	14 54.9	8 4 S.	3, 23 6 m
U Ophiuchi...	17 10.8	1 20 N.	1, 3 46 m
X Sagittarii...	17 40.4	27 47 S.	1, 23 53 m
R Scuti ...	18 41.6	5 50 S.	3, 2 0 M
R Lyræ ...	18 51.9	43 48 N.	June 27, m
η Aquilæ ...	19 46.7	0 43 N.	28, m
R Vulpeculæ ...	20 59.3	23 22 N.	July 1, 0 0 m
δ Cephei ...	22 24.9	57 50 N.	1, M

M signifies maximum; m minimum.

Meteor Showers

The principal radiant of the season are:—Near β Ursæ Majoris, R.A. 164°, Decl. 57° N.; near ζ Ursæ Majoris, R.A. 210°, Decl. 55° N.; near ξ Serpentis, R.A. 263°, Decl. 15° S.; from Vulpecula, R.A. 302°, Decl. 27° N.; near ζ Pegasi, R.A. 338°, Decl. 13° N.

Stars with Remarkable Spectra

Name of Star	R.A. 1886° h. m. s.	Decl. 1886° ° ' "	Type of spectrum
R Aquilæ ...	19 0 32	8 3.4 N.	III.
R Sagittarii ...	19 9 59	19 30.4 S.	III.
229 Schjellerup ...	19 25 33	76 20.1 N.	IV.
228 Schjellerup ...	19 27 46	16 37.2 S.	IV.
R Cygni ...	19 33 45	49 56.6 N.	III.
D.M. + 32° 35.22 ...	19 36 34	32 21.1 N.	IV.
χ Cygni ...	19 46 11	32 37.5 N.	III.
D.M. + 43° 34.25 ...	19 53 31	43 57.3 N.	IV.
D.M. + 35° 40.01 ...	20 5 46	35 49.5 N.	Bright lines
D.M. + 35° 40.02 ...	20 6 6	35 36.8 N.	IV.
D.M. + 35° 40.13 ...	20 7 24	35 50.6 N.	Bright lines
D.M. + 36° 39.56 ...	20 10 4	36 17.8 N.	Bright lines
D.M. + 15° 41.72 ...	20 23 54	15 53.7 N.	III.
D.M. + 17° 43.70 ...	20 32 52	17 52.0 N.	III.
V Cygni ...	20 37 37	47 44.1 N.	IV.
D.M. + 17° 44.01 ...	20 40 15	17 40.6 N.	III.

SECOND ANNUAL REPORT OF THE COUNCIL OF THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM<sup>1</sup>

I. THE Council has met during the past year nine times, viz. on October 5, October 27, December 14, March 19, March 25, April 5, April 9, May 19, and June 7. The chief business which has occupied the Council during the past year has been the preparation of the plan of the Laboratory building now in course of erection on the Citadel Hill at Plymouth, and the arranging for the execution of this plan by building and engineering firms. Further, the Council has given much time and attention to negotiations with the Lords of Her Majesty's Treasury with regard to a grant in aid of the objects of the Association.

The most important facts which the Council has to communicate to the Association as the result of the year's work are:—

(1) The undertaking on the part of the Lords of the Treasury to submit to Parliament a grant of 5000£, to be paid in two

<sup>1</sup> Presented to the Annual General Meeting of the Association on June 8, 1886, Prof. Huxley, President of the Association, in the chair.

yearly instalments, and 500£ a year for five years, in aid of the objects of the Association; and

(2) The formal approval by the Council of a contract by Mr. Berry, of Plymouth, to erect the buildings and construct the reservoir of the Plymouth Laboratory at the price of 5902£ 16s., and also of a contract by Messrs. Leete, Edwards, and Norman, of London, to construct and fit the aquariums and pumping apparatus for the Plymouth Laboratory at the price of 3000£.

The excavation of the site on the Citadel Hill at Plymouth is now actually in progress, and the Laboratory will be in all probability ready for occupation by this time next year.

In June 1885, the Council reported a capital sum of nearly 8000£, as definitely promised to the Association, of which 4787£ was in the hands of the Treasurer.

The Council now has to report a capital sum of 10,000£ available for expenditure on the building and fitting of the Plymouth Laboratory, and in addition an annual income from investments and annual subscriptions of 1100£ a year. Of the disposable capital sum about 5000£ is in the hands of the Treasurer, whilst the sum of 5000£ is to be paid in two instalments, one in 1886, and one in 1887, by Her Majesty's Treasury.

In June 1885, the Association numbered 277 members, of whom 163 were annual subscribers, the rest having compounded. It now numbers 305 members, of whom 169 are annual subscribers.

Amongst important donations to the Association made during the past year, the Council desire especially to mention the sum of 500£ received from Mr. John Bayly, of Plymouth, who was already a Founder, and is now qualified as a Life Governor of the Association. On hearing that the Council felt it to be necessary to omit certain features in the plan of the Plymouth Laboratory as approved by them, on account of the expense involved, Mr. John Bayly came forward with this munificent donation, and thus enabled the Council to carry out their original design.

II. In reference to the grant from the Treasury, the Council submit, for the information of the members of the Association, the final letter received from the Lords of the Treasury and the answer returned by the Council to that communication.

Treasury Chambers, December 9, 1885

SIR,—I have laid before the Lords Commissioners of Her Majesty's Treasury your letters of the 2nd and 13th ultimo, on the question of the proposed assistance to be given by the Government to the Marine Biological Association of the United Kingdom. Their Lordships have considered the matter very carefully, and they now desire me to inform you that they are prepared to propose to Parliament a grant of 5000£ towards the cost of the Laboratory which the Association intends to construct at Plymouth, such grant to be paid in two instalments of 2500£ each, one in 1886-87, and the other in 1887-88, and also an annual grant of 500£ for five years, beginning in the year 1887-88, towards the current expenses of the Laboratory, on the following conditions:—

(1) That the Council of the Association agrees to have its accounts formally audited each year, and to furnish a statement of income and expenditure to the Treasury.

(2) That the Council undertakes to issue at regular intervals (probably half-yearly) a detailed report of the work done in the Plymouth Laboratory, and to furnish the Treasury with such report.

(3) That the Council pledges itself definitely to aim at procuring practical results with regard to the breeding and management of food-fishes.

(4) That the Council undertakes to place space in the Plymouth Laboratory at the disposal of any competent investigator deputed by a recognised authority to carry out any investigation into fish questions for which the Laboratory can give facilities.

I am to add that my Lords will make the necessary provision for these grants in the Estimates for the coming year, but until Parliament shall have sanctioned the grant, it will not be in their power to make any payments to the Association in fulfilment of the above promise of assistance.

In conclusion I am to suggest, with reference to your letter of the 8th instant, that in future any communications between the Association and the Scotch Fishery Board should be conducted through the Secretary for Scotland.

I have the honour to be, Sir, your obedient servant,

M. W. RIDLEY