

one from Sydney, the other from Melbourne; and had been himself told off for corona work. But though brimming full of fine enthusiasm to do all that man could do in that department, he yet characteristically adds, "but how can we expect to see any of the more refined and minute features through all this Krakatoa haze which the sun has still to shine through? In 1882, before that great volcanic eruption, we could see the comet of that year close up to the sun's limb; but now I am certain that nothing of the kind could be visible." C. P. S.

15, Royal Terrace, Edinburgh, October 21

### NOTES

PROF. PASTEUR read on Monday evening to the Paris Academy of Sciences a statement, of which the following is the substance as telegraphed to the *Standard*:—M. Pasteur some time ago succeeded in rendering proof against rabies some sixteen out of every twenty dogs experimented upon. But to ascertain that immunity had really been given, he had to wait four months after the inoculation had taken effect. He therefore set himself to obtain virus of different degrees of strength, with the object of obtaining prompt and more certain results. This was effected by the following means:—A rabbit was inoculated with a fragment of tissue taken from the spine of a rabid dog. The incubation of the poison occupied fifteen days. As soon as the rabbit was dead a portion of its spinal marrow was in turn inoculated into a second rabbit, and so on until sixty rabbits had been inoculated. At each successive inoculation the virus became of increased potency, and the last period was not more than seven days. Having ascertained that exposure to dried air diminishes the virus, and consequently reduces its force, M. Pasteur supplied himself with a series of bottles containing dried air. In these bottles were placed portions of the inoculated spinal marrow of successive dates, the oldest being the least virulent, and the latest the most so. For an operation M. Pasteur begins by inoculating his subject with the oldest tissue, and finishes by injecting a piece dating from two days only, whose period of incubation would not exceed one week. The subject is then found to be absolutely proof against the disease. At the beginning of July a young Alsatian, named Joseph Meister, who had been severely bitten in several places by an undoubtedly rabid dog, presented himself at the laboratory. His case, left to itself, being considered hopeless by M. Pasteur, Prof. Vulpian, and other high authorities, the patient was submitted to the same series of inoculations that had been so successful on dogs. As a proof a series of rabbits were simultaneously subjected to the identical processes. In ten days thirteen inoculations were made with pieces of spinal marrow containing virus of constantly-increasing strength, the last being from the spine of a rabbit which had died only the day before. The youth thus operated upon by the successive administrations of weaker virus was made proof against the virus of the intensest strength. It is now 100 days since he underwent the last inoculation, and he is in perfect health. Those rabbits, on the contrary, which were at once inoculated with the strong virus, without first being rendered fit to receive it, became affected within the proper incubation period, and died with the usual symptoms. The first inoculation practised upon Meister was sixty hours after he had been bitten. M. Pasteur has, at the present moment, another human patient under treatment who was bitten a few days ago by a mad dog. M. Pasteur said it would now be necessary to provide an establishment where rabbits might always be kept inoculated with the disease. In this way there would constantly be a supply of spinal tissues, of both old and recent inoculation, ready for use. Before the sitting was adjourned M. Pasteur received an enthusiastic ovation from both the Academy and the public present.

THE annual meeting of the five academies forming the French Institute took place at two o'clock on October 24 in the large hall of the Institut; M. Bouguereau, President of the Academy of Beaux Arts was in the chair. The great prize delivered once every two years was awarded to Dr. Brown-Sequard, the well-known physiologist. M. Paul Bert had written a paper "On Vivisection," which was expected as a sequel to the delivery of the prize to Dr. Brown-Sequard, but it was not read for want of time. The annual banquet took place in the evening for the second time.

IT is rumoured that M. Goblet, the Minister of Public Instruction, proposes to return to the former organisation of the Institut, which was regarded as a universal self-electing body. Each class or special academy had not the privilege of choosing its own members as now, but of proposing a list of candidates to the whole Institut. The increased solemnity given to the annual and quarterly meetings, and the institution of banquets, are considered as preparatory to this important change.

M. BERTRAND, who was nominated member of the French Academy some months ago, will be received on December 10 next, at a solemn sitting, when he will read his inaugural address. It will be answered by M. Pasteur.

A VERY valuable addition has recently been made to the Science Collections now displayed in the Western Galleries at the South Kensington Museum of Science and Art. Mr. Rochfort Connor, of the Inland Revenue Department, has prepared a number of exquisitely finished pen-and-ink drawings of objects viewed with the microscope, often by the aid of very high powers. The collection, which covers two large screens in the rooms devoted to biology and geology, include drawings of insects and other minute forms of animals, and of various anatomical preparations from them, of curiosities of pond-life, and of the skeletons of many organisms, both recent and fossil. Among these last Mr. Connor's highly-finished representation of some of the more complicated forms of the Diatomaceæ, such as *Heliopelta* and *Coscinodiscus*, are especially worthy of admiration, though some of his drawings of Foraminifera, Bryozoa, and Sponge-spicules are scarcely inferior to these in delicacy of execution. These drawings represent, we understand, the leisure hours of a busy life-time, and their author is now engaged in a series of microscopic drawings illustrating the characters of food-products and their adulterants. A few of these are now exhibited as samples, and the series when complete cannot fail to be of great use to public analysts and others.

AT a meeting of the Brookville (U.S.) Society of Natural History, September 22 (according to *Science*), a committee was appointed to confer with the scientific associations, educational institutions, and with individuals throughout the State of Indiana, concerning the advisability of the formation of a State Academy of Science, and if thought advisable, to co-operate with such persons in favour of the formation of such an association. Free expression of opinion is called for by the committee, both as to the need of such an organisation and as to the best plan for its composition. It is now the plan to hold a meeting at Indianapolis between Christmas and New Year's day. It proposed that the organisation shall enable the citizens of Indiana who are engaged in scientific work to meet at certain times "for social intercourse, for the exchange of ideas, and the comparison of results of scientific studies." It would appear from the prospectus that the Academy would be a State society similar to the American Association.

SOME theoretical views on the detonation of meteorites have been recently offered by Signor Bombicci in the *Royal Accademia dei Lincei*. He supposes the detonation to be that of an explosive gas mixture, formed during the surface-heating of the mass in the atmosphere, and accumulating chiefly in the vacuities

space left behind the mass in its very swift flight. The gas mixture is probably of oxygen and hydrogen, and it becomes detonant when the proportions are near those in which the gases form water. The oxygen may be supplied from the air; the hydrogen may come from the meteorite itself, which, having like porous bodies and fused metals, taken it up and condensed it in some region of space, sets it free again as it becomes very hot by friction of the air, and as an enormous difference of pressure arises between the front and the back part. But a portion (and perhaps the larger) of the detonating mixture may come from dissociation of the aqueous vapour in contact with the glowing and fused surface of the meteor. To the idea of an actual explosion of the meteorite by internal energy, Signor Bombicci objects that the ball must be shattered to the finest dust, and that fragments would not be coated with a crust. Sometimes meteorite stones remain quite whole in spite of the detonation. Haidinger's idea of the sound being due to air rushing into the vacuum behind the meteorite is thought improbable because the detonation takes place in very high layers of the atmosphere, where the air is much too rare; moreover the movement of the meteorite until detonation is a quite steady one. The character of the noise, and its repetition at intervals, also the shattering of the mass into fragments forming a cone of dispersion towards the earth all agree, in the author's opinion, with an explosion of gas behind the meteorite. Referring to another point, Signor Bombicci thinks that the earth has by virtue of its magnetism a selective action on cosmic masses; hence the universal presence of iron in meteorites.

MESSRS. A. AND C. BLACK will publish immediately a volume by Dr. Croll, F.R.S., entitled "Discussions on Climate and Cosmology," and also a new edition of "Climate and Time."

ACCORDING to the *Journal of Indian Art* the Government of India has decided to combine the duties of the Archæological Survey and those hitherto performed by the curator of Ancient Monuments. For this purpose India, exclusive of the Madras and Bombay presidencies, has been partitioned into three divisions, one of which has been placed under the control of Major Keith, who superintended the construction of the magnificent Gwalior gate which H.H. Maharajah Scindia has presented to the South Kensington Museum, and which will be a prominent ornament of next year's exhibition.

WE have received from Mr. Saville Kent, Superintendent and Inspector of Fisheries in Tasmania, a very encouraging report of operations for the year ending July 31, 1885. Much of the report is devoted to oyster fisheries, which Mr. Kent is endeavouring to develop on scientific principles. He has established hatcheries at various points, and a laboratory for experiments, and under his care the oyster ought to become an important industrial product in Tasmania. He also advises the encouragement of sponge fisheries. With regard to Salmonidæ, Mr. Kent concludes that no true salmon have yet been established in the lakes and rivers of Tasmania. The fish of large size which abound in the great lakes and other large sheets of water are really essentially the same as the Great Lake Trout or *Salmo fox* of Great Britain.

IN the Report by the Board of Trade on their proceedings and business under the Weights and Measures Act for the past year, it is stated that the attention of the department has been called by the Corporation of Dublin to the necessity of providing a legal standard measure for testing steam pressure-gauges. In reference thereto regret has been expressed that at present the Standards Department has no power to do this. The question appears to be whether a pressure-gauge is a "measure" within the meaning of the Act. The testing apparatus proposed by the Corporation is a measurer of pressure applicable only for special use, and it belongs to a class of measuring instruments,

as barometers, thermometers, &c., not directly provided for by the Act. In the report of last year an opinion was expressed that the time had now arrived when this country might, under proper conditions, join the International Convention on Metric Standards, and in September last Her Majesty's Government made known to the Comité International des Poids et Mesures at Paris that England was willing to join the Convention. This has now been done; and the Comité accepts the reservations of Her Majesty's Government as to the introduction of the metric system into this country, affirming that there is nothing in the articles of the Convention which implies any obligation on the part of a contracting State to attempt to modify the system of weights and measures legalised at the time in that State. The adhesion of England, therefore, is not to be regarded as any expression of opinion that the adoption of the metric system in this country would be desirable. A copy is attached to the Report of a Memorandum on Metric Standards intended for laboratory use; and also a copy of a scale of errors to be permitted on ordinary metric standards used in testing manufacturers' weights. Metric weights from 20 kilograms to 0.001 gram. to be used for the purposes of science and manufacture, or for any lawful purpose not being for the purpose of trade, have been verified for the local authority of Birmingham.

MR. CLEMENT L. WRAGGE, of the Torrens Observatory, near Adelaide, late of Ben Nevis, has been instructed by the Queensland Government to "visit and report as to the best means of establishing meteorological stations in Queensland, including the Cape York Peninsula and Torres Straits." Mr. Wragge, who lately returned to Brisbane from Northern Queensland, will commence his duties early this month, and proceeds shortly to Normanton in the Gulf of Carpentaria.

THE Institution of Mechanical Engineers met at Coventry yesterday, when the following papers were read:—On the construction of modern cycles, by Mr. Robert Edward Phillips, of London; on the distribution of the wheel load in cycles, by Mr. J. Alfred Griffiths, of Coventry; description of a hydraulic buffer-stop for railways, by Mr. Alfred A. Langley, of Derby.

THE aquarium at the Inventions Exhibition has lately received some valuable additions in the form of golden tench, American salmonidæ, and Italian carp, notwithstanding the fact that the Exhibition will shortly close. It is to be hoped that the exhibits from the Buckland Museum collection will be allowed to remain in the aquarium, where they appear to far better advantage than in their previous *locale*.

THE Ichthyological Museum now in course of formation at South Kensington has been lately enriched with further valuable specimens of fish. Amongst them are some prawns unique in size, measuring *twelve* inches long, which were presented by Mr. John S. Charles, of Lower Grosvenor Square.

THE *Scientific American*, in a recent issue, describes the tangent galvanometer constructed at Cornell University, from the designs of Mr. Anthony, the Professor of Physics, to meet the want of a standard instrument for the measurement of heavy currents, and for the direct calibration of the commercial instruments in use for measuring the currents employed in electric lighting, &c. For the measurement of heavy currents there are four circles, two 2 metres in diameter, and two 1.6 metres, mounted, according to Helmholtz's plan, at distances apart equal to their radii. The conductors forming these circles are copper rods, three-fourths of an inch in diameter. The needle is suspended by a silk fibre in a mass of copper, which serves as an effectual damper, and makes it possible to take readings very rapidly. By a peculiar arrangement of mirrors and telescope the deflections are read directly in angular measure on a circle 50 inches in diameter, to within three tenths of a minute of arc. The copper conductors are mounted on a brass framework accu-

rately turned and adjusted, and the dimensions are all known within one five-thousandth. For the measurement of small currents there are two circles, about 1.5 metres diameter, each having two conductors, and comprising altogether 72 turns of No. 12 copper wire.

THE indications of such an instrument of course depend upon the value of the horizontal intensity of the earth's magnetism, and without some means of determining this quantity in the place where the instrument stands, and at the time when a measurement is being made, no great accuracy is attainable. For making this determination, a coil a metre in diameter, consisting of 100 turns of No. 18 wire, is suspended, so that its centre coincides with the centre of the instrument by means of a single phosphor-bronze wire, which is itself attached to a torsion-head reading to ten seconds of arc. By the aid of this coil, observations may be taken at any moment for the determination of H by the method proposed by Sir William Thomson. The instrument is mounted in a copper building, from the construction of which all iron has been rigidly excluded. Several conducting wires connect the building with the dynamo and other rooms of the physical laboratory, 550 feet distant, and switches in the building serve to send the currents through the several coils of the galvanometer singly, in series, or in multiple arc, direct or reversed. By this means currents from 1 milliampere to 250 amperes can be accurately measured.

THE last number (Heft 33) of the *Mittheilungen der Deutschen Gesellschaft für Natur und Völkerkunde Ostasiens* contains a paper by Herr Hütterott on the Japanese sword, with numerous illustrations of the various forms. It describes the manner in which it is forged, how it reaches the extraordinary degree of excellence for which it is celebrated, in short the *technique* of the making of a Japanese sword in the feudal days. Herr Mayet concludes his account of a visit to Corea, the first part of which we have already noticed. Dr. Naumann, the director of the Geological Survey of Japan, and Japanese representative at the late Geological Congress at Berlin, communicated an extract from a report of his on the geological structure of the Japanese islands.

ONE-TENTH of the "Studentenschaft" at the Zurich University is now female. Twenty-nine young ladies study medicine, fourteen philosophy, and two political economy. Of the forty-five female students, fifteen are Swiss, and ten Russian.

THE after-sunglow has again at times been visible in Stockholm, from the middle of August to the middle of September, being distinct from the ordinary evening aurora.

A FURTHER telegram has just been received by the Russian Minister of War from Col. Prjevalsky, dated Osh, September 30—that is, the 12th inst., new style. Only the concluding passage has as yet been published by the Russian papers:—"August 14 (new style, August 26), Oasis of Tchira.—I have explored the Keria Mountains. We are now proceeding *via* Khoten and Aksu, and we shall arrive in Semiretchia towards the end of October. All is well."

THE spheroidal state of liquids has recently been made an object of study by Signor Luvini (*Il Nuovo Cimento*). A curious phenomenon was noticed when air was blown into the drop (to test the view that liquids in that state do not boil because they have lost their dissolved air). There arose bubbles often larger than the mass of liquid, and very persistent; they shared the movements of the drop and sometimes moved independently. Such bubbles were had in pure water, soapy water, alcohol, and ether, and would probably arise in all liquids. Sometimes they appeared only after the tube was withdrawn. Signor Luvini infers that liquids in the spheroidal state do not lose their dis-

solved air, or lose it very little. The author made arrangements for observing the spheroidal state under different air pressures, and he came to the conclusion that the temperature of each liquid in that state, under a given pressure, is very nearly equal to the least boiling temperature of the liquid under the same pressure.

WE have just received from the secretary, Mr. Charles Bailey, F.L.S., of Manchester, the reports of the Botanical Exchange Club for the years 1883 and 1884. For 1883 Mr. G. Nicholson acted as distributor, and 3735 specimens were received and divided out again amongst the members. In 1884 Mr. Arthur Bennett undertook the labour of distribution, and the number of specimens placed in circulation was 4371. The two reports contain a series of annotations by the distributors upon the more interesting plants which passed through their hands. For a considerable number of species new counties are registered. The most interesting additions to the British flora, of which they make mention, are a *Scutellaria*, intermediate between *minor* and *galericulata*, perhaps a hybrid, found by Mr. Nicholson in a place one would have thought likely to be thoroughly explored long ago—the shores of Virginia Water; *Potamogeton fluitans*, a pond-weed very difficult to recognise, found by Mr. A. Fryer in Huntingdonshire; and *Carex salina*, a boreal species known already in Scandinavia, Iceland, the Faroes, Nova Zembla, and North America, which has lately been discovered by Mr. Grant in Caithness. The Rubi of Britain want carefully comparing with those of the Continent, and Mr. Arthur Bennet has done well to send the Club specimens to be verified by Dr. Foche, of Bremen, whose synopsis of the German Rubi has been taken lately by Hyman as a basis for his enumeration of the European forms in his most useful geographical conspectus of the European flora.

A CURIOUS calculation has been recently made by Signor Bartoli regarding the mean density of a body which should contain all the known elements in a solid state, either uncombined, or, if partly combined, each retaining the density belonging to it in the solid state. The author makes three suppositions—(1) the masses of all the substances equal; (2) masses such that the corresponding volumes are equal; (3) masses in ratio of the atomic weights. The corresponding mean densities he arrives at are 2.698, 7.027, and 5.776, and it is pointed out that the last value comes very near that got by Cavendish for the mean density of the earth, viz. 5.67; possibly an accidental agreement, yet interesting.

WE have received from Mr. Francis Day copies of two papers, on a subject on which he also read a paper at the Aberdeen meeting of the British Association. One is entitled "Notes on the Breeding of Salmonidæ," being observations on the fish cultural experiments being carried on at Howietown, and on experiments by the author himself at Cheltenham. The second, from the *Transactions* of the Linnean Society, is on the breeding of salmon from parents which have never visited the sea. This also describes the results of experiments at Howietown.

WE have received the report of the Council of the Leicester Literary and Philosophical Society for the past year. Various important additions have been made to the town museum; the work on the flora of Leicestershire, undertaken and edited by a botanical sub-committee, is now in the press, and will shortly be published; the resolution, adopted at the last general meeting of the society, for the promotion of science classes in the town has, owing to various circumstances, only been partially carried out. Two experimental classes, one for pure mathematics, the other for physiology, have been commenced, and have been attended with fair results. The reports of the various sections show a considerable amount of work done during the year.

Short abstracts of various papers read before the society are given in the *Transactions*.

A MISSION of thirteen youths, belonging to the best families in Cambodia, has arrived in Paris for the purpose of study. They have been placed under the care of M. Pavie, who has constructed a line of telegraphs between Siam and Cambodia. This is the first time since 1864 that Cambodians have come abroad for purposes of education.

THE additions to the Zoological Society's Gardens during the past week include a Vervet Monkey (*Cercopithecus lalandii* ♂) from South Africa, presented by Mr. George E. Crisp; a Malbrouck Monkey (*Cercopithecus cynosurus* ♂) from West Africa, presented by Miss Ethel O'Donoghue; a Kinkajou (*Cercoleptes caudivolutulus*) from Demerara, presented by Mr. John Carder; four Common Squirrels (*Sciurus vulgaris*), six Common Dormice (*Muscardinus avellanarius*), British, presented by Mr. Thomas Weddle; a Tennant's Squirrel (*Sciurus tennanti*) from Ceylon, presented by Miss Maude Bovill; two Vulpine Squirrels (*Sciurus vulpinus*) from North America, presented by Capt. E. E. Vail; a Coypu (*Myopotamus coypus*) from South America, presented by Mrs. Amelia Appleton; a Robben Island Snake (*Coronella phocarum*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; two Sly Silurus (*Silurus glanis*), European, presented by the Marquis of Bath, F.Z.S.; a Red Lory (*Eos rubra*) from Moluccas, an Alexandrine Parrakeet (*Palæornis alexandri*) from India, deposited.

#### OUR ASTRONOMICAL COLUMN

PERIODICAL COMETS IN 1886.—Of the now somewhat numerous list of comets of short period, two will be due at perihelion in the ensuing year:—(1) The comet Tempel-Swift, or 1869 III. and 1880 IV., which is likely to return under circumstances that will render observations impracticable, so far at least as a judgment can be formed without actual calculation of the perturbations. (2) Winnecke's comet, last observed in 1875, its track in the heavens near the perihelion passage in December 1880 not allowing of the comet being seen at that return; the perturbations may be very sensible during the present revolution: neglecting their effect, the mean motion determined by Prof. Oppolzer, for 1880, would bring the comet to perihelion again about August 24<sup>th</sup>, under which condition its path would be as follows:—

	R.A.	Decl.	Distance from Earth
July 25 <sup>th</sup>	177 <sup>h</sup> 5 <sup>m</sup>	+10 <sup>o</sup> 2'	1 <sup>h</sup> 17'
Sept. 13 <sup>th</sup>	241 <sup>h</sup> 7 <sup>m</sup>	-24 <sup>o</sup> 9'	0 <sup>h</sup> 9 <sup>m</sup>
23 <sup>th</sup>	246 <sup>h</sup> 1 <sup>m</sup>	-30 <sup>o</sup> 2'	0 <sup>h</sup> 6 <sup>m</sup>
Oct. 3 <sup>th</sup>	264 <sup>h</sup> 8 <sup>m</sup>	-35 <sup>o</sup> 6'	0 <sup>h</sup> 6 <sup>m</sup>
23 <sup>th</sup>	305 <sup>h</sup> 0 <sup>m</sup>	-36 <sup>o</sup> 0'	0 <sup>h</sup> 7 <sup>m</sup>

The actual orbit of Winnecke's comet approaches very near to that of the planet Jupiter in heliocentric longitude 110<sup>o</sup>, at which point the comet arrives 720 days or 1<sup>h</sup> 97 years before perihelion passage, the distance between the two orbits is then less than 0<sup>o</sup> 06' of the earth's mean distance from the sun.

It is very possible, however, that the comet which may most interest astronomers in 1886 will be that observed in 1815, and known as Olbers' comet, which, according to the elaborate calculations of Dr. Ginzle, will again arrive at perihelion in December 1886. The most probable date that can be inferred from the observations of 1815, and the computation of planetary perturbations in the interval is December 16, but unfortunately the observations did not suffice to determine the mean motion in 1815 with precision, and consequently Ginzle found for the limits of the period of revolution 72<sup>h</sup> 33' and 75<sup>h</sup> 68 years, hence the comet may reach its perihelion many months earlier or later than the date given by calculation. Extensive sweeping ephemerides have been published, and it may not be too soon to direct attention to a search for the comet at the beginning of the next year, or as soon as the region in which its orbit is projected at the time can be advantageously examined.

A CATALOGUE OF 1000 SOUTHERN STARS.—Vol. iii. of "Publications of the Washburn Observatory" is to contain a

catalogue of 1000 stars between 18<sup>o</sup> and 30<sup>o</sup> of south declination, formed by Rev. Father Hagen and Prof. Holden from the observations of Prof. Tacchini at Palermo during the years 1867-69, which were printed in the *Bulletino* of that observatory between April, 1867, and July, 1869, and with which Prof. Holden says he became acquainted through M. Houzeau's *Vade-Mecum*. The stars observed are from the 6th to the 9th magnitudes, and the magnitudes appear to have been very carefully noted, while it is remarked that the positions are excellent. They are reduced to the year 1850, but the mean epoch of observation of each star is appended. The copy before us is a reprint from the above-named volume. Tacchini's observations were made with the Palermo meridian circle fully described in the *Bulletino*.

#### ASTRONOMICAL PHENOMENA FOR THE WEEK, 1885, NOVEMBER 1-7

(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 November 1

Sun rises, 6h. 56m.; souths, 11h. 43m. 40<sup>o</sup> 9s.; sets, 16h. 31m.; decl. on meridian, 14<sup>o</sup> 35' S.; Sidereal Time at Sunset, 19h. 15m.

Moon (two days after Last Quarter) rises, 0h. 13m.; souths, 7h. 20m.; sets, 14h. 14m.; decl. on meridian, 9<sup>o</sup> 37' N.

Planet	Rises	Souths	Sets	Decl. on meridian
	h. m.	h. m.	h. m.	
Mercury ...	7 57	12 22	16 47	18 <sup>o</sup> 25' S.
Venus ...	11 11	14 46	18 21	25 50 S.
Mars ...	23 54*	7 13	14 32	14 20 N.
Jupiter ...	2 55	9 9	15 23	2 2 N.
Saturn ...	19 45*	3 53	12 1	22 18 N.

\* Indicates that the rising is that of the preceding day.

#### Phenomena of Jupiter's Satellites

Nov.	h. m.	Nov.	h. m.
1 ...	6 48	6 ...	5 18
5 ...	5 1	7 ...	2 39
6 ...	3 0		

The Phenomena of Jupiter's Satellites are such as are visible at Greenwich.

Saturn, Nov. 1.—Outer major axis of outer ring = 44<sup>h</sup> 0'; outer minor axis of outer ring = 18<sup>h</sup> 9'; southern surface visible.

Nov.	h.	
1 ...	4 ...	Mars in conjunction with and 4 <sup>o</sup> 16' north of the Moon.
3 ...	7 ...	Mercury at greatest distance from the Sun.
3 ...	9 ...	Jupiter in conjunction with and 0 <sup>o</sup> 52' north of the Moon.
7 ...	21 ...	Mercury in conjunction with and 6 <sup>o</sup> 16' south of the Moon.

#### THE SCOTTISH METEOROLOGICAL SOCIETY

AT the annual meeting of this Society the Report of the Council stated that thirty-eight new members had been added to the Society during the year, and the membership now numbered 698. A new station had been established on the island of Fidra, at the mouth of the Firth of Forth, and that observations had been made for the Society at San Gorge, Central Uruguay. A large number of naturalists and others had availed themselves of the facilities for research offered by the Scottish Marine Station during the summer, there being thirteen working at the laboratories at the present time. Communications were now going on between the Council and several influential gentlemen in Glasgow, which it was hoped would result in the establishment of a permanent station for marine research on the Clyde. Mr. H. N. Dickson, of the Marine Station, communicated the results of experiments and observations which, during the past two months, he had been conducting at Granton, with the view of collecting data from which to determine the corrections to be applied to the readings of thermometers exposed in the ordinary Stevenson screen, in use in many places over the world. Having referred to the errors to which the ordinary screen gives rise, consequent on the varying atmospheric motion and radiation, he proceeded to say that his investigation was carried on chiefly by means of improved screens designed by Mr. John Aitken of Darroch, and that the dew points from the dry