number of logs received from ships was 189; of these 80 per cent. were classed as "excellent," being a greater percentage of excellence than has been reported for some years. The discussion of the meteorology of the Red Sea is still in progress, and the work is well advanced. Charts of barometrical pressure for four representative months for the various oceans have been issued, together with charts showing the mean barometrical pressure for the year, and the extent of range of irregular fluctuations, and considerable progress has been made in the construction of the current charts for the various oceans. As these works are cleared off, it is intended to undertake a discussion of the meteorology of the region from the Cape of Good Hope to New Zealand. (2) Weather Telegraphy. The work of this branch continues to increase, and the Daily and Weekly Weather Reports, in particular, have been extended and improved. Forecasts continue to be prepared three times daily, and special forecasts were issued during the hay-making season; the highest percentage of success of the latter was in the southern part of England, and the lowest in the north-east district. Storm warnings are issued to those places on the coast that desire to receive them. (3) Land Meteorology of the British Isles. The records from the Observatories and Stations of the Second Order are discussed and published. The Council have continued the annual grant of £100 towards the expenses of the Ben Nevis Observatory, and have received copies of the observations made there. They have also agreed to allow £250 a year to the proposed Observatory at Fort William, for five years, and to supply an outfit of an Observatory of the First Order, to be equipped with self-recording instruments. The Report also contains interesting notes on some results of an examination of the Atlantic charts published by the Office, and on the measurement of squalls shown on the traces of Robinson's anemometers.

A NEW alkaloid, to which the name taxine is applied, has been extracted and isolated by Drs. Hilger and Brande, of Erlangen, from the leaves, seeds, and young shoots of the yew tree (*Taxus baccata*). Lucas some time ago pointed out the existence of a narcotic partaking of the nature of an alkaloid in the yew tree, and Marmé has since described a mode of extracting it. Drs. Hilger and Brande have lately prepared large quantities of this alkaloid, and have at length satisfactorily determined its composition and its more important chemical properties. The leaves and seeds were first repeatedly treated with ether in order to extract as much of the alkaloid as possible. The extract was then subjected to distillation to remove the ether, and the residue agitated with water acidified by a little sulphuric acid. The acid washings were noticed to be strongly coloured, and this was found to be due to the high tinctorial power of a compound of taxine with sulphuric acid. The acid solution was then rendered alkaline by ammonia, and the precipitated alkaloid dried over sulphuric acid. After dissolving in ether, re-washing with acid and precipitating with ammonia several times, the alkaloid was obtained as a perfectly white powder of extremely bitter taste, and melting at 82° C. On heating in a glass tube the melted taxine partly sublimes as a white cloud which condenses in the colder part of the tube in the form of drops of oil which solidify on cooling. At the same time it evolves a most characteristic odour. It is very difficultly soluble in water, chloroform, or benzene, but readily in alcohol and ether. Concentrated sulphuric acid produces an intense purple coloration. Dilute acid solutions give precipitates with gold chloride, platinum chloride, and picric acid, and also even in very dilute solutions yield precipitates on the addition of caustic alkalis or ammonia insoluble in excess. Analyses show that the formula of taxine is most probably $C_{37}H_{52}O_{10}N$. It forms with acids salts readily soluble in water. The hydrochloride, sulphate, acetate, oxalate, and tartrate, have been prepared, likewise the double salts with the chlorides of

platinum and gold. The hydrochloride is best obtained by passing hydrochloric acid gas through a solution of taxine in anhydrous ether, when the salt is at once deposited in good crystals. Analysis indicates the formula $C_{37}H_{52}O_{10}N.HCl$. The sulphate possesses the composition $(C_{37}H_{52}O_{10}N)_2H_2SO_4$, the platinochloride $(C_{37}H_{52}O_{10}N.HCl)_2PtCl_4$, and the aurochloride $(C_{37}H_{52}O_{10}N.HCl)AuCl_3$. A compound of taxine with ethyl iodide, of the composition $C_{37}H_{52}O_{10}N.C_2H_5I$, was also obtained by heating equal molecules of the alkaloid and ethyl iodide to 100° C. under pressure. This compound is also a crystalline solid soluble in water. As regards the constitution of the alkaloid, which from its high molecular weight must of necessity be extremely complex, it has only yet been ascertained that it belongs to the class of nitrile bases. The leaves of the yew tree were found to contain the largest quantity of taxine, the seeds containing a smaller but still by no means inconsiderable quantity of the alkaloid.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus* ♀) from India, presented by Mr. McDowall Currie; a Ring-necked Parrakeet (*Palaeornis torquatus* ♂) from India, presented by Miss Thornton Smith; two West African Love Birds (*Agapornis pullaria* ♂ ♀) from West Africa, presented by Mrs. Cyril Tatham; a Black-necked Stork (*Xenorhynchus australis*) from Malacca, two Peacock Pheasants (*Polyplectron chinquis* ♂ ♀) from Burmah, purchased.

OUR ASTRONOMICAL COLUMN.

OBJECTS FOR THE SPECTROSCOPE.

Sidereal Time at Greenwich at 10 p.m. on March 27 =
roh. 21m. 7s.

Name.	Mag.	Colour.	R. A. 1890.	Decl. 1890.
			h. m. s.	° ' "
(1) G. C. 2102	—	Blue.	10 19 29	-18 5
(2) 37 Leonis	5.7	Yellowish-red.	10 10 47	+14 17
(3) γ Leonis... ..	2	Yellowish-white.	10 13 54	+20 24
(4) α Leonis... ..	1	White.	10 2 30	+12 30
(5) 136 Schj.	6	Very red.	10 46 17	-20 46
(6) X Boötis... ..	Var.	Dull orange.	14 18 59	+16 49

Remarks.

(1) This is a very bright planetary nebula in the constellation Hydra. From its size and equable light, Smyth compared it to Jupiter. It is about 32" in diameter, and its spectrum consists of bright lines. In 1868, Dr. Huggins recorded the presence of the three characteristic nebula lines, but Lieutenant Herschel only saw two of them. The spectra of planetary nebulae are by no means difficult to observe, notwithstanding their generally small diameters. If no cylindrical lens be employed, the lines in some cases are considerably bright, and their shortness is no great drawback. Now that we know that there are a good number of lines in the nebula of Orion, it seems reasonable to expect that a careful search will reveal a greater number in other nebulae. D_3 and a line about λ 447 are the next in order of brightness to the three chief lines and G in the visible part of the spectrum of the nebula in Orion, and these should therefore be first looked for. It should also be particularly noted whether the brightest line is perfectly sharp on both edges, or otherwise.

(2) This star has a spectrum of the Group II. type. Dunér states that the spectrum is rather feebly developed, all the bands being narrow. The bands 2 and 3 in the red are the strongest. The character of the spectrum indicates that the temperature of the star is probably higher than that of most of the members of the group, the spectrum approaching that of Aldebaran. In that case, a considerable number of lines may be expected. It will be remembered that in Aldebaran there is mainly a line spectrum, together with the remnants of the bands in the red.

(3) A star of the solar type (Gothard). The usual observations are required.

(4) This is a star of Group IV., showing several fine metallic lines in addition to those of hydrogen. The usual observations are required.

(5) The spectrum of this star is a fine one of Group VI. The usual carbon bands are wide and dark, and the subsidiary bands 4 and 5 are perfectly well seen (Dunér). It seems probable that favourable conditions of observation, which, unfortunately, are not common for low stars in our latitude, may reveal other secondary bands.

(6) This is another variable star of which the spectrum has apparently not been recorded. The period as determined by Baxendell is 121.4 days, and the magnitudes at maximum and minimum are 9.2 and 10.2 respectively. The maximum will be reached about April 5. (This is Baxendell's V Boötis.)

A. FOWLER.

CHARLES MARIE VALENTIN MONTIGNY.—It is with regret that we have to announce the death of Prof. Montigny, at Schaerbeek, on the 16th inst. Prof. Montigny was born on January 8, 1819, and was a member of the Royal Academy of Belgium, Astronomical Correspondent of Brussels Observatory, an officer of the Order of Leopold, and decorated with the civil cross of the first class. He is best known for his interesting researches on the scintillation of stars, which form the subject-matter of a series of papers communicated to the Brussels Academy. In the January number of *Himmel und Erde* a long description is given of the results of Montigny's observations, and the instrument he devised and used for the determination of the amount of scintillation on different nights, and for the same stars at different altitudes. It is well known that if a scintillating star is observed by means of an opera-glass or small telescope, and the instrument tapped, the star appears to move and not the instrument; if the instrument is kept vibrating, the star will appear to move in a closed curve, along which different colours repeat themselves. The scintillometer devised by the late Prof. Montigny for investigating these appearances consisted of a small disk which could be whirled round in front of the eye-piece so that the star appeared to describe a circle in the field of the telescope. The circumference of this circle was made up of a regular sequence of colours, of which blue, yellow, and red were predominant. If the rate of motion of the disk be known, then by counting the number of times the colours were repeated the number of changes of colour a second may be found. All the causes affecting the scintillation of stars were investigated, and the relation of the amount to the character of the spectrum, the state of the atmosphere, and the colour of the star, made the subject of inquiry. The results obtained by means of this ingenious instrument are important, and the whole work on scintillation done by the deceased astronomer stands as a fitting monument to his memory.

AN OBSERVATORY AT MADAGASCAR.—A new Observatory has been established at Tananarivo under the direction of the Jesuit fathers, and with the concurrence of the French Government. The site chosen is a hill a short distance to the east of the town, and about 4400 feet above sea-level, making the Observatory one of the highest in the world. It already possesses an equatorial, a meridian instrument, and all necessary apparatus for meteorological observations; and a photographic telescope will shortly be provided for solar observations.

THE ADMINISTRATION OF FOREIGN FISHERIES.

THE following notes¹ were drawn up at the request of the late Lord Dalhousie just before he became seriously ill. The failure of his health and his absence from home—before the sad bereavement and shock which terminated in his death—prevented him perusing them, though the substance of much that appears in the subsequent pages formed the theme of several conversations with him. His familiarity with the sea, his wide knowledge of the fisheries, his upright and generous bearing, and his sound judgment, would undoubtedly, if he had been spared, have been of infinite service to the Department (which, probably, sooner or later, he would have reorganized very thoroughly). No greater loss, indeed, has happened to the fisheries in recent times.

¹ For information on various points relating to the subject, I have to thank Prof. Alex. Agassiz, Hubrecht, Möbius, Lovén, and G. O. Sars, Herr von Behr, Drs. Anton Dohrn, Lindeman, Nansen, and Sauvage; while Mr. Hoyle kindly aided me with the Norwegian statistics.

The United States Fish Commission is managed by a Director, who is more or less autocratic and irresponsible; though in the case of the late Prof. Baird the Americans were extremely fortunate in having a Director possessed of great administrative power and tact, and who never utilized the resources at his disposal for personal display or advancement. However able this Director may be, the system has its disadvantages, and is less suitable than a mixed Commission of men of position, who would have an opportunity of expressing their views as to the work to be carried out. Moreover, the American plan is less safe than a responsible head—that is, a chief under the control of a Board or Commission of those who are not necessarily specially skilled. It is possible, indeed, that, as the fisheries are at present administered in the United States, a considerable expenditure of money and of time annually takes place, which under other methods might be curtailed. The practical advances made by the Americans have in the main been confined to the fresh-water fisheries—that is, the propagation of the salmon-tribe, carp, and other fluviatile and lacustrine forms. The Marine Department has not yet succeeded in making any noteworthy improvement in sea-fisheries, though much money has been spent, and a large Annual Report is regularly issued. This Report contains not only the work accomplished by the staff of the Department, but reprints and translations of papers relating to the fisheries of other countries. There is, therefore, a wide difference between the condition in this country (where the observations connected with the fisheries have often to be published by Societies or independent journals) and the lavish expenditure on the other side of the Atlantic.

In France, again, the management of the fisheries is exclusively vested in the Minister of Marine at the Bureau des Pêches. At the head is a Director charged by the State with the inspection of the fisheries. For the scientific study of the questions pertaining to the marine fisheries the chief station is at Boulogne—though the Minister of Agriculture, under whom the station was constructed, also gave a small subsidy to the Zoological Laboratory at Villefranche (Alpes Maritimes) for the study of diverse questions concerning fishes and oysters—and this was founded by a subsidy from the town and the Chamber of Commerce. The advances made by M. Coste and others in the fresh-water fisheries of France are too well known to need further attention. France is fortunate in having a series of excellent marine laboratories, at which considerable advances have already been made in regard to the food-fishes, and in collateral scientific subjects. The names of MM. Lacaze Duthiers, Giard, Marion, Barrois, Pouchet, Sauvage, and others, are sufficient guarantees that the work of the fisheries and cognate subjects will be worthily carried out.

In Norway there is no special Fishery Board, but the Governmental Department of the Interior manages both the marine and fresh-water fisheries. As yet only a general inspector for the latter has been appointed at a fixed salary. For each of the more important marine fisheries, however, a so-called *opsynschef* is engaged by the Government, to see to the administration of justice during the time the fishery is going on. Moreover, an annual grant of 16,000 kr. is granted to the Society for the Advancement of Norwegian Fisheries in Bergen. The aims of this Society, which has various branches in towns along the coast, are chiefly practical, such as the improvement of fishing implements, the most suitable and successful preparation of the fishery products, and other features. It also has a special department for the artificial hatching of the food-fishes, in connection with the laboratory at Arendal, on the southern coast. The expenses of this establishment are partly borne by the Society just mentioned, and partly by private subscription. It is at this laboratory that M. Dannevig has done so much good work in the artificial rearing of cod, oysters, and lobsters, in the former case having succeeded in keeping the fishes till the end of the second year, and when of considerable size (14–16 inches).

For strictly scientific investigations in connection with the marine fisheries the Storting grants an annual sum of 4800 kr. These investigations have for many years been chiefly carried out by Prof. G. O. Sars, whose observations on the Lofoten cod-fisheries, and the development of the cod, are well known and justly esteemed, while, as a worthy son of a distinguished father, he has in other departments of zoology contributed largely to our knowledge. Other naturalists have also been engaged in the work, chiefly in regard to the herring-fisheries. Prof. Sars, moreover, with a view of protecting the marine fisheries, has to report on every contrivance proposed,