

fish (*Pterophyllum scalare*), the last two species new to the collections. The report of the secretary recorded a considerable decrease in the number of visitors to the gardens in January as compared with the numbers of the corresponding month last year.

At a meeting of the council of the National Institute of Agricultural Botany held on February 9 the first election of fellows of the institute took place. A hundred and ten candidates were elected, among whom were the following:—H.R.H. the Duke of York, the Prime Minister, the Duke of Bedford, the Marquess of Crewe, the Earl of Ancaster, the Earl of Derby, the Earl of Crawford, Viscount Milner, Lord Clinton, Lord Bledisloe, Lord Ernle, Sir Gilbert Greenall, Sir Harry Verney, Sir Matthew Wallace, the Hon. E. G. Strutt, the Right Hon. E. C. Pretyman, M.P., the Right Hon. Sir A. Griffith-Boscawen, Sir Thomas Middleton, Mr. Charles Adeane, Mr. Samuel Farmer, Mr. R. R. Robbins, and Lady Margaret Boscawen.

THE officers and other members of council of the Malacological Society of London for the ensuing year were elected on February 10 as follows:—*President*: Mr. A. S. Kennard. *Vice-Presidents*: Mr. J. R. le B. Tomlin, Prof. A. E. Boycott, Mr. G. K. Gude, and Mr. C. Oldham. *Treasurer*: Mr. R. Bullen Newton. *Editor*: Mr. B. B. Woodward. *Secretary*: Mr. A. E. Salisbury. *Other Members of Council*: Dr. A. H. Cooke, Mr. H. O. N. Shaw, Lt.-Col. A. J. Peile, Mr. T. Iredale, Dr. E. W. Howell, and Mr. Hugh Watson.

ON Thursday next, March 2, Prof. H. M. Lefroy will deliver the first of two lectures at the Royal Institution on (1) "The Menace of the Insect Pest" and (2) "The Balance of Life in Relation to Insect Pest Control." On Saturday, March 4, Sir Ernest Rutherford will begin a course of six lectures on radio-activity. The Friday evening discourse on March 3 will be delivered by Dr. C. Morley Wenyon on "Microscopic Parasites and their Carriers."

DR. W. BATESON, director of the John Innes Horticultural Institution, Mostyn Road, Merton, S.W.19, is giving a demonstration of the genetics of *Primula sinensis* at the institution to-day, February 23, at 3 p.m. All interested in the subject are invited, and in particular those who attended Dr. Bateson's lectures on genetics in November last. Admission is free, without ticket.

THE ninth election to Beit fellowships for scientific research will take place in July next. Applications must be received by the Rector, Imperial College of Science and Technology, South Kensington, S.W.7, not later than April 19. Forms of application and all information respecting the fellowships are obtainable from the Rector of the Imperial College of Science and Technology upon written request.

THE first award of the Meldola medal, referred to in NATURE of January 12, p. 49, has been made by the council of the Institute of Chemistry, with the concurrence of Dr. Percy E. Spielmann, representing the Maccabæans, to Dr. Christopher Kelk Ingold.

Our Astronomical Column.

DETONATING FIREBALL IN SUNSHINE.—Mr. W. F. Denning writes that this object observed by him on February 7 at 3.55 p.m. appears to have been seen by comparatively few observers, although the loud detonations which followed it were heard by large numbers of people, chiefly in Warwickshire, over which county the fireball passed. It seems to have caused the loudest reports near the middle section of its flight, in the region of Quinton, Feckenham, Mere Hall, and Droitwich. At some places there was only one sound heard, at others two, but all the observers agree that the concussion and vibration were of startling intensity. The detonations were heard along a line directed from S.E. to N.W. The radiant point of the meteor was at 60°-11°, and the height from 56 to 32 miles; the length of luminous flight was 82 miles, and velocity about 10 miles per second. The position of the object was from over Oxfordshire to Shropshire.

MOVEMENTS IN SPIRAL NEBULÆ.—In this column for January 12 reference was made to the movements in spiral nebulae which Dr. Jeans described at the Royal Astronomical Society when exhibiting slides sent by Dr. van Maanen. Dr. van Maanen has now published the fifth paper on this subject in the issue of the *Astrophysical Journal* for December last, showing the results of his investigation with regard to the spiral nebula Messier 81. This paper contains the evidence on internal motions derived from the four nebulae which Dr. van Maanen has now measured, namely, M 101, 33, 51, and 81, and he summarises the results in a table of which the following is an

abstract. The second column gives the interval in years between pairs of photographs he has compared, and the following four columns the motions as indicated at the heads of the columns. The last column gives the number of nebular points the positions of which were independently measured:—

(Units for Motions 0.001")

Object	Interval in years	Rotational	Radial	Stream	Transverse	No. of nebular points
M 101	5	+21	+ 5	+21	0	87
M 101	9	+20	+ 6	+22	- 3	69
M 101	15	+12	+ 7	+14	+ 2	46
M 33	10	+20	+ 6	+24	- 2	30
M 33	5	+14	+12	+18	+ 4	21
M 51	11	+19	+ 8	+21	+ 3	79
M 81	6	+20	+17	+25	+16	52
M 81	11	+38	+13	+39	+ 7	104

It will be seen that all pairs of plates show the same type of motion, and, as Dr. van Maanen points out, the agreement in the values of the motion for each nebula derived from different pairs of plates is as satisfactory as could be expected. In addition to the rotational components, which correspond to the periods in the order of the nebulae in the table, namely, 83,000, 160,000, 45,000 and 58,000 years, they all show a large outward radial component. The close agreement of the displacements in direction with the spiral arms of the nebulae suggests, as he states, "a realisation of the motions described by Jeans in 'Problems of Cosmogony and Stellar Dynamics.'"