

Table 1. ORBITAL DATA FOR SPUTNIK 2

Date	November 9, 1957	December 3, 1957	January 22, 1958	March 2, 1958
Time, G.M.T.	05.23 hr.	07.28 hr.	19.23 hr.	16.00 hr.
Orbital period (min.)	103.49 ± 0.05	102.289 ± 0.001	99.206 ± 0.001	96.33 ± 0.01
Semi-major axis (nautical miles)	3,940.2 ± 1.3	3,909.72 ± 0.06	3,830.77 ± 0.06	3,756.5 ± 0.3
Eccentricity	0.0973 ± 0.0004	0.0904 ± 0.0003	0.0728 ± 0.0005	0.055*
Angle from apex to perigee	- 33° ± 1°	- 41.9° ± 0.2°	- 63.19° ± 0.06°	- 83°*

Inclination of orbital plane to equator: $65.29^\circ \pm 0.03^\circ$.

The rate of rotation of the orbital plane about the Earth's axis was 2.69 ± 0.01 degrees/day at 00.00 hr. on December 1, 1957, and 2.88 ± 0.01 degrees/day at 00.00 hr. on January 20, 1958.

* Accuracy uncertain.

February there was a further rise, from 3.9 to more than 5 sec. a day, followed by a fall to about 4.5 sec. a day. These fluctuations are believed to be genuine and not due to observational error. They imply fluctuations in the effective drag on the satellite, and their interpretation should provide much scope for ingenuity. There have also been striking fluctuations in the apparent brightness of the satellite, often with a period of the order of one minute, and these have generally been attributed to its rotation.

The fluctuations in drag have made it difficult to predict the movements of the satellite accurately, and any estimates of life-time are subject to considerable error. At present the most likely date for the final descent through the atmosphere appears to be April 15; but if the drag were to change abruptly by 20 per cent, as it has done in the past, this date could be in error by up to 10 days.

When Sputnik 2 began its career the orbit had an eccentricity of about 0.1 and the height varied be-

tween a minimum of 120 nautical miles and a maximum of 900 nautical miles (1 nautical mile = 6,080 ft.). The satellite was at perigee when going north at a latitude of about 51° N. By the beginning of March 1958, the eccentricity had fallen to about 0.056 and the height varied between 110 and 530 nautical miles. Meanwhile perigee shifted slowly backwards along the orbit, and by the beginning of March had nearly reached the equator. The inclination of the orbital plane to the equator has remained virtually constant, as was expected from theory.

Fig. 1 and the orbital data given in Table 1 are derived partly from the many independent observations on which the prediction service for Sputnik 2 relies, and partly from observations made by kinetheodolite stations of the Royal Aircraft Establishment. I would like to thank all those concerned in the observations and analysis for the help they have given, often in the dark hours before dawn.

NEWS and VIEWS

Royal Society of Edinburgh: New Fellows

At the ordinary meeting of the Royal Society of Edinburgh, held on March 3, the following were elected Fellows of the Society: Prof. H. A. Brück, Astronomer Royal for Scotland and professor of astronomy in the University of Edinburgh; Dr. W. K. Burton, lecturer in natural philosophy, University of Glasgow; Mr. W. McL. Dewar, headmaster, George Heriot's School, Edinburgh; Mr. W. E. J. Farvis, head of the Postgraduate School in Electronics and Radio and senior lecturer, Department of Engineering, University of Edinburgh; Dr. D. Finlayson, research superintendent, British Celanese, Ltd.; Dr. A. R. Hill, lecturer in agricultural zoology, University of Glasgow; Dr. D. K. McE. Kevan, lecturer in agricultural zoology and head of the zoology section, School of Agriculture, University of Nottingham, recently appointed to the chair of entomology, McGill University; Dr. I. R. W. Lominski, senior lecturer in bacteriology, University of Glasgow; Dr. A. McDiarmid, principal scientific officer (veterinary science), Agricultural Research Council Field Station; Dr. Sheila Macintyre, lecturer in mathematics, University of Aberdeen; Prof. D. McKie, professor in the history and philosophy of science in the University of London; Mr. J. P. Maule, director, Commonwealth Bureau of Animal Breeding and Genetics; Dr. A. Meiklejohn, senior lecturer in industrial health in the University of Glasgow; Prof. R. Meredith, professor of textile technology, Royal College of Science and Technology, Glasgow; Dr. Mary J.

McD. Noble, principal scientific officer (plant pathologist), Department of Agriculture for Scotland; Dr. D. V. Osborne, lecturer in natural philosophy, University of St. Andrews; Dr. R. Osborne, principal scientific officer, Poultry Research Centre, Agricultural Research Council; Dr. R. V. Rajam, director, Department of Venereal Diseases, Government General Hospital, Madras; Prof. R. A. Raphael, regius professor of chemistry in the University of Glasgow; Prof. I. N. Sneddon, Simson professor of mathematics in the University of Glasgow; Prof. F. S. Spring, Freeland professor in the Royal College of Science and Technology, Glasgow; Mr. J. N. Toothill, general manager, Ferranti, Ltd., Edinburgh; Dr. C. D. Waterston, assistant keeper in charge of the Department of Geology, Royal Scottish Museum; Prof. A. Williams, professor of geology in The Queen's University, Belfast; Prof. M. F. A. Woodruff, professor of surgical science, University of Edinburgh.

NATO Science Committee

THE following national representatives on the North Atlantic Treaty Organization Science Committee have recently been nominated: Prof. C. Alexopoulos (Greece); Prof. F. Giordani, professor of general chemistry in the University of Naples (Italy); Prof. R. F. Mayer, vice-rector of Lisbon Technical University (Portugal); Prof. I. I. Rabi, professor of physics in Columbia University (United States); Prof. P. B. Rehberg, University of Copenhagen (Denmark); Prof. S. Rosseland, professor of