(12 models) illustrates faults in horizontal and tilted strata; folded strata; faults in folded strata; and unconformity. The second series (14 models) illustrates folds, overthrusts, and igneous intrusions. The patterns are clearly printed in a standard system of shading and numbering, and the paper used is well adapted for taking colours. The price is 1*s*. 6*d*. per set, and cardboard blocks are supplied at 1*s*. 6*d*. per dozen. The publishers can also supply the models ready made up, either plain or hand-coloured.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A wholetime Principal of the Woolwich Commercial Evening Institute, Plumstead—The Education Officer (T.7), County Hall, Westminster Bridge, S.E.1 (Oct. 28). A lecturer in mathematics at the Exeter Diocesan College for Schoolmasters—The Principal, Saint Luke's College, Exeter (Oct. 30). A lecturer and/or demonstrator in rubber technology and rubber workshop practice at the Newton Heath Technical School, Manchester—The Director of Education, Education Offices, Deansgate, Manchester (Oct. 31). An assistant part-time lecturer in the biology department of the Plymouth and Devonport Technical College—The Secretary for Education, Education Office, Rowe Street, Plymouth (Nov. 1). A science master at the Royal Naval College, Dartmouth—The Headmaster, Royal Naval College, Dartmouth (Nov. 1). An assistant lecturer in physical chemistry in the University of Bristol—The Secretary, University, Bristol (Nov. 4). A lecturer in natural and agricultural sciences at Harrison College, Barbados—C.A. (N), The Secretary, Board of Education, Whitehall, S.W.1; Scottish candidates, C.A. (N), The Secretary, Scottish Education Department, Whitehall, S.W.1 (Nov. 11). A George Henry Lewes student in physiology in the University of Cambridge—Prof. Barcroft, Physiology School, Cambridge (Nov. 15). A Foulerton research student to conduct researches in medicine or the contributory sciences—The Assistant Secretary of the Royal Society, Burlington House, W.1 (Dec. 9). A cancer research fellow in the Department of Experimental Pathology and Cancer Research, University of Leeds—The Clerk to the Senate, The University, Leeds. A male junior assistant at the Chemical Warfare Research Department of the War Office—The Chief Superintendent, Chemical Warfare Research Department, 14 Grosvenor Gardens, S.W.1. An assistant lecturer in mathematics at the Battersea Polytechnic—The Principal, Battersea Polytechnic, S.W.11.

Our Astronomical Column.

The New Telescope for Edinburgh Observatory.—In *Engineering* for Sept. 6 and 20, and Oct. 4 and 18, is a description of the 36-in. reflecting telescope for Edinburgh Observatory, made by Messrs. Sir Howard Grubb, Parsons and Co., to the specifications of Prof. R. A. Sampson, Astronomer Royal for Scotland. The article is accompanied by some fifty illustrations, many of them from working drawings, and with their aid it is possible to understand the construction of all the principal parts. The optical system is arranged on the Cassegrain principle, the main mirror being 36 in. in diameter, with a focal length of 15 ft. The Cassegrain mirror mounted near the upper end of the tube is 10 in. in diameter and is designed to give an equivalent focal length of 54 ft. in conjunction with the main mirror. The mounting is of the equatorial type, and the illustrations include sections through both polar and declination axes and the methods of driving and controlling the instrument.

The spectrograph to be used with the telescope has been made by Messrs. Adam Hilger, Ltd. Either one, two, or three glass prisms or one quartz prism can be used, and these, together with the three cameras, are carried in a single-piece aluminium casting lined with felt and kept at a uniform temperature by electric heating wires.

Special attention is directed to the very extensive use made of ball bearings for both polar and declination axes and many other parts. In 1888, 1904, and 1916 respectively, *Engineering* fully described the 36-in. telescope of the Lick Observatory, the 40-in. refractor at the Yerkes Observatory, and the 72-in. reflector for the Canadian Government. These three instruments were constructed by Messrs. Warner and Swasey of Chicago. Of Mr. Warner there is an obituary notice in *Engineering* of Sept. 20.

The Satellites of Mars.—The two tiny bodies that revolve close to Mars afford an example of an interesting kind of motion. Our moon is so far from the earth that the sun's disturbing action is far more potent than the effect of the earth's equatorial protuberance; the result is that the pole of the moon's orbit plane goes round a centre that is sensibly the pole of the ecliptic; on the other hand, in Neptune's system the sun's disturbing action is infinitesimal, and the pole of the satellite's orbit goes round Neptune's pole of rotation. In Mars we have an intermediate state of things; the poles of the satellites' orbits go round points between the poles of the planet's rotation and revolution. The pole of the orbit of Phobos describes a circle with radius 1·1° in a period of 2·264 years. In the case of Deimos the radius is 1·77°, the period 56·127 years.

H. Struve made two careful investigations of the positions of the centres of these circles and of the pole of Mars; the first was made about 1894, the second about 1909; as twenty more years have now passed, and numerous observations of the satellites have been made at Lick, Yerkes, and Washington, Mr. H. E. Burton, of Washington Observatory, has made a new discussion in *Astr. Journ.*, 929, of the whole series of forty-nine years. The point that is of most interest to Martian observers is the position of the planet's axis; there has been much discussion as to whether this is best determined from the satellites or from markings on the disc. Mr. Marth adopted Struve's 1894 result from the satellites, but afterwards the ephemerides went back to a value derived by Lowell and others from markings on the disc. There is no question that the various determinations from the satellites agree excellently *inter se*, and it is difficult to think that they can be wrong by as much as a degree. Burton's position of Mars' north pole is R.A. 316·99°, N.Decl. 52·51° (equinox of 1880); this gives 25·20° for the obliquity of Mars' equator to its orbit, which is just 2° larger than Lowell's value. From past experience, however, it is unlikely that the observers will accept a value derived from the satellites.