

variations in the gravity field by Dr. M. H. P. Bott, also at Durham. The borehole has now penetrated the 'hidden' granite 1,280 ft. below the surface, and has thus indicated that valuable minerals continue to three times the depth of local mining. The source of the minerals, nevertheless, lies at still greater depth, and the borehole is being continued.

Journal of Theoretical Biology

THE first question one asks about this, as indeed about any, new journal is why is it necessary? As the chief editor says in his preface, "it has frequently been difficult for an author to find an acceptable medium for theoretical papers" as contrasted with experimental ones; and in this one must regretfully concur. Nevertheless, a journal devoted to theoretical papers over the whole of biology must, one would have thought, have had a unifying objective beyond that of providing an asylum for homeless brain-children. There is excitement abroad in biology to-day, just as there is excitement in cosmology, in nuclear physics, in theoretical chemistry; and it is this excitement which, one feels, a journal of theoretical biology should catch, encourage and sustain. In the first issue there are several mathematical and physical papers which would leave the general biologist rather cold, a philosophical paper and an ecological paper which have little in them to excite the mathematician. There are, however, several papers of the kind one has in mind, dealing with the organization of cellular processes, one of which, by Dr. A. Szent-Györgyi, as might be expected from this author, being especially thought-provoking (*Journal of Theoretical Biology*, 1, No. 1. Subscription rates: (A) institutional subscribers, 121s. 6d. or 17 dollars; (B) subscribers certifying that issues will be for personal use only, 86s. or 12 dollars. London and New York: Academic Press, Inc., 1961).

Kybernetik

WE had occasion recently to take note of a new Russian journal which is being translated into English in Britain, concerned with cybernetics (*Nature*, 189, 795; 1961); our attention has now been directed to another journal, of similar scope, published in Germany, but edited by an international board. This is *Kybernetik*, published by Springer-Verlag of Berlin, and which is edited by a small group of people prominent in the field from Germany, Britain, the United States, Austria, France and the Netherlands. As with the Russian journal, the subject-matter in this relates to the transmission and processing of information and to automatic control processes, both as regards theoretical development within engineering and applications to models of biological functions. *Kybernetik* aims at cultivating experimental and theoretical work within the fields of information theory, control and automata theory, sensory processes and physiology of the nervous system as regards its information handling properties, and the like. The first issue of this journal appeared in January 1961.

New Pulsed X-ray Generator

THE Zenith Radio Corporation announces the production of an X-ray generator which, it is claimed, produces 1- μ sec. pulses of high-intensity radiation, with a repetition-rate of up to 30 per sec. The maximum operating voltage is 150 kV., with a current pulse of 130 amp., and a pulse power of

about 20 MW. The radiation beam and the resultant radiographs are observed on a fluorescent screen and an image intensifier, which may be used for cine-radiography. The main use of the apparatus would appear to be in the field of industrial radiography under dynamic conditions. It can be used to study the internal structure of sealed vibrating systems which are not observable optically. In one demonstration the structure of a bullet in flight at 4,000 ft. per sec. was observed on a closed-circuit television system. Possible uses in crystal diffraction work under transient dynamic conditions are suggested. The claims for possible medical uses seem to be on less-firm ground. It is suggested that the very short pulses can give maximum radiographic information with minimum exposure of the patient. This appears to be based on a misconception that information depends on high-radiation intensity only, regardless of the total energy reaching the X-ray film. In one case, sufficient technical information is given for it to be approximately checked, and this raises doubts. It is claimed that adequate density on conventional film is obtained from a single pulse through 1.5 in. aluminium at 6 ft. Simple calculations from the figures given in the report show that such a procedure would involve a conventional radiographic exposure of 0.13 m.amp. and a radiation dose to the film of a fraction of a milliroentgen. Unless there are undisclosed factors, it is very difficult to imagine the production of adequate radiographs under these conditions. In spite of these questions, this new machine offers hopes of important advances in industrial radiography, probably mainly in the field of precision engineering.

Geology of Ben Nevis and Glen Coe

SINCE the first edition of the *Geological Survey Memoir* on "The Geology of Ben Nevis and Glen Coe" (Scotland: sheet 53) was published in 1916, the district has become somewhat of a national playground, much visited by tourists, mountaineers and parties of geological students. In the second edition (pp. 307, pl. xiii; H.M. Stationery Office, 1960; 35s.), Sir Edward Bailey has rewritten and modernized his original publication, to provide a comprehensive account of the classical geological features of this fascinating area. Here one finds, associated with the famous cauldron subsidences, the most spectacular display of plutonic, hypabyssal and volcanic rocks of Lower Old Red Sandstone age known anywhere in Europe; and the neighbouring Highland schists, with their recumbent folds and anticlines, have given rise to more disputes about structure and succession than any other group of British rocks studied in the past half-century. Although much of the memoir is difficult reading because of its content of local detail, the work will be warmly welcomed by the many geologists who frequent this instructive and scenic corner of Scotland.

Calendar of AGARD Meetings

THE Advisory Group for Aeronautical Research and Development (AGARD) of the North Atlantic Treaty Organization announces the following schedule of meetings during April-August 1961: Aero Space Medical Panel spring meeting (Lisbon, April 10-14); Flight Mechanics and Fluid Dynamics Panels, "Stability and Control" (Brussels, April 10-15); Flight Mechanics Panel, "VTOL/STOL Aircraft" (Paris, April 17-19); Ionospheric Research Com-