studied objectively in the spirit of science, and encourage stronger hopes than often appear warranted from the Press accounts that the mistakes of the past are being turned to account, and an honest attempt made to build on that experience institutions as fitting for our present needs of international co-operation as unprejudiced minds can devise.

THE COAST RANGE BATHOLITH, BRITISH COLUMBIA

PROF. T. C. PHEMISTER has made a valuable contribution towards the solution of the ever-present problem of batholithic intrusion (*Quart. J. Geol. Soc.*, 101; 1945). In this, the first detailed paper written on the immense Coast Range batholith, he describes the country and intrusive rocks and their mutual relations in an area of 200 sq. miles which lies astride the contact north of Vancouver, British Columbia.

The country rock, outcropping in Bowen Island, consists of lavas and tuffs of Mesozoic age. These were folded and suffered a low degree of metamorphism before the intrusion of a suite of sub-acid dykes. The emplacement of the granodiorite was a subsequent event, and though this involved the engulfment of vast masses of the country rock with its pre-batholithic dykes, the regional strike of the country rock and the trend of the dykes in these great inclusions were in general preserved unchanged. The mutual relations of the intrusive and inclusions were studied in detail at Caulfield, where a representative inclusion outcrops over an area 1,200 ft. by 600 ft. The contact is a three-dimensional jig-saw referred to three planes, two of which are almost vertical and approximately at right angles and correspond with the regional strike of the country and the trend of the dykes; the third plane is at a low inclination, 20°, to the horizontal.

The resulting interpenetration of granodiorite and country rock is such that the normal conception of stoping cannot be valid here, and Prof. Phemister does not accept the interpretation of these included masses as roof-pendants. He notes the persistence of the dykes, which have very largely remained intact though the country rock has vanished, its former presence being proved by the occasional occurrence of irregular pieces protruding from the dyke-wall into the igneous rock. The author conceives the emplacement of the batholith as a quiet process at not very high temperature, perhaps taking place piecemeal with alternations of liquid and solid in closely adjacent parts of the mass, and with recurring incidents of fusion, solution and crystallization. The country rocks have not been pushed aside, they have not been displaced by a stoping process, and though a process of replacement by mineralizing agents offers a ready explanation of the spatial relations of the contacts, there remains the fact that the rock of the batholith is a granodiorite both on the large scale throughout its immense extent of 1,250 miles by fully 100 miles, whatever the country rock, and on the small scale, when it retains its character right up to the individual contacts.

Our present conception of the magmatic process is certainly inadequate and must be re-examined. Fuller knowledge of the physical and physico-chemical properties of aqueous magmas is necessary for further progress.

GEOLOGY AND PETROLOGY IN THE U.S.S.R. (1943–44)

By S. I. TOMKEIEFF

IT is impossible at the present time to evaluate the progress in the fields of geology and petrology made in the U.S.S.R. during the years of the War, but according to all reports it must be very considerable. The material at hand (*Bull. Acad. Sci. URSS*, Sér. Géol. for 1943 and 1944) amounts only to a small fraction of the total output of published material, and cannot be taken as a representative sample. It will, however, be of interest to geologists of Great Britain to know something of the work done in the U.S.S.R. during these years, and the following represents a brief summary of the most important articles published in the *Bulletin* (the references are given to the year, number and page).

The geological mapping of European Russia on the scale 1 : 420,000 began in 1888 and was completed in 1930. From the modern point of view, however, these maps are highly unsatisfactory, and in 1941 the Moscow Geological Survey appointed a special committee to devise a new scheme of geological mapping. In a preliminary report of this committee (*Bull.*, No. 1, 90; 1944) various schemes of mapping are discussed, including a new scheme of 'complex' mapping, which consists in the preparation of a set of maps for each district comprising stratigraphy (solid and drift), hydrogeology, geomorphology and economic resources.

Papers on stratigraphy, palæontology and tectonics in the *Bulletin* are not numerous. They include papers by I. A. Efremov on the Permian (*Bull.*, No. 6, 52; 1944) and on the dinosaur remains in Central Asia (*Bull.*, No. 3, 40; 1944) and papers by various authors on the reef structures in the Permian (*Bull.*, No. 2, 36, 56; 1943) and on Jurassic stratigraphy (*Bull.*, No. 3, 22, 74, 85; No. 6, 61; 1944).

Tectonics accounts for several papers, notably those by V. G. Bondarchuk on the relation between geotectonics and geomorphology (*Bull.*, No. 1, 107; 1944), by S. S. Shultz on the orogenesis of the Tian-Shan (*Bull.*, No. 2, 11; 1944), by V. A. Aprodov on the relation between tectonics and petroleum deposits (*Bull.*, No. 2, 70; 1943) and by J. S. Edelstein on a new scheme of tectonic subdivision of Siberia (*Bull.*, No. 6, 14; 1944).

The work published on coal and coal deposits involves stratigraphy, tectonics and petrology, as for example that by E. A. Perepechina (*Bull.*, Nos. 4–5, 82; 1943) and A. T. Donabedov (*Bull.*, Nos. 4–5, 98; 1943) in which the preliminary results of the application of a new method are presented. This method (I believe that it has been tried in Britain) consists in correlating the rank of coal with certain physical properties, such as density, porosity and mechanical properties of the enclosing scales and sandstones. The Urals certainly offer an exceptionally favourable district for the study of rank variation in coal, as there the coals range from the Devonian to the Tertiary, and they also vary in rank within the same formation. The influence of tectonic factors on the rank of coals is discussed by I. I. Gorsky (*Bull.*, No. 6, 28; 1943), while P. I. Dorofeev presents an interesting picture of the migration of coal-bearing facies in the Uralian area of deposition during the Devonian-Permian and the Mesozoic eras. In the first instance the coal-bearing facies migrated from the south to the north; in the second they fanned out from an easterly direction (*Bull.*, No. 1, 75; 1944).