The University of Bristol.

OPENING OF NEW BUILDINGS.

ON June 9 their Majesties the King and Queen opened the new wing of the University of Bristol before a distinguished gathering of representatives of the city and surrounding counties. The magnificent tower (Fig. 1) and the new buildings were the gift of Sir George Wills and his brother, the late Mr. H. H. Wills, in memory of their father Mr. H. O. Wills, the founder of the University. The scholarly genius of the architect, Mr. George Oatley, upon whom the King has just conferred the honour of knighthood, is revealed in every detail.

The building, with its imposing entrance hall, contains the main library of the Faculty of Arts and the extensive collection of medical works presented to the University by the Bristol Medical and Chirurgical Society. It also contains the whole of the administrative departments, the great hall of the University, with its hammered oak roof and carved oak panelling, the Senate and Council Room, as well as lecture rooms and private rooms for the whole of the members of the Faculty of Arts.

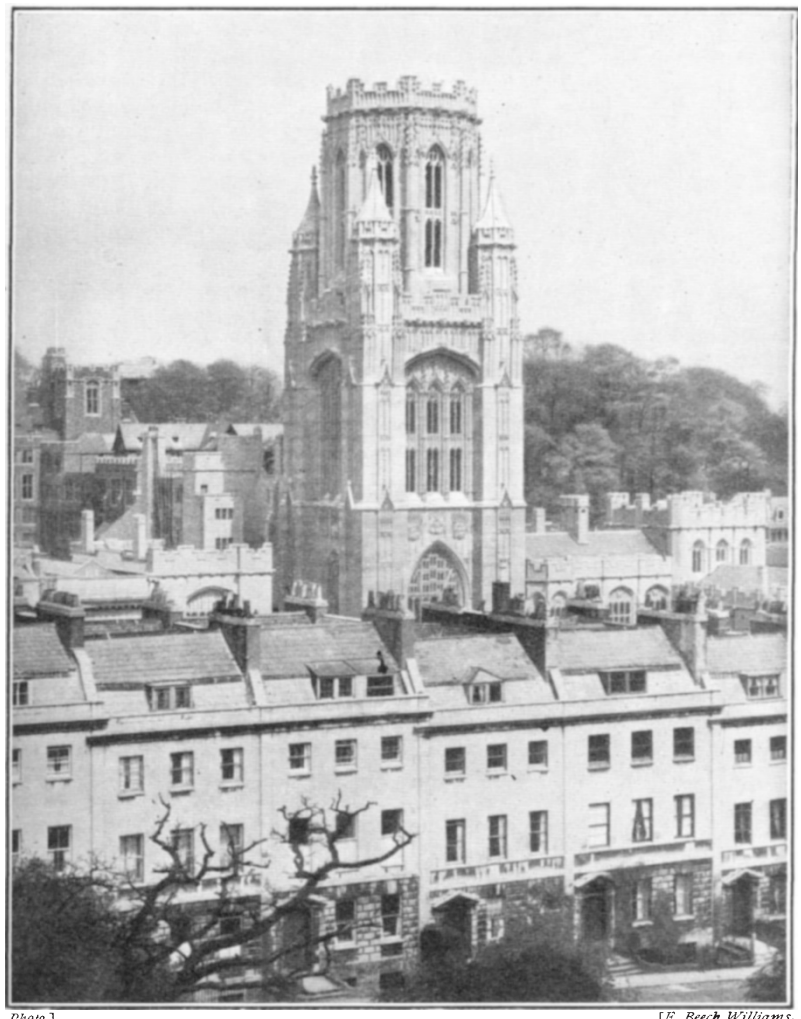

Photo.] [*F. Beech Williams.*

FIG. 1.—The University Tower, Bristol, from Berkeley Square.

The University of Bristol, like so many similar institutions, arose from a University College founded in 1876, which was affiliated and later completely fused with the Bristol Medical School, founded in 1832. The University received its Charter in 1909. The Society of Merchant Venturers, which joined with the city in the petition for this Charter, gave its well-equipped engineering laboratories, and has since maintained the entire Faculty of Engineering as its gift to the common good. There are few institutions in Great Britain which can show such rapid growth in the brief period of sixteen years, part of which was occupied by a devastating war.

No sketch such as this can possibly pay personal tribute to the many administrators who laid the foundation or to the academic staff who created the reputation on which they built. There would have been no University had it not been for such men as Percival, Dean Elliott, Jowett, Temple, Procter Baker, Lewis and Albert Fry, Arrowsmith, P. J. Worsley, and H. Napier Abbot on one hand; and Rowley, Marshall, Sollas, Silvanus Thompson, Lloyd Morgan, William Ramsay, Sydney Young, and Morris Travers on the other. It could not have come into being without the princely generosity of members of the Wills family, the financial assistance of the city of Bristol and the surrounding counties of Gloucester, Somerset, and Wilts, and the cities of Bath and Gloucester, all of which contribute from their rates.

The Science and Medical Faculties of the University are already housed in other buildings and further developments for various sciences are in progress. The recent removal of the Faculty of Arts to the wing now officially open sets free a number of rooms adjoining the departments of geology, botany, and zoology into which they are expanding. That such expansion was a most pressing need can be realised by the fact that the chemical department, erected in 1910 and regarded at the time as not only complete but also adequate for all possible contingencies for thirty years, is now seriously overcrowded owing to the important schools of research it is called upon to accommodate. Still further relief will be afforded when the physics department leaves its present inadequate quarters and takes up its permanent home in the magnificent H. H. Wills laboratory in the grounds of the Royal Fort estate.

Again, the University has to thank the late Mr. H. H. Wills both for the estate and buildings. The erection of the physical laboratories on this commanding site has been progressing slowly but steadily, and they will be ready for occupation in about eighteen months. In this case also it would appear that provision is being made for its full growth for at least a generation, but the history of the chemical department leads any such statement to be received with caution.

The Royal Fort estate is beautifully situated on one of the highest points in Bristol; except for a portion now being used as an extension of the Botanical Garden and that occupied by the new physics buildings, no other sites have yet been earmarked, but it contains space for other departments which are certain to be wanted in the future, and these can be built without destroying the main features of the charming eighteenth-century residence and garden which forms a large portion of the estate, and so delighted the visitors who attended the garden party held there on June 9 after the opening ceremony.

Another delightfully situated eighteenth-century residence, Clifton Hill House, was presented to the University in 1909 as a hostel for women students, and was extended in 1911 by the addition of the adjoining Callender House. At present the men are accommodated in Mortimer House and Canynge Hall, but in the near future a magnificent hostel is to be erected by Sir George Wills on the far side of the Downs on an estate presented to the University by Mr. H. H. Wills close to the athletic grounds at Coombe Dingle. Finally, the students and staff are fortunate in possessing a well-known landmark in the city, the Victoria Rooms, in close proximity to the University, where their Majesties had lunch on June 9. These fine buildings have been bought, endowed, entirely modified internally, and presented to the University for the purpose of a Club, by the same generous donor whose name will be for ever remembered in the city of Bristol.

Metal Resources and the Constitution of the Earth.

SPECULATION concerning the origin of ore deposits has been for many years, and is at the present time, dominated by the school of theorists who attribute a proximate and direct igneous origin not only to igneous segregations, contact deposits, and the metalliferous vein-deposits immediately associated with igneous intrusions, but to metalliferous veins generally. The grip attained by this theory is such that only rarely do authors of papers take a larger and more comprehensive view of either the possibilities or the actual facts of vein-formation. The extent to which the mind of the average worker is obsessed by the igneous theory is shown by the tendency to apply it in cases where it seems almost certainly inapplicable. In bedded iron-ores, sedimentary lead- and zinc-ores, and even petroleum, the igneous enthusiast sees clear evidence of metalliferous solutions and vapours rising through the earth's crust and effecting mineralisation at all levels on their way to the surface.

When igneous rocks are present anywhere within reasonable reach of metalliferous deposits, the igneous enthusiast is of course particularly happy. These igneous rocks may be miles away, but what does that matter? They may be entirely absent from the surface of a whole region; but that does not disturb his cheerful faith that somewhere the barysphere is bubbling. Indeed, at even shallower depths than the barysphere, are there not the seething metalliferous cauldrons of the magmasphere? The fact that both are well out of the way and far beyond the reach of observation comforts him rather than stirs his doubts, for on this account the barysphere and magmasphere are even more useful as a basis of speculation than they would be otherwise.

The notion that metalliferous veins have been deposited by solutions and vapours escaping from the barysphere was first made attractive by Posepny, and was freely adopted by students of ore genesis, partly on account of its simplicity and plausibility, and partly because it was regarded as the only alternative to the theory of lateral secretion, which had been found wanting. Though simple and plausible, however, it is almost certainly false, and the geological case against it was very fairly stated by Le Conte, in his contribution to the discussion on Posepny's paper. In recent years the igneous theory has gradually assumed a form in which it is more acceptable to geologists, the seat of the juvenile metals being fixed, not in the barysphere, but in ordinary rock-magmas originating at comparatively shallow depths. In this form the igneous theory is just as simple and plausible as it was in the barysphere form, and it is more difficult to refute, although, as applied to most deposits, it is probably nearly as false; but if so, whence came the metals of the vein deposits and contact deposits so often associated with igneous intrusions?

This problem, which is not only interesting in itself on purely scientific grounds, but is also important in its bearing on metal resources, was considered by Sir Thomas Holland in his presidential address at the annual general meeting of the Institution of Mining and Metallurgy on April 23. The ground he took was the contrast between the small percentages of the less abundant metals in the earth's crust as a whole, and their percentages in ore deposits. Taking the average composition of igneous rocks calculated by Clarke and Washington (see NATURE, Aug. 19, 1922, p. 254) as the best data available, he pointed out that, according to these data, elements formerly regarded as rare, such as zirconium and cerium, are more abundant in the earth's crust as a whole than are the familiar base metals copper, zinc, lead, and tin. Again, nickel, which is produced in comparatively small amounts, is ten times as abundant as lead and some hundred times as abundant as tin.

Adopting the now apparently well-established view that the earth has a large core of nickel-iron, which is surrounded by silicate-rock shells decreasing in basicity from an inner shell of peridotite to an outer one of granite-gneiss, Sir Thomas Holland states that the natural home of the heavier metals is deep down in the core, and asks: "How then do they get to the surface