NOTES from ABROAD

ENGLAND

University physics in England has one thing in common with that in America—it is just two years old. In the war the universities kept going as teaching institutions, and did a very fine job in turning out the many scientists needed for radar, for operational research, and for chemical industry. But they did it with half their staffs. The other half had gone away to work in government research stations, or into the armed services, or to North America to work on the atom bomb. They came back, most of them, in the winter of 1945–46. And so most of our projects have not yielded full results as yet, and there is comparatively little in print that represents the physics of the postwar period.

The first thing to be said about our postwar physics is that there is plenty of it. The number of graduates starting physics is two or three times what it was before the war, research in physics is very popular with our graduate students, and far more of our universities are doing first-class work. Twenty years ago, English physics was the Cavendish Laboratory and one or two others. This is not so now. There are at least half a dozen other schools in the very first class. This is one of the features of postwar England—the rise of the new universities and their increasing importance, in physics as well as in other subjects.

What we are trying to do in the various university departments will be described in this column in later numbers of Physics Today, and also the part played by research in government establishments, and in industry, and the way that the various organizations affect each other. But in this article I would like to discuss one problem common to physics departments all over the world, and that is how to get the money to buy equipment and pay research workers.

The best thing about our English system, the thing that makes for vitality and freedom, is that the system is not centralized; there are lots of different ways of getting money, and if a man cannot get money by one he can try another. There are first of all the universities themselves; many universities have endowments and all get an allocation from the central government. Then quite a different department of the government, the Department of Scientific and Industrial Research (DSIR), of which Sir Edward Appleton is head, has the duty of supporting graduates in training, and giving money for special projects, including nuclear physics. Other government departments do something along these lines, although very little in comparison with the DSIR.

There is then the Royal Society, which administers a Treasury grant and its own endowments; the research associations, such as the British Iron and Steel Research Association; and also large firms such as Imperial Chemical Industries Limited, which contributed handsomely to university work without attaching any strings whatever to the grants. This seems a thoroughly healthy system. It is too varied for there to be any likelihood that pressure could be put by any sectional interests on the free and natural development of physics.

Under these conditions, we work in England in an atmosphere where money is not lacking, nor men, nor enthusiasm, nor talent. In this world of shortages and priorities, equipment is more difficult. But, of course, the limiting factor is always buildings. As in America, the housing shortage is very serious, and first priority has been given to the building of houses. New laboratories for universities will probably have to wait for several years. But fortunately a number of large laboratories were completed just before the war, so there is enough space for quite a big expansion. The next article of this series will describe the expansion in one very important subject—nuclear physics.

N. F. MOTT

NETHERLANDS

The international physics meeting in Holland in July 1948 may attract a considerable number of physicists, and in view of this it seems worthwhile to sketch the organization of research in physics in that country. Fundamental research is centered in the laboratories of the three state universities at Leyden, Utrecht, and Groningen, and in the municipal university at Amsterdam.

The largest institute of fundamental research in the country is the ancient Kamerlingh Onnes Laboratory at Leyden, directed by W. J. de Haas and C. J. Gorter. Here the various properties of matter are investigated, at low and at very low temperatures. The laboratory at Utrecht, directed by J. M. W. Milatz, is specialized in absolute measurement of light intensities, and has now also embarked upon biophysics and upon the construction and studies of tools and instruments for nuclear research. Groningen, directed by D. Coster, concentrates on x-ray research and nuclear physics. Amsterdam has three laboratories, headed by J. Clay, A. Michels, and C. J. Bakker, which devote their activities to cosmic rays, high pressures, and spectroscopy, respectively.

There are a few smaller centers of fundamental research. Prominent among them was the laboratory of the Free (Calvinistic) University at Amsterdam, where G. J. Sizoo worked on radioactivity, but this institute was particularly robbed by the Germans. In Delft and Eindhoven applied research is combined with fundamental research, with emphasis on electronics, acoustics, optics, and the solid state. Delft is the seat of the Institute of Technology (J. M. Burgers, H. B. Dorgelo, M. J. Druyvesteyn, J. A. Prins, A. C. S. van Heel), where the nation's research engineers are educated. The Philips Works at Eindhoven have a large research department similar, in some respects, to the Bell Telephone Laboratories in Murray Hill, New Jersey. H. Casimir is physics director.

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