completed. The next generation of machines, it was said, would be so expensive that world collaboration on meeting the costs might be essential.

Since then, the idea of "world machines" has faded, while construction of smaller machines has grown apace: electron synchrotrons at Cambridge, Massachusetts, and Hamburg, Germany; proton synchrotrons at Princeton, at Argonne National Laboratory, and at Harwell, England. At Stanford University construction has begun on the 2-mile linear electron accelerator, and the Soviet Union is well along on its 70-Bev proton synchrotron.

The great cost of building such machines (at least $1 million per billion electron volts) and of running them has aroused controversy about the amount of money that should be spent on high-energy physics relative to other sciences. Discussion in the United States has emphasized the limits to the expansion of scientific budgets, while debate here has focused more on Europe's relative position as a scientific center. CERN is thought of as a pioneer effort to meet a political objective of more all-European collaboration by setting up a real competitor to American scientific efforts. The scale of scientific spending is somewhat more modest in Europe than in the United States, and CERN, as the only major establishment of its kind in Europe, is of much more importance relative to other facilities than similar high-energy laboratories are in America.

The European debate about the future of high-energy physics also differs from the American discussion in that it comes not when scientific budgets have been high for many years but just after a sharp increase in political awareness of science's role.

Of most importance in the European debate is the attitude of the British government, which now pays 25 percent of CERN's cost. It is not clear in what spirit the British will treat the proposal for storage rings and a 300-Bev accelerator. Last year, after the Amaldi panel had made its report, Britain's minister for science, Quintin Hogg, asked for advice about the proposals. From a panel on nuclear research came three main arguments favoring support: the imminence of new discoveries in physics; the need to retain scientists in Europe; and the usefulness of high-energy physics as a training ground for engineers in problems of vacuums, data handling, and electronics.

Hogg's Advisory Council on Scientific Policy responded: "There is no reason to doubt the validity of the scientific case presented by the working group for this new step forward to higher energies in the field of nuclear physics, nor to question its interest and importance from the standpoint of pure science. In relation to our general level of expenditure on scientific research, however, its cost is very high and raises serious issues of priorities. . . .

"Nuclear physics is only a part of science, although it accounts for a disproportionate amount of our total expenditure on scientific research. It is much more expensive than most other types of scientific work, but, as the Council has repeatedly stressed, our expenditure on the rest of scientific research is too low. There is a widespread feeling of discontent among academic scientists at this state of affairs and an impression that nuclear physics is already getting a very large slice of a rather small cake, despite the fact that the results to be obtained from it are likely to be of much less immediate practical importance than those from many other types of research. . . ."

Other needs should be met first, the council argued. It also urged that efforts toward world cooperation in nuclear physics be intensified at once. "Every effort should be made by governments . . . to seek full international cooperation now, before beginning the construction of a 300 Bev machine. The need to cooperate now is the more urgent since machines of even higher energy will assuredly be demanded in a few years' time."

—VICTOR K. MCELHENY

British Physics Journals

In Great Britain the three major publications concerned with physics are published by The Institute of Physics and The Physical Society. This body resulted recently from the amalgamation of two separate bodies, the Physical Society, which published the *Proceedings of the Physical Society,* and the Institute of Physics, which published the *British Journal of Applied Physics* and the *Journal of Scientific Instruments*. During the 3 years which have elapsed since the amalgamation the journals have been coordinated so that, together, they now cover the whole range of physics in a logical manner.

Proceedings of the Physical Society publishes original contributions on such topics as nuclear physics, statistical thermodynamics, and quantum mechanics, together with theoretical studies and experiments of a fundamental nature related to the atomic and electronic structure of matter in all its forms, including solids, liquids, gases, and plasmas.

British Journal of Applied Physics publishes original contributions on such topics as the properties of materials (magnetic, crystallographic, elastic, plastic, optical); applied semiconductor and dielectric physics; wave propagation, including acoustics, optics, and electron optics; applied metal physics; and applications of magnetohydrodynamics and thermonuclear devices.

Journal of Scientific Instruments describes physical instruments, and its coverage is being extended to include description of instrumental and experimental techniques developed in the course of research work in pure and applied physics.

These three British journals are not as well known as they should be among American physicists, who may, therefore, remain unaware of important work carried out in Great Britain.

The speed of publication of papers in these journals compares very favorably with that in most other physics journals; an average time of 4 months between receipt of manuscript and final publication is now being achieved.

The other major activity of the Institute and Society which concerns physicists outside the United Kingdom is the Annual Exhibition of Scientific Instruments and Apparatus, which has been held, except during wartime, since 1905. This is an exhibition of new British instruments which are unique either in the physical principles on which they are based or in the way they have been developed; they are shown by instrument firms, by government establishments, and by university departments. The exhibition is considered one of the most important events of the year in the research-instrument field; this year it was attended by well over 20,000 physicists.

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