RESONANCES

The 200-GeV accelerator site will be Weston, Ill., announced the Atomic Energy Commission on 16 December. The AEC revealed it would ask for $10 million for design work in fiscal 1968 and that the project would "proceed at a reduced scope" (less experimental equipment in early stages of operation). Weston, some 20 miles west of Chicago, is about an hour's drive from Argonne National Laboratory, Illinois Institute of Technology and the Universities of Chicago, Northwestern and Illinois (Chicago Circle campus). Commenting on the site selection, Norman Ramsey of Harvard said, "I hope all high-energy physicists will close ranks and support the decision. The AEC needs their support and any dissension will cause great harm."

A new APS division of particles and fields has been approved by the council of the American Physical Society. Division objectives include the advancement of research in and diffusion of knowledge of fundamental particles and fields, design and development of high-energy accelerators, and methods and instrumentation of high-energy physics.

Science and the New Copyright Revision

Scientists, together with composers and poets, are expected to profit from the first major revision of US copyright laws in over 50 years. The new laws, recently reported out by the House Judiciary Committee, are not addressed specifically to problems of science but will, according to science spokesmen, make it possible for these problems to be solved.

Opposing sides on the copyright issue have been the publishers on one hand and teachers and librarians on the other. In general, while publishers had sought stronger legal protection for their copyrighted materials, the teachers wanted liberal guidelines for the free use of such materials. But the physicist has interests with both publishers and educators. He is not only a professor photostating some pages from Feynman's *Lectures on Physics;* he is also a researcher reading about spontaneously broken symmetries in *The Physical Review* or publishing his report on wide-angle proton-proton scattering in *Physical Review Letters.*

As has been pointed out by physicists concerned with publishing operations, the main stake for the science community in the copyright revision lies in adequate copyright protection for noncommercial science publishers, such as the American Institute of Physics and the American Chemical Society. Operating under strict economies in the face of mounting costs, such organizations are extremely vulnerable to copyright abuse of their journals and other publications. "The nonprofits," says F. Joachim Weyl of the Office of Naval Research, "are much more sensitive than the private publishers to copyright abuse. Textbooks sell in the thousands; so you have to reproduce them in the thousands before you will hurt the private publisher. Furthermore if you reproduce them in such quantity, you can easily be found out. But an article in a scientific journal usually has only a few hundred readers. If you reproduce a few hundred copies of the article, you probably won't be caught but you will, at the same time, kill the journal."

Says Hugh C. Wolfe of the American Institute of Physics, "AIP recognizes the right of an individual physicist to make a copy of any article in place of taking extensive notes. We don't recognize the right of others to republish our material for profit or the right of information services to make large numbers of copies for distribution. We want the maximal dissemination of information among the physics community. At the same time, we have to have subscription revenues from our journals or else we won't be able to publish the information."

How then does the new copyright-law revision respond to the needs of the science community for both protection of its own copyrights and for maximal dissemination of information? Among the many significant sections of the revision are those items concerned with fair use and works produced by the US government.

Fair use. Section 107 of the revision contains the first statutory recognition of fair use in the United States Code. This section states that "the fair use of a copyrighted work . . . for purposes such as criticism, comment, news reporting, teaching, scholarship, or research, is not an infringement of copyright." In deciding whether a given use of material is fair use, the bill sets up four criteria: (1) purpose and character of use, (2) nature of the copyrighted work, (3) amount and substantiality of the material used and (4) effect of use on the author's market.

In the bare statement of the law and especially in the accompanying report on the revision, the committee has intended to state with some degree of definition the doctrine of fair use that has been applied in the courts. Though not part of the law itself, the report describes various factors that can be taken into consideration in various court cases that may arise. For example, the report says, "The copying for classroom purposes of extracts . . . which are not self-contained and which are relatively not substantial in length, when compared to the larger self-contained work from which they are taken, should be considered fair use. (In another section of the bill,

penalties are waived for a teacher who innocently violates the law.) And again, "Where the unauthorized copying displaces what realistically might have been a sale, no matter how minor the amount of money involved, the interests of the copyright owner need protection. Isolated instances of minor infringements, when multiplied many times, become in the aggregate a major inroad on copyright that must be prevented."

The committee did not, therefore try to formulate exact rules concerning fair use and "freeze the doctrine in the statute, especially during a period of rapid technological change." Rather it left to the courts the application of the doctrine to particular situations. Both publishers and educators were pleased with the committee report on fair use, believing that the report had generally provided adequate protection to the interests of both groups.

Government-sponsored works. Much to the satisfaction of the National Academy of Sciences and other groups, the new revision limits its definition of (uncopyrightable) US government works to works prepared by a federal employee as part of his duties. More specifically, it did not broaden the definition (as some had feared) to prohibit copyright in works prepared under a federal grant or contract. As many have pointed out, the numerous information systems and other published materials of scientific societies, depending as they do largely on government support, would be in economic jeopardy were not copyrightability extended to such activities. "The committee," says the report, "opposes any sort of outright, unqualified prohibition against copyright in works prepared under government contract . . . there are almost certainly many cases where the denial of copyright protection would be unfair or would hamper the production and publication of important works." Thus the new law would leave to each funding government agency the decision to allow a grantee to secure copyright.

Objections. Publishers as well as educators took strong exception to various sections in the bill. Publishers claim that the revision does not provide adequate protection to copyrighted material introduced into a computer system directly from a scanner de-

vice or from magnetic tape. Teachers charge that the bill fails to give sufficient provision for the use of audio-visual resources, educational computers and educational television by the classroom teacher. "The use of technology in the classroom took a severe beating," says Harold Wigren of the National Education Association. Wigren told PHYSICS TODAY, "The bill brings teaching up to about 1960 and legitimizes many things we were not able to do before. But I don't think it does a thing for teaching today."

Both groups, nevertheless, agree that the new version is an improvement over the old law. "It is much better than the old law. It protects classroom teachers for the first time and adds protection in the use of materials." And Curtis R. Benjamin of McGraw-Hill told PHYSICS TODAY, "We publishers are pretty well satisfied with most of the major provisions of the bill. We hope that it will be passed in substantially the same form."

All parties admit that a great deal will depend on the flexibility and enlightenment with which these new laws are administered. They are broadly stated and will have to be worked out in the courts.

NSF Data Show Levelling Off of Federal Support

The austerities that physicists have experienced first hand for the last few years can be seen in the graph which illustrates federal support of basic physics research from fiscal 1959 through 1967. Data for this graph were gathered from *Federal Funds for Research, Development and Other Activities* (FF XV) and earlier volumes compiled by the National Science Foundation. According to Benjamin Olsen of the NSF office of economics and manpower studies, the bases for estimating annual expenditures in physics are improved from year to year. Such changes, however, are few and slight.

Last year the Pake Committee in its report to the physics community declared, "It seems safe to regard a factor of 2.3 as the minimum recommended increase in federal support . . . for basic physics over the six-year interval from fiscal year 1963 to fiscal year 1969." (PHYSICS TODAY, April 1966, page 23).