editorial

Strong coupling—key to the future

It is beginning to appear that solutions to a number of the problems confronting the physics community share a common theme—increasing the coupling between physics and other disciplines or groups. Our hopes for really doing something about such things as unemployment or public understanding will depend on how successful we are in bringing physics in closer touch with other disciplines and technologies.

For example there is general agreement that it would be useful at this time to find ways to reduce the lag time between the publication of new research results and their application to products in the marketplace. The National Science Foundation has taken the lead in this area with its Experimental R&D Incentives Program in which it plans to test new methods of promoting more rapid transfer of technology to the public and private sectors (see November, page 73). Among the bottlenecks that now impede this transfer is the failure in communicating research findings to industries that could make use of them. Research results are traditionally generated in a discipline-oriented language, and the need is to translate this information into a mission-oriented language. To achieve this goal we will need to work with other disciplines to gather together the information from all disciplines for reorientation in this way. An example of a start along these lines is the new *Journal of Physical and Chemical Reference Data* being published jointly by the American Chemical Society, the National Bureau of Standards and the American Institute of Physics. Ultimately the solution to the reorientation problem could be the "user's journal" devoted to a specialized mission-oriented topic (for example, superconductivity) that would collect together the most recent papers relevant to the topic that have been generated by the various disciplines.

Coupling with other disciplines to expedite applications will not only help improve the economy (through the more rapid development of high-technology products) but should benefit physics directly by identifying physics with the more visible products of research usually attributed by the public to other disciplines.

Another example of an area in which cooperation between disciplines could be expected to pay off is the problem of the public understanding and appreciation of science. In next month's issue we hope to be able to announce the date early this next year on which the Public Broadcasting Corporation's network will have a nation-wide showing of "Birth and Death of a Star." This TV program was especially produced with the help of AIP under an NSF grant to contribute to the public understanding of science. Note that AIP's goal is the public understanding of *science*, not physics. It is asking too much to expect the public to distingish between the various branches of science before it has developed an appreciation for science as a whole. For this reason the Bromley report (July, page 23) calls upon the physics community to support programs fostering the public understanding of *science* rather than physics.

Not only is this a more realistic goal but by pooling our resources with those of other disciplines there will be a much better chance to mount the magnitude of effort that will be needed to make significant progress in this area. No one can deny that television is by far the most effective way to communicate an appreciation of science to the man in the street, but television is also enormously expensive.

In addition to these two examples, one can think of benefits deriving from closer ties of other kinds—between industrial and university research centers, between graduate training curricula and society's needs, between physics educators and public school systems, and so on. In other words we are beginning to face up to the fact that many of the problems looming before us can not be handled by physics all by itself. The answer is stronger coupling with others.

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