News and views

Physics in Engineering Education

THE Summer Institute conferences on Nuclear Physics in Engineering Education are being sponsored by the American Society for Engineering Education, the American Institute of Physics, and the National Science Foundation. A closed conference attended by over thirty engineers and physicists was held at Columbia University on April 22, 23, and 24, 1954, and a larger open conference will take place at Northwestern University September 7–10. This is a brief report of the closed conference, mostly abstracted from a more complete report, prepared by R. W. Houston, to be found in the June 1954 issue of the *Journal of Engineering Education.*

Lively discussions took place on the desirability of and the necessity for including nuclear physics in engineering education. There was complete agreement that modern engineering education must build on a firm scientific base and that at this time it is fitting that we critically evaluate and bring up to date the basic material in the course of study for engineering students. The conferees interpreted "nuclear physics" in the title of the conference to mean not only the physics of the nucleus but also those areas of modern physics which are pertinent to the engineering development of the atomic energy field. The final major aim of the conference was to make recommendations as to the means for introducing "nuclear physics" into engineering curricula. Discussion was limited largely to education at the undergraduate level, since some 80 percent of engineering students do not pursue formal graduate studies.

There was substantial accord at the conference on the following points:

(1) The majority of engineers employed in the nuclear field do not require a detailed knowledge of nuclear science, but a qualitative knowledge of this new subject is essential.

(2) Wide specialization in nuclear engineering problems as another major engineering discipline is not warranted at the undergraduate level. One or two term courses in nuclear engineering might be made available to undergraduate engineers on an elective basis at some schools, and many problem examples in standard undergraduate engineering courses can well be taken from the nuclear field.

(3) The most important requirements of any engineer in the nuclear field are his ability to think both analytically and creatively, since the technology of this field is diverse and subject to rapid obsolescence.

The following formal conclusions and recommendations of the conference were adopted without dissent at the final session on April 24, 1954:

"In view of the increasing role of atomic and nuclear phenomena in engineering, it is the sense of this conference that:

(1) All *general physics courses* should give continual attention to the inclusion of modern physics material at appropriate places throughout the entire course.

(2) All *engineering courses* should give continual and increasing attention to the inclusion of pertinent atomic energy material.

(3) All *engineering curricula* should contain atomic and nuclear science material of a scope covered by a three semester-hour course at the junior or senior level (beyond general physics).

(4) In view of the rapid advance of this new field it is also the sense of this conference that all *engineering schools* should give continual attention to the possibility and need for professional education in nuclear technology, especially at the graduate level.

The conference recognizes that the realization of these objectives will vary with local situations. It is evident, however, by the very nature of atomic energy that their implementation can be achieved only through close cooperation of engineering and physics departments, as well as other science departments."

I should like to emphasize this last statement. It seems to me that the degree of cooperation between physics and engineering departments on their common teaching problems has decreased on most campuses in recent years. It is high time that this unfortunate trend be reversed. Putting into effect the recommendations of this conference will present an opportunity for increasing the needed cooperation with our engineering colleagues.

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Research and Development

ARRANGEMENTS for four additional special studies to be conducted by Federal and private survey groups as part of the previously announced broad National Science Foundation survey of science in the United States were announced on June 18th by Alan T. Waterman, director of the Foundation. The four studies are listed below:

Industrial Research and Development

The planning phase of this study will be conducted by the Bureau of Labor Statistics, Department of Labor, Washington, D. C., in close cooperation with the staff of the National Science Foundation under the direction of a steering committee composed of staff members of the two agencies. It will include a review of previous studies and development of questionnaire and interview forms for getting additional desired informa-