

Professors Get Dirty Hands

Teaching engineering may be good for the soul, but it sure isn't the same thing as getting out there and doing something. Trying to absorb experience purely from textbooks is like sending a soldier into combat with no more training than a long dull evening with a Boy Scout manual.

Growing numbers of engineering professors are starting to feel just this way and are using summer vacations and any other time they can spare to get out in the field and practice what they've been preaching all these years. It has turned out to be quite an experience for many of them, whose summer jobs took them from the moon down to the ocean floor and from Australia to Southwest Africa to Tunisia and other countries.

Nine faculty members from the Colorado School of Mines, for example, went searching for minerals in countries as far apart as Saudi Arabia and the Philippines. Prospecting techniques developed by the school's Harold Bloom have been responsible for ore discoveries including a 25-million-ton lead-zinc-silver strike in County Tipperary, Ireland, worth more than \$500 million.

Two more faculty members, David Snow and L. T. Grose, were with firms seeking thermal energy sources. Dr. Snow is optimistic that thermal steam can be located at will in many geological areas, which may make possible some of the least expensive power available to man.

While the Colorado contingent was studying the riches of the earth, Prof. John G. McCaslin of Montana College of Mining Science and Technology was at the Manned Spacecraft Center in Houston trying to determine which regions of the spectrum would give the most information from a lunar orbiter following the first manned landing on the moon. On the basis of laboratory analysis of the 80-pound sample of the moon that it is hoped will be brought back, instrumentation will be developed to circle the moon a scant 20 miles up and obtain data on the color and temperature of the entire circumference. "The space program will really be involved in my lectures now," Prof. McCaslin said.

Some of the teachers worked on the frontiers of the profession, while others dealt with more down-to-earth matters. Horst G. Nowacki, assistant professor at the University of Michigan, calculated strength, vibration, and platform motion for the deep sea drilling platform of Project Mohole, which before Congress shelved it, aimed to penetrate the ocean bottom to depths never before explored by man. Working at a

California shipbuilding company, he also applied computer techniques to the design and construction of highly sophisticated cargo ships. Prof. Nowacki predicts that 50% of work now done by draftsmen will eventually be computerized.

The field of engineering is growing so fast, according to Prof. Charles W. Newlin of Arizona State University, that unless they occasionally get into a "nuts and bolts operation," the people trying to teach it will be left behind.

There's just "no means as efficient as actual employment." When he made that statement, Prof. Newlin, who is used to teaching theories about bearing strength and rock tables, had just spent the summer working as a consultant on soil mechanics and building foundations.

One of the few engineers who hopes his work will never be needed is Prof. Charles Ivy of Mississippi State. He was working on underground structures—like missile silos or bomb shelters—to determine if they could withstand the ground shock of nuclear blasts. Back at school, he is not only continuing with the project, but he is giving his students practical problems in designing structures for the Office of Civil Defense.

So the professors are happy. So are the students (since the courses become livelier), the universities (who certainly don't mind any prestige that may result from having one of their professors become known in a practical field) and the National Society of Professional Engineers (which is glad to have its members getting out and doing).

Industry Too

Universities are not the only places where engineering is taught, however. Many industries have their own educational activities, and some of the university professors have been lending a hand. Russell Primrose, of the University of Missouri took part in the continuing education program of Phillips Petroleum Company and reported that courses run by those who expected to use the information "tended to include more realism and practical approach," than the usual classroom efforts. His own teaching, he said, would "be a much better course for its exposure to industry."

All right, that's great. But what's in it for industry? They are not noted for doing something for nothing. North American Aviation, for example, is crawling with engineers of its own, but when one of their scientists started working on a new kind of radar, a college professor designed the antenna.

Well, the benefits of the exchange between university and industry are

two-way. Pan American Petroleum Corporation says that "college professors give the oil companies the latest thinking in theoretical technical aspects," while the professors "receive up-to-date training concerning practical aspects of the industry."

One Arkansas professor who has been going where the action is for eight years says that the experience has been worth more to his teaching than an equal amount of time spent going to school. Another was surprised at the difficulty of scaling-up textbook models in practical applications.

While all the academicians reporting in a survey by the NSPE hailed the professional benefits of work in the field, one must have had pure fun. Doing what is every man's boyhood dream, Prof. Elmo Lundquist of the University of Kansas spent the summer visiting carnivals and circuses. His excuse-er-job? As a safety engineer and consultant for American Universal Insurance Company, he was an inspector of the rides and buildings on the midway.



Science Service Gets New Managing Editor

WARREN KORNBERG has been named managing editor of Science Service with responsibility for Science News and the daily news syndicate.

Mr. Kornberg graduated from Adelphi College and has an MA from Columbia University. He has had extensive magazine and newspaper experience.

Prior to coming to Science Service, he was science correspondent for the Washington bureau of McGraw-Hill where he wrote stories for such publications as "Business Week," "Scientific Research" and "Chemical Engineering."

He also has worked as a science writer for the Washington Post and as general assignment reporter and science writer for the Boston Herald and the Fall River (Mass.) Herald News.

Mr. Kornberg, aged 39, is married and has three daughters.