HELP WANTED

Bending the twigs

Corporations, government seek to influence children toward technical careers

The world's rate of technological and scientific advancement is increasing. The amount of activity in each succeeding decade dwarfs that in the one before. Not only are new professions constantly being born, but many existing fields of knowledge are moving out of the research stage into practical applications.

Both the growing and newborn areas, as well as those yet unconceived, impose heavy demands for scientific and engineering talent. "We need engineers like there's no tomorrow," says engineering consultant George D. Sandel; and tomorrow is now much closer than it used to be. There is a demand, says the Labor Department, for some 70,000 engineering graduates a year, some 25,000 more than the present supply. Furthermore, the department predicts, in the next decade the supply may lag behind the demand by as many as 300,000.

Yet changes are taking place so rapidly that the real scope of the problem is almost impossible to judge. "No one has yet succeeded in defining, let alone counting, the engineering profession," says John D. Alden, executive secretary of the Engineering Manpower Commission and director of manpower activities of the Engineers Joint Council.

"The Bureau of the Census says that over one million people in the United States call themselves engineers," says Alden. "But the Department of Labor, using a different definition, reports 925,000. Educators point out that colleges have awarded only about 650,000 engineering degrees in the last 40 years. The major engineering societies claim over half a million members, but overlapping and duplications bring this figure down to about 450,000 individuals."

Big or small, however, the shortage of trained manpower is destined to grow. "You can play with numbers from here to Tuesday," says one official, "but the need's still there." Educators know it, and more important, the professional community knows it. Thus more and more in recent years, industry, government and academia have been working—sometimes independently, sometimes hand in hand—to keep the manpower stream flowing, and if possible, to build it into a rushing river.

Because the need is likely to grow with time, recruiters would like to start priming their subjects as early in life as possible. "In fact," says Armand Adams, community relations manager of Sperry Rand's Univac division in Philadelphia, "the ideal time to determine the potential of an individual would be between the time he is born and the time he is one year of age."

Companies have not started cradle-robbing yet, but they are casting an increasingly concerned eye on the younger student. "It's important to reach him as soon as possible," says John Bryant, director of educational relations for General Motors. "The senior year of high school is too late." GM publishes career guidance booklets aimed as low as ninth grade, as do many other companies. Univac must surely win the youth-hunting trophy—it sends engineers out to talk with elementary school classes, often reaching to the first grade.

What frustrates the talent scouts is that no one knows what the influences are that ultimately make a student choose a scientific profession. "There's really no way to tell of a new employe why he went into his field," says Adams. Even the American College Testing Program, one of the country's chief quantifiers of information about students, is somewhat at a loss. ACTP psychologist Dr. John L. Holland, after an elaborate 43-page study involving almost three dozen colleges and universities and more than 8,100 students, concluded that even a student's preliminary career choices are not a perfect indicator of his ultimate choice.

The corporations, however, cannot wait around for perfect indicators. "Because we share a stake in the future," says a General Electric career brochure, "we must anticipate the demands it will place on us and the kinds of resources we'll need."

To tap these resources early, propaganda on behalf of a particular discipline may not be the best way to go. Instead, the youth hunters often try for more general goals, such as inspiring a student to keep on with mathematics beyond plane geometry, providing financial aid or publishing a variety of guidance materials and course aids. GE, for example, needs a 16-page booklet just to list its educational publications.

The limited statistics that are available seem to indicate that the companies are following the right track in aiming their efforts at younger targets. One survey, for instance, has shown that 11 percent of the students attaining national honors in regional, state or national science fairs were interested in science before they entered the first grade. Another 26.2 percent picked up their first interest in their early school years, but around the home, while an additional 40 percent credited their interest to schools, clubs and fairs.

One of the oldest large-scale activities is the International Science Fair, run by Science Service, which has grown, since its beginning in 1950, until it now involves more than a million student projects annually. A similar, but younger and smaller, venture is the Youth Science Congress, financed by the National Aeronautics and Space Administration and administered by the National Science Teachers Association.

Industry has taken an active interest in both activities, in hopes that they are building its natural resources. The International Science Fair's executive vice president is Dr. Lawrence W. Hafsted, GM's vice president for research. At the Congresses, says Mrs. Dorothy Culbert, NSTA director of student development programs, "industry pitched right in from the word go."

Other national activities include the Army's Junior Science-Humanities Symposia, the Youth Conference on the Atom (paid for by electric utilities), the Ford Motor Company's Future Scientists of America program, the Junior Engineering and Technical Society and others. Westinghouse supports an exhaustive Science Talent Search, and the Science Clubs of America, both are also conducted by Science Service, provide information and materials to some 30,000 groups across the country.

With all this science going on around them, the guidance counsellors are naturally picking up their cue. They are making use of career and other real-world-oriented information with younger and younger students, says the American Personnel and Guidance Association. Though a junior high school student is not necessarily going to be pinned down about making a career decision, he should be made aware, says the APGA, that it's worth taking care not to burn one's bridges in advance.