ABC and NBC networks since March 1980, and receivers equipped with decoders that can pick up the signals are currently in 25,000 homes. Sears sells the decoders for $250. According to the National Captioning Institute, by 1981 more than 150,000 U.S. households will be equipped with decoders. Interestingly enough, CBS opposed the close-captioning system, saying that it would, in the future, incorporate the service into its Antiope teletext operations.

The big question is when those operations are going to begin. A commercial Antiope system has not yet materialized, and before it does, all the components of the current suitcase-sized decoders must be put on a chip. "You've first got to find a semiconductor firm that has the slack resources to do the work," says one TV set manufacturer. "Even then, a guy will not design an integrated circuit even if you offer to pay the $2 million or so in development costs unless he's convinced the chips are going to sell in volume, so he can make a buck." Even if an electronics firm did take on the task, many observers feel the final Antiope product would be too expensive to penetrate the U.S. market.

These ambiguities do not seem to bother the CBS executives, who, from their 36-story citadel in Manhattan, nicknamed Black Rock, are fighting to keep the billion-dollar CBS advertising revenues from being eroded by the onslaught of the new video technologies. They are sticking with Antiope through thick and thin, and preferably with the blessing of the FCC. "There are those who feel the marketplace should prevail," says CBS vice president Mater. "But that is an impossible situation. There has to be a national standard. No question about it."

—WILLIAM J. BROAD

Trouble in Science and Engineering Education

Report sees shortages in engineering, computer science, serious decline in general understanding of science

A new Administration report on science and engineering education* warns that the United States faces immediate shortages of engineers and computer professionals; it also sees a trend "toward virtual scientific and technological illiteracy" in the population at large.

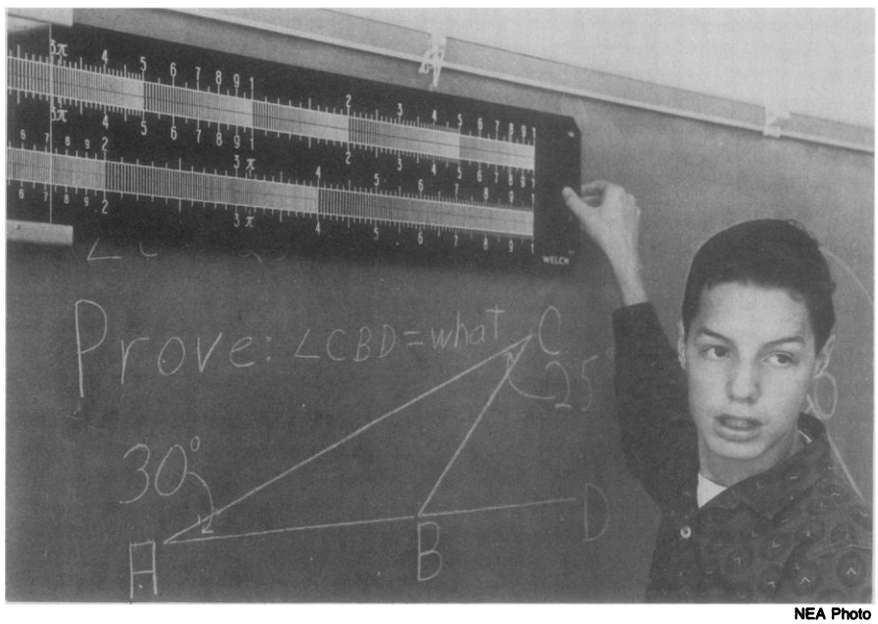
The report's authors suggest that market forces could correct the imbalance in the supply of professionals in the future, but adds "we believe that the innovative capacity of American industry will be severely hampered in the interim."

More general concern is expressed that "while students who plan scientific and engineering careers are receiving an adequate educational foundation, more students than ever before are dropping out of science and mathematics courses after the tenth grade, and this trend shows no signs of abating." According to data cited in the report, only one-sixth of secondary-school students take science and math courses beyond the tenth grade.

Those who do not take such courses are effectively eliminated from the possibility of pursuing careers requiring science and mathematics. This reduces the size of the pool from which the nation's technical manpower can be drawn and blocks individuals from many occupations in a society, where, as the report puts it, "science is a key to success."

As to the implications for national security and economic well-being, the report says, "The declining emphasis on science and mathematics in our school system is in marked contrast to other industrialized countries. Japan, Germany, and the Soviet Union all provide rigorous training in science and mathematics for all their citizens. We fear a loss of our competitive edge."

Initiative for the report came from the President's science adviser Frank Press. According to Press, the idea emerged as a result of his office's involvement in the project which led to President Carter's economic revitalization proposals. Press says he was impressed by evidence that, while undergraduate engineering programs are overloaded with students, graduate programs are not attracting adequate numbers of U.S. students.



NEA Photo

(*Science*, 4 April). There is already a shortage of engineering and computer science faculty, and research is suffering. Equipment in many engineering schools is obsolete. Press says that President Carter agreed that the matter was important and early this year asked the Secretary of Education and the director

*"Science and Engineering Education in the 1980's and Beyond: A Report to the President."

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of the National Science Foundation to prepare the report, which deals both with professional education and science and mathematics education in the schools.

The new report is not laden with data but, rather, summarizes the findings of existing studies or those commissioned specially for the report. The document is essentially an effort to define problems and make recommendations for Administration action, including budget initiatives.

The report's proposals for action in the realm of professional education differ from those of the manpower reports of the post-sputnik era, which urged general expansion of training of scientists and engineers and often set specific numerical goals.

The new report focuses on engineering and computer science and stresses obsolescence of equipment and a shortage of faculty, noting that industry is "luring faculty members away from universities with challenging well-paid positions."

The new report suggests such federal measures as incentives for Ph.D. candidates in shortage categories who plan to enter teaching and expanded support for research equipment for departments of engineering and computer sciences.

The report's appraisal of science and mathematics education in the schools puts strong emphasis on "a growing discrepancy between science, mathematics, and technology education acquired by high school graduates who plan to follow scientific and engineering careers and those who do not."

Results of standardized tests show "a decline in average science and mathematics achievement for the nation's youth over the last 15 years." The report says that there is a "severe shortage" of qualified mathematics and science teachers and identifies the most likely cause as "the disparity between salaries inside and outside education."

For the federal government, dealing with the problems of schools has inherent difficulties. As Press notes in a cover letter to the report, "we recognize that secondary education is primarily a function of our states and localities."

Proposals for federal help to the schools include revival of the curriculum development efforts and teacher-retaining programs that produced results in the post-sputnik days. This time, however, the "target group" would be different. The aim would be to engage the interests of students of average ability and less, who ironically seem to have been alienated by the brave new curricula of the 1960's.

Many of the proposals are aimed at improving the public understanding of science and thereby reversing "a shrinking of our national commitment to excellence and international primacy in science, mathematics and technology." One such proposal is for the creation of a President's Council on Excellence in Science and Technology Education, which would operate in ways comparable to the President's Council on Physical Fitness and Sports.—JOHN WALSH

Institute of Medicine Gets New President

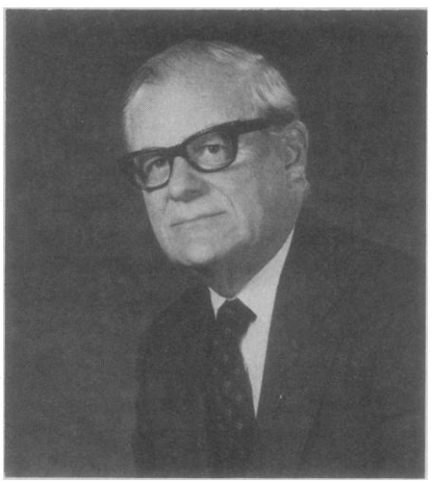
Frederick Robbins imagines IOM as the "Brookings" of health policy

A poster hangs in the office of Frederick C. Robbins that charts a hierarchy of medical specialists. At the top are dentists and dermatologists followed by some ten other specialties down the list. Glued at the bottom of the chart, below surgeons and psychologists, is a scrap of paper that says in scribbled handwriting, "Health policy guru."

That is the new job of Robbins, 64, who was recently inaugurated as president of the Institute of Medicine, succeeding David Hamburg. The Nobel laureate comes to the institute after serving 13 years as dean of Case Western Reserve University medical school.

Robbins, who has a friendly, easy manner, reflected on his new post in a recent interview in his third-floor office at the National Academy of Sciences building. Pictures waiting to be hung leaned against the sofa, but long shelves were already filled with books.

Robbins wants to encourage changes at the institute during his 5-year term but he said, "I'm not going to revolutionize things." He envisions enlarging the scope of the institute's work and hopes to rely less on government money to do it.



Frederick C. Robbins
New "health policy guru"

Colleagues describe Robbins not as an innovator but as a capable leader willing to compromise, traits that no doubt helped him serve longer than most medical school deans. William Danforth, of Washington University in St. Louis and chairman of the institute's presidential search committee, said Robbins was the group's first choice. "He has sensible ideas for the future of the institute and the ability to work them out. He's articulate and widely respected in Washington."

Robbins graduated from Harvard medical school and served almost a decade at Children's Hospital. In 1954, Robbins, Thomas Weller, and John Enders were jointly awarded the Nobel Prize in Physiology and Medicine for their research in tissue culture that led to the production of the poliomyelitis vaccine. Robbins and Weller were then assistants to Enders. Enders, in a letter read at Robbins' inauguration ceremonies, said that when his young assistant came to the lab, there was neither a desk nor room for a desk which "Fred somehow truly desired.

"This situation was depressing to him but usually he bore it with fortitude." Finally a place was found for Robbins.

Now Robbins sits behind a desk at the institute, an organization where over several years he has served in one capac-

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