

illegitimate children. The ruling, handed down by Judge Perry G. Bowen in Maryland's Prince Georges County, opens the way to criminal prosecution of the mothers.

If further measures are needed, said the judge, he may in the future require unwed mothers—meaning those on welfare—to learn methods of birth control and practice them “at the risk of losing their children if they do not.”

Both moves seem to assume that birth control means are readily available and that the women are unwilling to use them.

But when Planned Parenthood looked into Prince Georges County's services this summer it found only three public health clinics dispensing birth control help in the entire county. Each was open three hours a week. “The clinics were so jammed they couldn't take appointments for three months,” says Jaffe.

A similar story could be found in many other cities and counties of the nation.

An estimated \$100 million would be needed to provide family planning services to the 5.3 million impoverished women, says Planned Parenthood. In June, the Office of Economic Opportunity, which now gives the largest Federal grants for family planning, set aside \$4.6 million for such services. The money will reach about 120,000 people. Next year OEO hopes to come up with \$10 million for this purpose.

The new Social Security legislation, which also includes the welfare freeze, earmarks \$15 million for family plan-

ning, but the legislation is not yet passed.

“Despite 32 Presidential exhortations, no Federal agency has yet formulated even a rudimentary plan to overcome this deficit or taken the initiative to seek the appropriations needed to carry out a plan,” charges Jaffe.

Jaffe estimates that perhaps 10 to 15 percent of the poor need intensive help and education in family planning, but “it's a poor conjecture because no one has gotten to that end of the caseload,” he says.

However a survey of Michigan welfare clinics indicates that something like five percent of the welfare clientele—less than one percent of the total poverty group—need such counseling. Most poor people, it seems, want birth control and would use it if they could get to it.

“It is disconcerting how rapidly the culture of poverty concept has been co-opted as the explanation for slow progress,” says Jaffe. “In effect, a health and welfare establishment which spent half a century claiming that insurmountable religious opposition prevented it from providing family planning to the poor, discovered, almost as soon as the religious controversy waned, that it is the culture of poverty which prevents the poor from adopting modern family planning.

“I have no quarrel with Jaffe's statistics or claims,” says Gary D. London, who heads family planning at OEO. The problem he says, has been that there are “lots of good causes and lots of priorities in public health.”

NATIONAL SCIENCE FOUNDATION

\$500 million budget breakthrough possible

The chances look good that this year the National Science Foundation budget will pass through what many have regarded as an unbreakable monetary barrier, the half billion dollar mark.

If the Senate-House conferees, scheduled to meet in early October, agree to the Senate's recommended figure of \$505 million, the NSF will actually have exactly what President Johnson recommended it should spend before next June 30—\$526 million. The extra \$21 million is money appropriated but never spent for Project Mohole, the ambitious plan to sample earth's mantle that was killed by Congress last year. (SN: 12/26/66).

Since the House recommended \$495 million for NSF expenditures (SN: 6/3), the compromise to be worked out in conference is likely to be at least half a billion, possibly more. For the past two years, National Science Foundation appropriations had been held at the

same level, \$479,999,000.

One factor entering the Senate's approval of the \$505 million figure was the requirement that the NSF submit, for consideration with next year's budget, “a report surveying all significant efforts in pure science, private and public.” The report was called for “in view of the proliferation of basic research in pure science conducted by private industry as well as the Government.”

The Senate action authorizing \$505 million overruled its Appropriations Committee's recommendation to cut NSF funds back to \$459 million. The increased \$46 million would be spent as follows:

- Support of basic research: \$19 million, including roughly \$4 million for increased support of social science research. The four areas of emphasis for this \$19 million are social science, oceanography, atmospheric sciences and chemistry.

- Science education and institutional development programs, part of the national Centers of Excellence plan—an effort to create more such centers in more parts of the country: approximately \$18 million.

- Sea grant college program: \$3 million, plus \$1 million added to the 1967 fiscal year budget, bringing the total to \$4 million.

- Science information programs: \$4 million, for development of national information retrieval systems using computers.

- Other small programs will make up the difference.

The program for institutional development, if the Senate's version is agreed to in conference, would have a total of \$52 million in newly appropriated funds, plus \$16.4 million carried over from fiscal 1967. ♦

MARIJUANA

Confusion over effects

The already-heated marijuana issue gained several degrees last week with new reports of adverse reactions to the drug and a court trial that challenges the criminal laws now surrounding marijuana.

Both the reports and the trial serve to illustrate the basic marijuana situation: Medical opinion is split a dozen ways over the relative dangers of the drug and solid evidence is not available.

In a Boston courtroom, the medical authorities spoke as though they had two different drugs in mind, depending on whether they testified for the defense or the prosecution. Some claimed marijuana does not cause mental illness and is no more dangerous than alcohol. Others said chronic marijuana smoking produces distinct and harmful effect on personality, including anxiety, loss of drive and sometimes, psychotic changes.

At stake in Boston is the constitutionality of laws that lump marijuana with narcotics like heroin and impose harsh criminal penalties for its possession. Chemically, marijuana is classified as a mild hallucinogen, not a narcotic. Also at stake is the fate of two Philadelphia men arrested last March at Boston's Logan International Airport when they claimed a footlocker containing marijuana.

The same contradictions were evident in new medical reports on marijuana.

In its Sept. 22 issue, The Medical Letter, an independent, professional newsletter published in New York, claimed that reports of serious adverse reactions to marijuana are increasing. “Panic, gross confusion, impulsive and

aggressive behavior, depersonalization, depression and paranoid behavior have been reported, especially when marijuana is combined with other drugs."

The Medical Letter continued, "Indolence and neglect of personal hygiene may follow prolonged heavy use and intellectual functioning and memory may be impaired."

But just last month, the American Medical Association came out with this statement: There is no evidence that marijuana causes lasting physical and mental changes. Casual, episodic use is probably not medically dangerous, said the AMA, but continuous use may be associated with the development of psychiatric illness (SN: 8/19).

The word "associated" is the crux of the problem. In fact, no one knows

whether chronic marijuana smoking causes emotional troubles or is a symptom of them. Most, if not all the reports, on either side of the issue, are fragmentary and based on anecdotes rather than controlled studies.

This dearth of evidence has a number of explanations: serious lingering reactions, if they exist, occur after prolonged use, rarely after a single dose; marijuana has no known medical use, unlike LSD, so scientists have had little reason to study the drug. But also, marijuana has been under strict legal sanctions in this country for more than 30 years. Smoking it has long been under ground and adverse reactions almost never surface in hospitals where they might shed light in this complex medical-legal problem. ♦

INDUSTRIAL TECHNOLOGY

Giant corporations resist change

"Conventional wisdom" is the term popularized by economist John Kenneth Galbraith to denote the things everybody knows, but which aren't necessarily so. Dr. Galbraith and other students of the modern industrial scene have preached that technical change in industry requires large corporations able to shoulder the heavy expense of research and to bet their capital on high-risk ventures.

Last week his phrase was turned against him by a string of witnesses before a Senate anti-trust subcommittee, who maintained that his contentions about bigness and technological change had themselves become conventional wisdom.

Giant corporations are ponderous and slow to accept innovation, the subcommittee was told, because of their heavy stake in existing technology. Worse, they lock up scientific talent that might help solve pressing public problems, and refuse to use fresh ideas when they are generated, even when the ideas are in their own fields.

Individuals and small companies are the source of a large share of the technological innovations of the past 30 years, said Dr. Donald A. Schon, president of the Boston-based Organization for Social and Technical Innovation.

And most of these innovators worked for a time in research laboratories in large corporations or universities, then left because their employers lacked interest in new ideas, a survey he conducted indicates.

A prime example of an industry allegedly efficient because of its immense size is automaking. Yet, a parade of witnesses pointed out that while new powerplants for cars are developed with fair regularity, they never manage to appear on the production

lines, which still install motors basically the same as Henry Ford's.

Yura A. Dantov is an engineer who worked in the development of the rotary internal combustion or Wankel engine, now being introduced by the small German auto builder, NSU. Despite the fact that the Wankel engine can be produced more cheaply, even in smaller numbers, with lower maintenance costs, he told the subcommittee, the big auto companies have refused to pick up the idea.

"Economic concentration," he said, "has a strong vested interest in existing technology."

Prof. Lloyd D. Orr of Indiana University, on the subject of electric cars, uses even stronger words.

Detroit, says Dr. Orr, looks on the electric car as a threat to the concentration of the industry, because it lasts a long time, can be produced efficiently in small numbers, and doesn't need the widespread dealer-maintenance network that only giant industries can finance.

So the industry may go out of its way to bring pressure against the development of the electric car as a replacement for the gasoline engine, he says. The car builders appear to see the electric as unmarketable because it can't create the necessary images of "aggressive independence, power and sex" which Detroit uses to sell cars, he contends.

The automobile turbine engine is another example of technological advance which hasn't left the laboratory. Chrysler Corp.'s Director of Research, George J. Huebner, describing his company's efforts to build a practical turbine auto, made it clear that the project had cost Chrysler a lot of development money.

But he also made it clear that tur-

bine cars, with their low pollution qualities and other advantages, would have been produced before now except for the inviolable requirement that they not cost the company more to make than ordinary cars; the change over and retooling expenses would be prohibitive.

The steel industry is another field in which large size is a must for efficient production. But again, large size hasn't led to effective use of new technology, according to W. L. Sherwood, president of the Sherwood Co., of Vancouver, Canada.

Steel companies lost billions of dollars by not converting sooner to a new technique of refining, called the basic oxygen process, he said. The technique, developed in the 1930s but only gradually adopted 20 years later, consists of blowing oxygen down into the bath of molten iron to purify it, instead of bubbling the gas up through the metal as in the old open hearth technique.

Sherwood has developed a still newer process which he says could break the big-business hold on the industry and save billions of dollars as well.

He told the subcommittee, which is investigating the effects of new technologies on the concentration of industry and research, that his process for continuous steelmaking is most efficient in plants that put out 100,000 tons of steel a year—a tenth the size most steelmakers consider a minimum. It would permit smaller operators to enter big-steelmaking competitively, he says.

The Sherwood process combines two steps in steelmaking into a single operation. Conventionally, iron ore is melted, then cast into pig iron, which has many impurities. The pig iron is then re-melted, purified at high temperatures and strengthened with additives.

In the new continuous process, the ore is placed in a rotating furnace that gets hotter as the material moves along, finally reaching a refining zone of about 2,800 degrees F. where the finished steel is produced.

Because only one furnace is required, installation costs are cut, says Sherwood. The single furnace also saves reheating costs and reduces the amount of iron dust that escapes.

The huge investment required for conventional steel plants—\$265 million for a million-ton-per-year capacity, according to Sherwood—has kept smaller firms from competing in the industry. Half the U.S. steel production comes from three giant companies, and five more account for another 25 percent.

Sherwood told the subcommittee he could build a 150,000-ton pilot plant for his process for \$6 million and he has talked with steel producers about getting the money—without success. ♦