

The road to equality: Education or economics?

All men are not created equal. But it is often suggested that education is the first step on the road to equality. Using economic success as an indicator, the social reformers of the 1960's predicted that a good education could equalize cognitive powers and adult bargaining powers. With such equal opportunities, it was said, everyone would hold the key to success.

A quick trip from the ghetto to suburbia would indicate that the key did not fit. Poverty and inequality remain a part of life because education is not a panacea for these ills, conclude researchers at Harvard University's Center for Educational Policy Research. A team headed by Christopher Jencks has spent four years reviewing and analyzing data from studies on the effects of schooling. Results from the Equality of Educational Opportunity Survey (the survey used to produce the Coleman Report) and Project Talent's longitudinal study of students in 100 high schools were included. The complete report will be presented in *Inequality: A Reassessment of the Effects of Family and Schooling in America* (Basic Books, Oct. 1972).

Reporting on their work in the October SATURDAY REVIEW—EDUCATION, the researchers conclude that eliminating the differences between elementary schools would reduce the range of scores on standardized tests in sixth grade by less than three percent. Even when the schools exert an unusual influence on children, they add, the resulting changes are not likely to persist into adulthood. Thus equalizing educational opportunity will not do much to reduce economic inequality. Similarly, the Harvard group found that I.Q., heredity and family background have little bearing on success in adult life. Brothers with equal results on I.Q. tests, equal amounts of education and equal job opportunities differ in average income by about \$5,700. The average income difference between random pairs is only \$500 more. These comparisons, the researchers say, suggest that adult success must depend on a lot of things besides family background, schooling and the cognitive skills measured by standardized tests. The researchers have no idea what factors are involved,

but they do suggest that special abilities, luck, timing and personality are important in determining economic success.

All of these findings, Jencks and his colleagues believe, imply that school reform is never likely to have any significant effect on the degree of inequality among adults. They suggest that the present educational model be abandoned. The primary basis for judging an educational system should not be how many employable adults it turns out but whether students and teachers find it a satisfying place to be. Schools, the researchers say, should enrich the lives of the children and show a concern for diversity and choice.

The way to attack poverty and inequality, the researchers feel, is not through the education system but through economic institutions. What we need, they say, is what other countries call socialism.

Such attacks on the education system are not rare and attacks on the economic system are almost commonplace. But even if founded in fact, it is doubtful that any amount of research can do anything in the near future to change present trends. The Office of Education announced this week that a record \$90.5 billion will be spent this year to provide classrooms and instruction for 60.4 million students. Public schools will employ 20,000 more teachers than they did last year. Aside from representing such a mammoth vested interest, education has become what Ivan Illich calls a secular religion. As such it is almost inviolable.

In addition, liberals will not listen to criticism of anything that they have built their reputations on (equal opportunity, busing, head-start programs, etc.) and conservatives are surely not going to listen to anyone who even mentions socialism. Jencks and his colleagues realize this and admit that legislation along the lines they suggest could not pass Congress. But they add, "That does not mean the strategy is wrong. It simply means that, until we change the political and moral premises on which most Americans now operate, poverty and inequality will persist at pretty much their present level."

pulsar there continually resupplies cosmic rays to produce the synchrotron radiation. But the source of charged particles in Cygnus X-3 is an enigma.

The effect on radio astronomy could be enormous. "The intriguing thing about all of this is the implication," says Hjellming. "What if the sky is filled with these flashing radio sources blinking on and off?" Only a few hundred hours have been spent looking at Cygnus X-3. The outburst was so brief that it could have been missed. "We were just fortunate to be alerted to look at it when it was doing its thing."

The history of radio astronomy is filled with reports of astronomers seeing an event. But when another astronomer looks for the same thing later, he sometimes sees nothing. "How many times have we looked at such an event and not believed it?" Hjellming asks.

Detailed data and various interpretations of the Cygnus X-3 outburst are being submitted to NATURE, where they will appear sometime in October or November. □

A flurry of legislation on the environment

After four months and some 39 closed sessions, House and Senate conferees last week reached agreement on a Clean Water Bill (SN: 4/8/72, p. 230). A committee print was not yet available at press time, but a Sept. 14 press statement appears to describe most of the important points of the compromise bill.

Senate conferees appeared to have gotten the best of a dispute over pre-implementation studies of the impact of new clean water standards. The Senate version would have required no such study, while the House version insisted on a National Academy of Sciences survey and subsequent Congressional action before the standards could be "triggered" into existence. The final bill calls for a study by a 15-member executive-legislative committee (rather than by NAS) but requires no further affirmative action by Congress, thus making the study largely pro forma.

House conferees seem to have gotten the best of another dispute—over whether ridding the nation's waters of all pollution by 1985 should be a requirement or merely a "goal." The House language prevailed and the 1985 deadline is only a goal. House conferees also appear to have secured one-and-a-half- and two-and-a-half-year delays, respectively, for industrial water cleanup using first "the best practicable technology" and then "the best available technology." The dates were moved backward from early 1976 and early 1981 to mid-1977 and mid-1983.

It appears that House conferees also prevailed in a provision in the final bill that delegates authority to states for issuance of industrial water use permits and at the same time strips the Environmental Protection Agency of its present permit-by-permit veto authority.

Although, generally speaking, the House bill appealed less to environmentalists than the Senate bill, that was not so with regard to grants for construction of local sewage treatment

systems. The House had asked for \$24.6 billion and the Senate for \$20 billion. The House figure is the one in the final bill. Federal grants will be provided on a 75-25 matching basis, with states and localities working out their own systems for sharing their 25 percent of the total costs. For \$18 billion of the funds, the authorization in effect becomes an appropriation because it allows the local agencies to obligate themselves for contracts in advance in this amount.

Other new legislative action includes:

- A joint resolution introduced by Senate Majority Leader Mike Mansfield of Montana and other Western Senators would impose a moratorium on all coal mining on Federal lands until Congress passes, and the President signs, a strip-mine reclamation bill.

The resolution is aimed mainly at halting massive coal-mining operations planned by electric utilities in Western states (SN: 3/4/72, p. 156) until there is some assurance that the mined land will be maximally reclaimed. In remarks in support of the resolution, Sen. Lee Metcalf (D-Mont.) claimed that Federal agencies have been negligent in enforcing existing regulations for mining on the Federal lands, which make up a major percentage of the Western coal lands.

Metcalf also asserted that claims by utilities and other energy companies that the nation is suffering a severe energy shortage are unconvincing; 22 million tons of coal were exported from the United States the first five months of this year.

Hopes for an effective strip-mine reclamation bill meanwhile dimmed, as the Senate Interior Committee reported out an earlier committee version that did not include strengthening amendments offered by various coal-state Senators. But an aide to one of these Senators said the amendments will now be offered on the Senate floor.

- A House-Senate conference committee reached agreement on a bill that reportedly goes further than a June 5 Presidential order in opening up at least some Federal advisory committees—including possibly those of the National Academy of Sciences and the National Science Foundation—to public scrutiny. A print of the bill was not available at press time but a Senate staffer said the bill would probably “disappoint people like Ralph Nader” who had wanted full press and public scrutiny of the myriad Federal agency advisory groups.

- The Senate passed a bill to establish an Office of Technology Assessment to help Congress in evaluating new scientific and technological projects. A conference committee will now consider the Senate bill and an earlier-passed House bill.

- Sen. Edmund Muskie (D-Me.) and Sen. John Sherman Cooper (R-Ky.) introduced an amendment to the Federal-aid highway bill. The amendment would allow cities to use money from a proposed “urban transportation fund” for rail transit as well as buses. The urban transportation fund legislation—earlier made a part of the highway bill by the Senate Public Works Committee—provides, however, that only \$800 million a year of the two-year, \$14-billion highway authorization can be used for public mass transit. □

Nicotine may lower resistance to infection

Drug actions in the human body are provokingly elusive. In many instances pharmacological studies are difficult, if not impossible, to carry out on humans or in experimental animals. Consequently pharmacologists often opt to conduct *in vitro* (cell or tissue culture) experiments, although the results of such experiments must be extrapolated to the total organism—human or animal—with caution.

It is within this context, then, that pharmacologist Sorell L. Schwartz of Georgetown University Medical Center, and his colleagues Jane E. Lundin and James C. Bond, have found that nicotine can lower resistance to infection. Their work, which will soon be published in the *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*, was conducted *in vitro*. It is not unequivocal proof of what nicotine does in the human body.

The immune system of the body is complex and far from elucidated. Nevertheless investigators are fairly confident that the first immune response of the body to harmful foreign organisms is provided by macrophages—cells that roam throughout the bloodstream and various tissues. When the macrophages encounter harmful microbes they engulf them. Each macrophage is equipped with tiny organelles known as lysosomes. After a macrophage engulfs microbial material, its lysosomes coalesce with the material and release enzymes that digest it. Then the macrophage regurgitates some of the digested material so that lymphocytes—the body's second line of immune defense—are able to make antibodies against it.

Schwartz, Lundin and Bond took macrophages from the stomachs of mice and exposed them to foreign substances, which happened to be test proteins instead of microbes. They placed a radioactive tag in the extracellular fluid the macrophages swallowed along with the test substances. They could then follow the fate of the test substances. They found that nicotine decreased the macrophages' ability to engulf the foreign substances. Nicotine also caused the



Georgetown Univ.

Lundin, Schwartz: Interrupt immunity.

macrophages to release lysosomal enzymes prematurely, so that the macrophages were not able to completely digest the foreign substances.

Extrapolating these findings to cigarette smokers, the researchers conclude that nicotine might do more than impair macrophages' ability to engulf dangerous microbes. Nicotine might also impair macrophages' ability to digest these microbes, and to regurgitate digested material for lymphocytes to make antibodies against. Either or both ways, nicotine, Schwartz declares, “could interrupt the first step in the long, complex immune process.”

Schwartz is the first to recognize, and to stress, that caution must be used when applying these results to humans. The amounts of nicotine his team used in their cell studies are higher than those usually found in the bloodstreams of smokers. Yet he points out that his group's *in vitro* findings are reinforced by epidemiological and clinical evidence. For example, smokers are known to lose more work days than non-smokers because of bronchitis, flu, lethargy, malaise, muscle pain, nausea and other ill-defined conditions usually attributed to a “bug.” Smokers' heightened susceptibility to such conditions, Schwartz says, “could be related to their increased susceptibility to low-level infectious diseases.” Other evidence, although arguable, suggests that smoking does not make people more susceptible to heart attacks, but rather makes them less likely to recover from heart attacks. If this is indeed the case, Schwartz says, failure to recover might be attributed to lowering of the body's immune system by nicotine. □