A Closer Look at the Products of Education in 1950s, 1960s... 1950s

OUR SCHOOLS-THEIR FOUR GRIEVOUS FAULTS*

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* Reprinted by permission from The Reader's Digest, January, 1951, pp. 123-126. (Condensed from Life, October 16, 1950.)

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All the disillusioned share a common belief: that those in charge of what is called "education" have little perception of what schooling is supposed to be or to do. Ours should be a "democratic education"—splendid!—but the beauty of the adjective does not conceal the vacuity of the noun. Let whatever we have be "democratic"—but let us be sure it is also education.

Another great failing of American schools is a basic irresponsibility which they develop in the students. For society there is grave danger when its youth are unchallenged in the impression that there can be reward without quest, wages without work, a master's prestige without a master's skill, marriage without fidelity, national security without individual sacrifice.

Our school system seems to presuppose that, for education to be democratic, every man's child must be treated as the equal of every other's both in kind of brains and in educability. The effect of this is to herd an increasing number of unfit persons into colleges of liberal arts whose proper business is to help students of exceptional intelligence to understand human affairs and develop sound judgment therein.

They are deeply skeptical of what is being produced in the way of a people personally content, socially responsible and politically effective. Thoughtful parents organize, agitate and petition. Leaders of business commonly deplore the ignorance and laxness of the products that tumble by the thousands each year from the end of our educational assembly line.

1952

"High School Youth Held Deficient in Spelling, Arithmetic, Writing"



1953

Lacking in Basic Research

applied research. We are now living on the accumulated capital of the pure research of the last 50 years, and we are doing very little to replenish this capital. Figures released last week state that of our 400,000 scientists in America, only 15,000 are engaged in basic research. We shall defend intelligence better by keeping our best minds, the Einsteins of the future, at work on basic problems.

R. P. McCutcheon, "In Defense of Intelligence," School and Society, August, 1953.

The Commission on Human Resources and Advanced Training

Are we robbing the nation's future by not devoting a greater effort to basic scientific research?

No single investigation can secure all the information needed to answer these questions. But each calls for study, for facts which will aid in the formulation of sound national policy. The recognition of this need led the four national research councils— American Council of Learned Societies, American Council on Education, National Research Council, and Social Science Research Council-to request the Rockefeller Foundation to provide financial support for a comprehensive survey of the specialized manpower resources and requirements of the United States. Agreeing upon the importance of such a study, the Rockefeller Foundation granted the necessary funds. The Commission on Human Resources and Advanced Training was established by the four research councils to carry out the studies. In considering the current and future manpower problems of the nation, the Commission organized its studies around three interrelated problems.

The growing demand, problems of supply, and the failure to make full use of the potential supply all call for accurate manpower information. Such information is basic to the satisfactory handling of a number of important and immediate policy problems which confront the nation: Is it in the national interest to postpone the military service of qualified students until they have completed their education? Is there need for more scholarships to equalize the economic barriers to higher education? How can employers make up for the shortage of engineers, schoolteachers, and other critical specialists? Are the men and women who are trained in these fields being properly utilized in civilian and military life? When a special draft law is required to get enough doctors into military service can the country afford to continue current restrictions on medical school enrollment? Are the manpower resources adequate to support the foreign commitments which the United States has assumed?

Shortage of Human Resources in Every Field

While shortages plague the nation's employers, the United States is wasting much of its intellectual talent. College graduating classes could be twice as large as they currently are, and with no loss in quality. Every study which has been made of why and when and how many students drop out of school has shown that the potential supply of well-qualified college graduates gets drained off, in large or small amounts, all the way through the entire educational system. Practically all the potentially well qualified enter high school, and most of them graduate, but after high school graduation the loss is large. Fewer than half of the best 25 per cent of all high school graduates now graduate from college. Only 6 out of 10 of the potentially most promising 5 per cent of high school graduates earn college degrees.

1954

In purely academic positions, there is also a grave shortage of new mathematical talent. Today the United States is one of the two or three leading countries in the development of pure mathematical research, but this position has been achieved only thanks to the presence here of many talented mathematicians from Europe. At four leading American institutions for pure mathematics, over forty per cent of the full professors are men with European backgrounds.

Curriculum Problems E. *The Impact of Modern Mathematics*, Saunders MacLane, National Association of Secondary-School Principals, <u>May</u>, 1954, pp. 66- [p. 67]

1959

Vice Admiral Hyman. G Rickover's Complain:

Among the young engineers we interview we find few who have received thorough training in engineering fundamentals or principles

I have interviewed <u>more than two thousand</u> young men in the last twelve years. My naval-reactor engineering group presently numbers about one hundred fifty. Since the men I interviewed had already passed through a number of previous interviews which <u>weeded out all but the best</u>, it can be seen that those who could not meet the requirements of the nuclear-power project—and hence inferentially of any new development project—vastly outnumbered those who qualified.

This experience made a deep impression on me. It led me directly to a study of why our educational system produces so few men who are qualified to do the work which we must do if we are to progress.

Hyman. G. Rickover, Education and Freedom, 1959.

1967

Over Fourteen Hundred Factory Errors Killed Three Astronauts

On Friday evening, 27 January, exactly two weeks after he arrived home, von Braun was at a dinner for Gemini and Apollo corporate leaders at the International Club in Washington. Gemini had just concluded, and Apollo was about to begin launching astronauts: Gus Grissom, Edward White, and Roger Chaffee were in training for a multiday test of the Command and Service Modules in Earth orbit, to be launched on a Saturn IB in late February. As he was standing around at cocktail hour with Lee Atwood, Jim Webb, Bob Gilruth, Kurt Debus, and Sam Phillips, Atwood was called to the bar for an urgent phone call. Ashen-faced, he turned to Gilruth, who was nearest: "Bob, we've had a tragedy." It was Harrison Storms calling—a fire in the spacecraft at the Cape had killed all three astronauts just after 6:31 p.m. Von Braun and Debus came up, followed by others. Webb took charge, and Phillips, Mueller, and Gilruth flew to the Cape. Atwood soon headed that way too. Von Braun was left to share a depressing dinner with the others.

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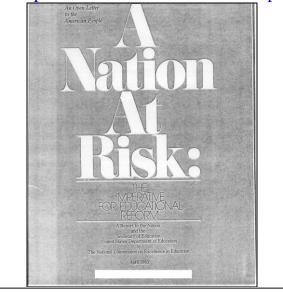
The fire set off the biggest crisis in NASA history, at least until the Space Shuttle *Challenger* accident nineteen years later. It forced a massive overhaul of the Apollo program, delaying the first manned launch until late 1968, although that was certainly not the expectation immediately afterward. But that was before NASA's leadership grasped how problem-plagued the Apollo spacecraft was. The space agency was allowed to investigate itself, as it was not in the two later shuttle accidents, but the fire inevitably attracted a lot of intrusive media and congressional attention, exposing how troubled the North American contract had been, both for the S-II and for the CSM.

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. . . Crews at the Cape took apart the Block I Command Module for the mission, the same type that had killed Grissom, White, and Chaffee, and found over fourteen hundred factory errors in wiring and other systems. The rocket's stages and all the pad systems and software also were full of problems. In June, after the vehicle was already stacked in the monumental assembly building of Launch Complex 39, concern about the quality of S-II welds forced the Kennedy Space Center crew to unstack the spacecraft and upper stages. To help Debus's KSC, von Braun decreed that a number of Marshallites would go to Florida on temporary duty assignments. Success was "a necessity."¹⁰

Michael J. Neufeld, Von Braun, Dreamer of Space, Engineer of War, 2007, 415ff.

April 1983 "A Nation at Risk" An Open Letter to the American People



Indicators of the Risk

The educational dimensions of the risk before us have been amply documented in testimony received by the Commission. For example:

- International comparisons of student achievement, completed a decade ago, reveal that on 19 academic tests American students were never first or second and, in comparison with other industrialized nations, were last seven times.
- Some 23 million American adults are functionally illiterate by the simplest tests of everyday reading, writing, and comprehension.
- About 13 percent of all 17-year-olds in the United States can be considered functionally illiterate. Functional illiteracy among minority youth may run as high as 40 percent.
- Average achievement of high school students on most standardized tests is now lower than 26 years ago when Sputnik was launched.
- Over half the population of gitted students do not match their tested ability with comparable achievement in school.
- The College Board's Scholastic Aptitude Tests (SAT) demonstrate a virtually unbroken decline from 1963 to

1980. Average verbal scores fell over 50 points and average mathematics scores dropped nearly 40 points.

- College Board achievement tests also reveal consistent declines in recent years in such subjects as physics and English.
- · Both the number and proportion of students demon-

strating superior achievement on the SATs (i.e., those with scores of 650 or higher) have also dramatically declined.

- Many 17-year-olds do not possess the "higher order" intellectual skills we should expect of them. Nearly 40 percent cannot draw inferences from written material; only one-fifth can write a persuasive essay; and only one-third can solve a mathematics problem requiring several steps.
- There was a steady decline in science achievement scores of U.S. 17-year-olds as measured by national assessments of science in 1969, 1973, and 1977.
- Between 1975 and 1980, remedial mathematics courses in public 4-year colleges increased by 72 percent and now constitute one-quarter of all mathematics courses taught in those institutions.
- Average tested achievement of students graduating from college is also lower.
- Business and military leaders complain that they are required to spend millions of dollars on costly remedial education and training programs in such basic skills as reading, writing, spelling, and computation. The Department of the Navy, for example, reported to the Commission that one-quarter of its recent recruits cannot read at the ninth grade level, the minimum needed simply to understand written safety instructions. Without remedial work they cannot even begin, much less complete, the sophisticated training essential in much of the modern military.