rocket program has had operational setbacks. The French SECAM color television system has run into trouble. France and the Soviet Union adopted the SECAM system, which provides an excellent picture but is incompatible with the German-developed PAL system chosen by other Western European countries. And now the French are well behind schedule with SECAM because of difficulties in manufacturing the color picture tube. Perhaps most vexing of all have been recent major breakdowns in three nuclear power stations.

And French industry shares the managerial weaknesses which many analysts have stressed in diagnosing the technological gap. As managers, graduates of the *Grandes Ecoles* seem to be strong in finance and production methods and weak in modern sales and marketing techniques and personnel administration.

The picture is certainly not all unfavorable. Dassault Mirage jets have been a conspicuous international success and, despite the question marks hanging over the Anglo-French Concorde supersonic transport project, the French aircraft industry is perhaps the healthiest in Europe. In high technology, French engineering certainly cannot be written off. The big machines at the European nuclear research center (CERN) are a triumph of sophistication, and the engineering staff at CERN has a heavy French representation. The nuclear-power-plant breakdowns may well be due less to engineering than to a political decision by the de Gaulle regime—the decision that natural uranium fuel be used in the reactors to avoid dependence on supplies of enriched uranium from the United States. Strained relations between the French atomic energy authority and the nationalized electricity industry may also have contributed to the breakdowns.

When all allowances are made, however, it is fair to say that basic reforms in university research and engineering education are needed, and the French in fact are acting on this assumption. There have been many attempts at amelioration since World War II. The National Center for Scientific Research (CNRS), which serves many of the same purposes as The National Science Foundation in the United States, has bolstered the ranks of researchers with a corps of about 5000 professionals. About a fifth of these work in CNRS laboratories, the rest in university laboratories. The French atomic energy commission finances its own institute in postgraduate nuclear research.

Universities and the independent engineering schools will have to assume a much wider role in educating scientists and engineers. An obvious question is whether the dual system of university and *Grandes Ecoles* will continue as it is.

The future of the *Grandes Ecoles* in a reformed system is not clear. During World War II. Resistance planners advocated abolition of the *Grandes Ecoles* because they were "too aristocratic." Such revolutionary action was never taken, and today's planners seem set on evolutionary change. The trend toward more research in the *Grandes Ecoles* will certainly continue. Curriculum changes are also on the way. Although controversial, it is likely that revision of the curriculum at the Ecole Polytechnique will follow a pattern already being discussed. Major changes recommended are a move away from a single curriculum for all students and a mitigation of the *"encyclopédisme"* of *Grandes Ecoles* studies. The Ecole Polytechnique is scheduled to move from its historic Latin Quarter location in the early 1970's to a site south of Paris, where it may well develop a new sort of contract with the univer-

Private Education Aid Reaches All-Time High

Private gifts and grants to American universities reached an estimated all-time high of $1.6 billion last year, according to a nationwide survey by the American Alumni Council and the Council for Financial Aid to Education (CFAE).

But, though the total was up, the rate of increase is down in the last 3 years by 20 percent. Holgar Johnson, CFAE president, said that the decline is occuring at a time when higher education is confronted with greater expenses. Other significant trends pointed out by the report were that growth of voluntary support for public institutions is increasing at a much faster rate than growth of support for private institutions, though private colleges and universities consistently receive more overall support.

Nonalumni individuals were the largest single source of voluntary support while general welfare foundations, once the largest source of gift support, were reducing their contributions. Johnson said that one reason for this may be that a number of major foundations have announced intentions to shift some of their funds away from higher education toward problems of civil rights and urban development.

The survey totals show that unrestricted gifts continue to account for most of the overall support. Gifts for physical plants are the next highest, followed by gifts for student financial aid. The survey is based upon responses from 1094 institutions.

Institutions reporting the largest amounts in gift support for 1967 are: Harvard, $38.3 million; Yale, $33.2 million; University of California (10 campuses), $25.0 million; Cornell University, $23.1 million; New York University, $22.5 million; University of Michigan, $22.4 million; University of Chicago, $22.1 million; Stanford University, $21.6 million; Columbia University, $20.4 million; Brigham Young University, $19.5 million; Vanderbilt University, $19.4 million; University of Pennsylvania, $18.6 million; University of Rochester, $18.5 million; University of Southern California, $17.9 million; Massachusetts Institute of Technology, $17.8 million; Brandeis University, $14.2 million; Georgetown University, $13.6 million; Northwestern University, $13.4 million; Johns Hopkins, $13.4 million; University of Wisconsin, $13.1 million.

Copies of the report are available at a cost of $4 from the Council for Financial Aid to Education, Inc., 6 East 45 Street, New York 10017.—M.M.