

LETTER FROM PARIS



## Revamping priorities

France's new five-year plan gives a boost to research and development

by Noah Hardy

French science has been reeling ever since the Government imposed severe economic measures following the political upheaval just two years ago (SN: 12/14/68, p. 590). But if approved by the National Assembly this month, France's new, sixth, economic plan, covering the period 1971 to 1975, will provide a potent boost to science.

The new plan proposes significant changes in emphasis for research and industrial development. It also provides an over-all 13 percent annual increase in budget appropriations to implement the proposals. This would bring the total funds for science to about \$5 billion in 1975, amounting to nearly three percent of France's estimated gross national product for the year.

Sixth-plan science policy recommendations are contained in a report by a commission of the General Delegation on Scientific and Technical Research, an agency of the Ministry of Industrial and Scientific Development. The report recognizes three general priorities: industrial development, life and human sciences and socioeconomic research. All three would benefit greatly if the plan is approved.

Top priority was given to industrial development in recognition of the necessity to improve France's competitive industrial position. The report goes so far as to predict that basic restructuring of industrial objectives may be required.

Proceeds from cutbacks in military and certain expensive large-scale non-military programs, notably civilian aviation—the supersonic Concorde burden is about over—and nuclear power stations, will be applied to induce industry to finance its own innovations. The military budget, which normally increases three to four percent a year, will be cut about one percent, releasing a sizable sum for this effort to stimulate industry.

In recent years the French Government has substantially aided the electronics industry, often to the detriment of other industrial sectors. The sixth plan will compensate for this imbalance, providing significant support to the chemical, metallurgical and mechanical sectors of French industry.

The move represents a shift, according to the committee, from what it calls a defensive industrial attitude, in which the Government put its greatest efforts into trying to keep up with other countries in areas such as nuclear power and computer and electronic technology. Atomic energy and information science will continue to be funded, but em-

phasis will also go to space and oceanography. The estimated 1975 figure for Government expenditures in aid to industrial development is \$270 million to \$360 million, about a 10-fold increase over the \$30 million amount for 1970.

By far the big winners in the new plan are the life and behavioral sciences. They are awarded a distinct priority over the physical sciences. The life sciences, including all areas of biology and medicine, will enjoy a 23 percent annual budget augmentation, largely in support of interdisciplinary projects. This news has been met with a sigh of relief in the universities, hospitals and CNRS research centers throughout France, where the last two years have been a real trial and where there is still a great deal of unemployment. The social and behavioral sciences—psychology, sociology, economics, geography, history, philosophy and others—will find 22 percent more money each year between 1971 and 1975. This means at least a doubling of the number of workers in these fields.

The chief theme of the life-human sciences combination effort will be man-environment interaction. Particular effort will be directed against pollution.

Although part of the big boost to the life-human sciences is at the expense of the physical sciences, the latter will still get 15 percent more each year on average than in the preceding one during the period of the plan. Nuclear physics, however, will get only a five percent annual boost, and that includes projected expenditures for the European high-energy particle accelerator project now under discussion (SN: 4/25, p. 408).

The plan also recommends measures to increase employment flexibility and mobility for scientists, engineers and technicians. The hope is to make research a much more attractive aspect of scientific employment. Employers will be encouraged to solicit and reward young, research-trained professionals with higher salaries. The goal is to have 70 percent of the 1971 to 1975 crop of engineering and science graduates engaged in research.

Another commission report is expected by the end of this year, outlining a program for execution of all these options. Three committees have been set up, one of which will formulate an overview of French science policy, as well as refine the focus on science directions. Another will approach systems problems, including environmental sciences.