and the anonymous "State Department specialist in politicomilitary affairs."

On the one hand, Major General Betts points out that "Buying seat belts doesn't mean that you intend to smash into the car of someone you don't like" (p. 1698). On the other hand, the politicomilitary scenarist argues, if I may paraphrase, that seat belts will in fact let you play the game of chicken with more abandon—particularly if your car happens to be much bigger than the oncoming one (p. 1697).

Clearly there are those among the ABM proponents who unabashedly regard the ABM (and civil defense) not merely as a shield to reduce casualties in the event of an unavoidable incident, but also as a means for giving the government more freedom to take the risks which would make such an incident, or a worse one, more likely.

For every responsible person who admits to that position, there are *n* more who hold it, but who are reticent about saying so—maybe even to themselves. The magnitude of *n* is unknown, but in view of the obvious political and other reasons for reticence, it is perhaps rather large. One might also ask where the other kind are—the ones who would couple a "purely protective" ABM-CD system with positive moves *away* from the anarchy of power politics. Their voice is lost in the background noise.

Since the reasons for wanting the system probably have a bearing on how it would be used, it is not clear a priori that this particular seat belt would help us to develop decent and enforceable rules of the road.

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## French Planning: Some Realities

J. B. Quinn, in "National planning of science and technology in France" (19 Nov. 1965, p. 993), was impressed by the esthetics and symmetry of French planning, as one can be with many French institutions. However, he understated certain realities of the planning process in France.

A number of western European countries have national economic planning. Spain, Turkey, Greece, Ireland, in addition to France have plans, running from 5 to 15 years, covering many sectors of the economy, including science. West Germany, Belgium, Sweden, and, most recently, Italy have comprehensive planning of science alone in relation to economic factors, aiming to bring together all public and private research and development into a single blueprint.

The first point, which Quinn failed to emphasize, is that in general, planning is undertaken to husband limited means, not to manage largesse. The American National Recovery Act during the 1930's was a forerunner of present European planning, and it was a product of our Depression. (Indeed, it is said that Jean Monnet, the father of the French Plan, drew some of his inspiration from the American NRA experience.) The French Plan is no exception to this generalization. It was created in the immediate postwar years when the alternative to planning was bankrupt chaos in France. Planning will no doubt be abandoned, or at least reduced, when the need for frugality ends and private initiative can be more fully released. (A nation behaves like a housewife: her bookkeeping is strict only when her budget is limited.)

Quinn is correct in pointing out that Monnet envisioned a nonenforced planning, with all sectors of the economy joined in a creative and realistic blueprint for succeeding years. Monnet saw planning as a catalyst, a unifying and educational force among disparate industrial, social, and economic elements of French life. As Pierre Massé, the director of the Fifth Plan, wrote, "The spirit of the Plan is a concert of economic and social forces. Jean Monnet realized the Plan could only succeed if all Frenchmen were directly or indirectly involved in its elaboration."

But in France it doesn't entirely work out this way, and this Quinn did not stress. While aiming to be a "consensus," expressing the needs and potentials of each sector of society, it is, in fact, to a large extent a gearing of the economy to the views of the government. After all, the elected officials are the ones who must live with the Plan. Therefore it is they who establish the economic limits within which each of the sectors must adapt its program for the Plan.

The history of the Fifth Plan is instructive in this regard. In June of last year, the public was given a preliminary view of the Plan, 6 months before the final version was to be completed. At that time, one of its options was based on economic growth of nearly 5 percent per annum during the next 5 years. This would have promised a fourfold increase over the Fourth Plan in support for science. But, from newspaper accounts, this "expansive" philosophy conflicted with the restrictive "stabilization" policy of Finance Minister Giscard d'Estaing. D'Estaing's views prevailed, and the growth rate prescribed by the Fifth Plan was reduced, finally to 2.4 percent, in the version which the government accepted just before the elections. Even the OECD criticized this rate as too restrictive. Of course the reduced growth rate meant that the planning in each sector required paring down. Some participants in the Plan viewed the final levels of support as verging on *dégradation*. For example, the "minimal support" requested by the medical research subcommittee was rejected by Plan officials as not minimal enough. A still lower limit was given them, and, as a result, the first page of their final report starts off with a blunt disavowal of responsibility. By their calculations, although overall science will receive a 15-percent annual boost over the Fourth Plan, in medical research there is practically no improvement over the previous Plan. The French governmental agency for medical research, INSERM, is said to have funds for one research fellowship for every 30 qualified candidates.

Whatever the economic justification for restricting the Plan, this sequence of events exposes one of the limitations of the French planning process: it can become, without meaning to, a sort of mild, indirect blackmail. It involves all social and economic sectors in a planning exercise which is obliged to fit the government's views. By committing these sectors to its own program in advance, the government in effect saps their freedom of vigorous protest later on. Along this same line, as Pierre Lelong points out in *Révue Economique*, while the Plan is "liberal, it is certainly not democratic." The members of the numerous commissions for the Plan serve as individuals by appointment, and not as representatives of a particular group, class, or interest. This too may inhibit, later, the development of open, constructive dialogue between these interests and the government. The absence of such a dialogue in science is especially striking in France. During the elections, most candidates prepared "position papers" on science, but science never became the issue in the campaign that it was in Great Britain 2 years ago, or in Norway or Germany last

year. One sees none of the give-and-take, letters-to-the-editor, and so forth of Sweden and Italy, and there is no "Young Turks" movement of scientists as in Switzerland and Denmark. While the Plan may not be entirely responsible for this, perhaps partly it is.

There are two other points where Quinn's emphasis was perhaps misplaced. He says that the mechanism for planning in France "militates against unwise [governmental] decisions which might draw unwarranted technical support or investment into certain politically popular fields despite overwhelming costs to other more important sectors." Actually, nearly the reverse can be the case, as De Gaulle's "force de frappe" illustrates, for this has rather considerably drained funds from other sciences. Quinn might reply that space, military, and atomic-energy research are not included in the Plan, which is true. But then can it be called consensus planning of science when over 70 percent of governmental science support is not included?

Elsewhere Quinn quotes a French industrialist's praise of the Plan, as far as private initiative is concerned, as follows: "The Plan does not tell a private research organization what to do. Nor does it tell a company what it is to sell. . . . The government will not contribute monies to private companies' research efforts. And industry would not follow the Plan into areas which did not interest it." The Fifth Plan intends to correct this. It provides (for the first time) $120 million for loans to private industry for research, the loans to be repaid only if the research results in revenues for the economy; it urges its governmental science agencies to use private industrial research by contracts when appropriate; and one of its *actions concertées* in biomedicine is in the field of "biologic and medical engineering" in order to attract more engineers and physicists to biological problems and strengthen the French instrumentation industry. These are, no doubt, laudable innovations, and certainly the government will use the program to help industrial research with the same objective skill and imagination which characterizes British and Swedish management of their somewhat analogous instruments. Nevertheless, the Plan does give the government additional tools for persuading private industry.

In short, however intellectually attractive planning is in France, both in its development and in its execution, the Plan provides the government with methods of suasion over the economy which are not commonly found in many other countries. But in France, several social and economic sectors are conspicuously lagging as compared with neighboring countries. (The Délégation Générale quite frankly exposed the retardation in biomedical research in France in *Le Progrès Scientifique* No. 83, April 1965.) Under these circumstances, perhaps France needs both the psychology of consensus planning and a rather tight governmental control over what is planned.

Nevertheless Quinn has performed a service in bringing our attention to methods of science planning in other countries.

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## Drafting of Ph.D. Candidates

Qualified graduate students working on their doctorates in science and engineering—at Columbia, New York University, and other universities—are now being called for induction into the military service. Near the culmination of their 20 or more years of formal training they are being drafted to fill local quotas. This is a poor utilization of scarce and nationally needed talent and is certainly not in the best interest of our country, yet the scientific community has not raised its voice in audible protest. The National Science Foundation, the National Aeronautics and Space Administration, and the National Academy of Sciences have developed strong financial support for graduate education in the sciences, yet all agencies are strangely silent while some of our brightest young men have their careers interrupted at a crucial time in their training.

It is time for the agencies within and outside the government which represent the scientific community to speak out, loudly and clearly, against this. Failure to do so will cost our country dearly in the future, for all the battles are not being fought in Southeast Asia. Our future scientific strength resides with the young Ph.D.'s, and drafting them to fight, or idly pass the time as former generations of soldiers have done, is to ignore history and misinterpret the meaning of democracy.

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