

Canadian Science Policy: Doubts Raised about Advisory Apparatus

The Canadian government has, over the past few years, put together a science advisory apparatus roughly analogous to the one that serves the White House. The Canadian Senate's new Science Policy Committee is expected to resume, in the fall, a critical examination of this still largely unproven machinery, which it began in March as part of a general inquiry into science policy. And the chairman, Senator Maurice Lamontagne (an economics professor at the University of Ottawa), and others on the committee have raised doubts as to whether the existing apparatus will give the government objective advice on science policy matters.

The Lamontagne committee provides a forum for open discussion of science policy questions—issues which, in the past, have not received much public consideration in Canada. Technically, this committee, established by the Senate last November on Lamontagne's motion, no longer exists, having been disbanded with the dissolution of the last parliament. However, when parliament reconvenes in mid-September (at the latest), Lamontagne will ask the Senate to reestablish the committee, and no difficulty in accomplishing this is foreseen.

In the U.S. Congress, aggressive investigations by committees into various public issues, including those involving science and technology, are, of course, commonplace. But under Canada's parliamentary system, in which the government is formed by leaders of the majority party in the House of Commons, committees have far less power and significance. However, the Senate of Canada, itself an appointive body of quite limited powers, is developing a modest tradition of sponsoring committee studies of various national questions. On the Science Policy Committee are a number of senators of prestige and influence. Lamontagne, for instance, is a former cabinet official and is said to have easy access to government leaders.

The hearings conducted by the Senate committee during March and April mainly dealt in a general way with

science policy problems and mechanisms in Canada and other countries. In one session, however, the committee had some pointed questions to ask about the government's advisory apparatus for science policy. This apparatus consists of (i) the Science Council, a 29-member body, created 2 years ago (*Science*, 2 September 1966), which is made up largely of scientists and engineers appointed by the Prime Minister from universities, industry, and the top ranks of the government's scientific agencies, and (ii) the Science Secretariat, a part of the government's Privy Council Office which provides staff support for the Science Council as well as for the Prime Minister and his cabinet. The Secretariat and its director, J. R. Weir, provide confidential advice to the cabinet and play a key role in the Science Council's studies and development of policy recommendations.

Ambiguous Role

Senator M. Wallace McCutcheon of Toronto, a cabinet minister in the Progressive Conservative government of the early 1960's, remarked to Weir, "You are preparing and supervising studies to go to the Science Council . . . At the same time you are [advising the Prime Minister] and providing him with recommendations and studies which may or may not be consistent with what you are providing to the Science Council. I think you could find yourself in a very ambiguous situation."

Weir conceded the point. "I agree with you, sir, very much," he said. Weir indicated that the Secretariat, which was established about 2 years before establishment of the Council, was given the role of providing staff support for the Council on the theory that sharing the Council's overview of science policy, while at the same time taking part in government planning, would be advantageous. "In other words," he said, "one could look out through the Science Council and look in through the Secretariat."

"There was only one fellow who looked both ways, and his name was

Janus," replied McCutcheon. Lamontagne and several other senators shared McCutcheon's skepticism. On the other hand, McCutcheon and others conceded that, "anomalous" as it seemed, the Council-Secretariat relationship might prove workable after all.

The Council's long-awaited first general report, recommending priorities on which government science policy should be based, will not be issued until late this year. Meanwhile, there is not much of a record on which members of the Lamontagne committee and other Canadians can judge the Council's performance. The Council has, however, passed judgment on one controversial matter by favoring, in principle, the proposal by Atomic Energy of Canada Limited (AECL) to proceed with its Intense Neutron Generator (ING) project. In taking up the matter of ING, which Lamontagne plans to do this fall, the Senate committee will have a chance to examine the approach taken by the new science advisory apparatus to one of the most significant science policy questions Canada has faced in years.

By supporting ING, a project which in Canadian terms would be enormously expensive (between \$150 and \$200 million capital cost plus \$20 million a year operating cost), the Council no doubt reinforces the belief of some Canadians that its make-up is unbalanced. Roughly two-thirds of the regular council members are physical scientists and engineers, while the others are life scientists. Moreover, about a fourth of the members are government science administrators, the president of AECL being among them. No social scientists are included in the regular membership, although the chairman of Canada's Economic Council is an associate member.

Many Council members believe Canada would be better off if much of the money spent building up the large federal in-house research establishment had gone into promotion of industrial research. Most certainly would not favor a new in-house project as costly as ING unless it was expected to advance industrial technology. Yet the Lamontagne committee is sure to hear conflicting views as to whether ING would, in fact, have a significant impact on Canada's industrial economy.

The atomic energy agency contends that ING (which still awaits government approval) would indeed have such an impact, but some Canadian scientists believe otherwise. J. Gordon

Parr, dean of applied science and professor of engineering materials at the University of Windsor, is one of the skeptics. Writing in *Science Forum*, a provocative new journal on Canadian science policy, Parr indicated his disappointment at the Council's handling of the ING issue. "The Science Council approved ING without comparing the project to other alternatives," he said. "No feasibility studies of other projects had been funded. The decision

was made quickly; perhaps it was even hastily made."

Clearly, the Lamontagne committee, a lay body presumably holding a detached view, can broaden the debate on Canadian science policy by looking over the Science Council's shoulder and by inviting the expression of divergent viewpoints. The new Liberal government, under Prime Minister Trudeau, has promised to give close attention to the committee's views. No

sweeping new departures in science policy are expected before next year.

The Trudeau government is pledged to seek, by 1975, a doubling of the \$1 billion total (from public and private sources) spending on R&D projected for 1968. With this as a national goal, and with controversial projects such as ING bidding for funds and scarce technical manpower, Canada's science policy machinery faces major tests.—LUTHER J. CARTER

Italian Universities: Reform Indefinitely Delayed

One of the first major incidents of the student revolt in Europe last winter and spring was the occupation of university buildings in Turin by Italian students. Violence soon spread to other university cities, notably Milan, Genoa, Rome, Naples, and Pavia. Italian students express a cosmic discontent, but more than their contemporaries in Germany and France they concentrate on the theme of university reform. Their case, in fact, is more extreme.

Student complaints follow a pattern in Western Europe. The major grievances are overcrowding, absolutist professors, an obsolete curriculum, and an "undemocratic" composition of the student body. But the university problem, like a lot of things in Italy, seems larger than life.

There is a consensus in Italy that university reform is necessary, but no agreement on what should be done. Parliamentary action is required to alter Italy's centralized university system, but, although official proposals for reform were put forward 5 years ago and a reform law was introduced in 1965, the bill has never been voted on. The legislation has languished, not least, perhaps, because so many professors are in politics and are apprehensive about losing positions of privilege.

The power and status of the professors are at the heart of the problem. Professorships are granted by the state and carry extraordinary prestige. In public and private life in Italy the title of professor is more than an adorn-

ment. The last four prime ministers of Italy have been professors, and some 76 *professori* sat in the two chambers of the last parliament. Academic salaries are relatively modest, and for many professors outside activities are the main source of income. In law, medicine, and engineering, particularly, "full-time" professors are scarce. It is in these faculties that the "conservatives" on the reform question tend to be concentrated, whereas the humanists and the scientists—especially the physicists and biologists—furnish many of the "progressives." The issue has become so divisive that there are two university teachers' associations.

The Italian university has clung tenaciously to the idea of a single professor supreme in each discipline. The "established" professor controls the appointments of "non-staff professors," lecturers, and assistants under him. The assistants, in fact, are employees of the professor rather than of the university.

Until a decade ago, no academics had tenure except professors. Now the middle-level faculty have permanent jobs, but unless one's boss exerts himself there is little chance for even the most deserving in the maneuvering that surrounds the award of a professorial chair. Professors are chosen on the recommendation of a jury composed of professors, and scholarly virtue frequently is vanquished by nepotism and academic back scratching.

The young scientists may now have tenure, but, as one life scientist ob-

served, his boss "can kill him scientifically" by starving him of research funds.

The mode of distribution, as well as the low level of research funds in Italy, has recently drawn a kind of notice which discomfited government officials. A report on Italian research and science policy by the Organisation for Economic Cooperation and Development was completed by the OECD examiners almost a year ago. It would normally have been discussed at a "confrontation meeting" in Paris late last year and published with official Italian comments incorporated in the final product. The report still had not been disgorged by Italian officialdom as the recent parliamentary elections approached, and critics charged that the delay was deliberate to prevent use of the report, known to be sharply critical, during the campaign.

In early May, bootlegged copies of the report were distributed to journalists at a press conference in Rome by researchers of the National Council of Research (CNR) who had occupied CNR headquarters to protest the state of Italian research.

The three examiners, of whom Harvard dean of engineering and applied physics Harvey Brooks was one, faulted Italy's science policy apparatus, but loosed their sharpest criticism—and it is cutting by the diplomatically bland standard of OECD reports—at the university system.

An interim memorandum produced by the government, which has been added to semipublic literature of the incident, charges that the examiners used old statistics, oversimplified the situation, and did not take into account the high quality of some Italian research. The officials also took umbrage at the tone of the report, which they found unnecessarily harsh.

Even the casual observer, however,