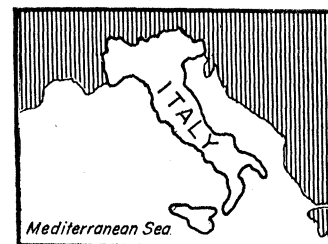


Research Climate in Italy, II



London. Differences between the administration of Italy's National Research Council (CNR) and that of the International Laboratory of Genetics and Biophysics (LIGB) in Naples appear to have been resolved.

These differences led last June to the resignation of the laboratory's director, Adriano Buzzati-Traverso, and two vice directors (*Science*, 14 Aug. 1964). Buzzati and his colleagues protested against what they felt were unwarranted restrictions in purchasing and hiring, and they made their feelings known in a statement to the Italian press which elicited an angry response from the CNR. The president of the CNR, Giovanni Polvani, accepted the resignations and appointed the remaining vice director, L. L. Cavalli-Sforza, acting director.

Then, as tempers cooled, it was realized that people on both sides of the dispute had acted rashly. The appointment of Cavalli, who has been in complete agreement with Buzzati's policy of developing the LIGB since its foundation in 1962, seemed to be a sign of good will. Recently, after months of patient negotiation, Buzzati was reappointed director (the appointment was made retroactive to 1 January). The budget of the laboratory has been increased.

This result indicates that the disruption of Italy's atomic energy and public health research programs, caused by the prosecution of former directors of these programs on charges of administrative irregularity and conflict-of-interest, will not extend to the Naples laboratory. The LIGB is an

assemblage of younger Italian researchers in molecular biology, with a budget exceeding \$1 million a year. The size of the laboratory and its complex funding by the CNR, the Italian atomic energy agency, and the European Atomic Energy Community (Euratom) have appeared too much like an empire to some of the professors who have a voice in determining how CNR is administered. Furthermore, the prosecution of the former directors of the nuclear and health research programs made officials cautious in defining the activities of the large new laboratory.

However, CNR president Polvani is credited with a vigorous and largely successful effort to provide strong CNR support for the laboratory. In his role as head of the CNR, Polvani, a professor of experimental physics at the university of Milan, has many concerns other than the laboratory. For the past 2 years he has urged that Italy multiply its spending on research and development by a factor of at least 7 by 1973. In 1963 the total public and private outlay was between \$160 and \$190 million, around 0.5 percent of the gross national product. Polvani urges that the spending be raised to over \$1100 million by 1973; Italy would then be spending about 2 percent of its gross national product on research and development. As a short-term goal, he and economist Pasquale Saraceno, vice president of the national economic planning committee, urge that the percentage be raised to 1 as early as 1968.

Obviously, such calculations have hardly more than inspirational value. It is difficult to make exact calculations of Italy's research and development spending. There is disagreement about whether to count defense or space studies or contributions to international programs as part of the government's science budget, and how much of university costs should be in-

cluded is a problem, as it is throughout the civilized world. Figures from private sources are spotty and difficult to check. Estimates of desirable spending levels must be modified downward in the light of overall fiscal policy, limitations in the supply of qualified scientists, and so on.

Nonetheless, the inspiration seems to be working. In a little over 4 years, CNR's budget has quintupled, going from \$6.4 million to more than \$35 million this year. In a little more than 3 years, research spending through the ministry of education has doubled from \$24 million to \$49 million. Allocations to the European research programs in high-energy physics, atomic energy development, space research, and rocket development amount to \$35 million this year (as compared to about \$50 million from the German Federal Republic). The Italian government's allocations for research and development have reached roughly \$170 million for 1965, about double the figure for 1963.

So, as in West Germany or even Britain, the upward curve of government spending for science in Italy seems not to have leveled off, as have some of the larger American development efforts. Leaders in Britain and Germany have voiced serious plans to double research budgets by 1970. In Britain or Germany, this means the maintenance of a growth rate of 15 percent a year, or more than double the recent expansion of even the most vigorous economies and the government budgets drawn from them. In Italy, the achievement of Polvani's targets would involve even higher rates.

These targets are set forth in the annual reports on the state of research in Italy, which, according to the 1963 act for organizing scientific research, Polvani must compile. The 1963 law also opened up the voting for membership on CNR's committees, increas-

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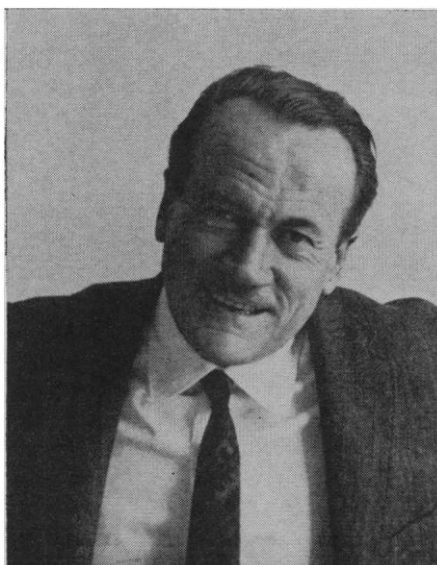
ing the CNR's electorate from 1300 full professors to more than 12,000 government-paid researchers. It made nonprofessors eligible for membership in CNR and created new sections in the humanities and technology.

The current report, which has recently been translated, envisages an increase in government research spending to about \$300 million in 1969. If the present estimated proportions between nongovernment and government spending are maintained, private sources would provide an equal sum. But it does not appear that they will be. In an article in the newspaper *Corriere della Sera* of 9 February, Senator Carlo Arnaudi, minister without portfolio for scientific research, said that, during the 5 years 1965 through 1969, private sources would probably contribute only half as much as state sources: \$600 million as against the state's \$1200 million.

Although there has been much talk recently of the need for larger research groups or "task forces," most notably at January and February meetings of the Milan federation of scientific and technical associations, there is little indication in Polvani's report that anything more than a gradual movement away from the relatively small university research groups is contemplated. This is the pattern of CNR grants, although a move has been made to set up cooperative research by national groups of researchers with common interests. A considerable fraction of the atomic energy agency's money goes to university researchers through the National Institute for Nuclear Physics.

Nonetheless, applied research will receive added attention from the CNR in the 5-year period. This year the CNR is launching a \$20-million program of studies in seven fields: (i) water, with special attention to desalination; (ii) industrialization of the building industry; (iii) mechanization of farms, with special attention to hill farming and sugar beet production; (iv) marine resources; (v) experimental biopathology, with special attention to virology; (vi) automation, particularly in the machine tool industry; and (vii) exploitation of such endogenous energy sources as geothermal power.

For the marine resources program, Polvani said, Italy will use the ocean-going tug *Bannock*, a gift from the United States, which went on its first



Adriano Buzzati-Traverso, director of the International Laboratory of Genetics and Biophysics.

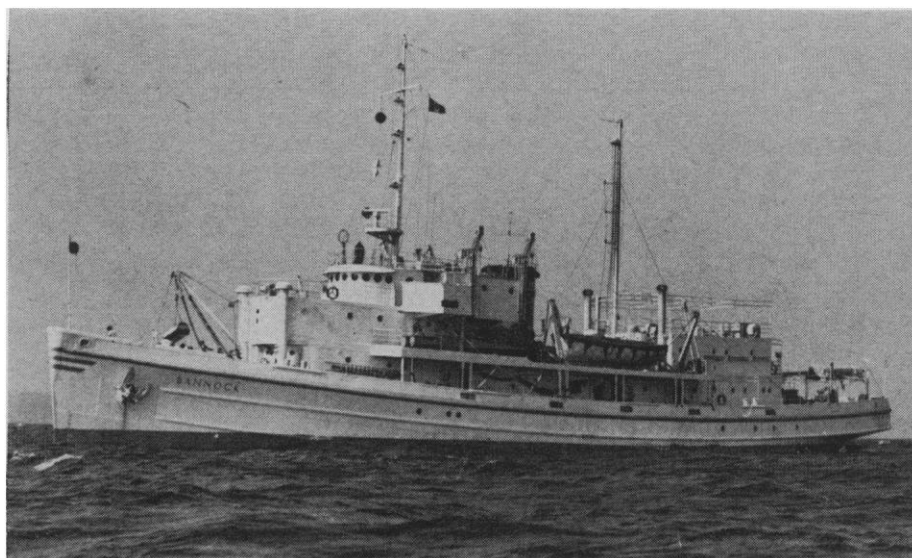
scientific cruise in the Mediterranean in 1963. Land-based laboratories for CNR's newly formed Italian Oceanographic Center are yet to be established.

While these spending plans unfold, the Italian government is also moving to strengthen the position of the minister for scientific research. Up to now, Senator Arnaudi, a microbiologist and member of the Nenni socialist party, has worked with a small staff to draft legislation for a ministry of science. In his newspaper article of 9 February Arnaudi noted that Prime Minister Aldo Moro would soon present the

proposed legislation to the Italian parliament. Among other responsibilities, the bill would transfer to Arnaudi's ministry responsibility for Italian contributions to international research organizations. It is planned to give the ministry a special "development fund" of \$80 million, aimed at removing technological obstacles to the development of the general economic plan. In a speech to the Milan federation on 21 February Arnaudi said it was his intention to have the ministry conduct a census to determine the actual numbers of researchers and of research programs in progress in Italy.

Critics point out that these measures leave many important problems untouched. One of these critics is Buzzati, who writes frequently in *Corriere della Sera*. Praising Polvani's report of 19 January, Buzzati acknowledges that during Polvani's presidency the CNR has moved "from night to day." Buzzati argues, however, that the great increases in CNR budgets lose part of their meaning when it is noted that "for more than a year" the minister of the treasury and officials of the prime minister's office have refused permission for any new posts for researchers, technicians, and administrative personnel. "Perhaps these ministers do not know," he says, "that it is men who accomplish research, and not apparatus and buildings."

Buzzati urged that CNR employees be hired under contracts similar to those of private industry rather than by rigid civil service regulations. The



The ocean-going tug *Bannock*, a gift from the United States to Italy, went on its first scientific cruise in 1963.

CNR, he said, should receive appropriations for several years running, as does the national fund for developing southern Italy.

A crucial problem for the CNR now, Buzzati argued, is the shortage of money for biology. In 1964, he asserted in an article in *Corriere della Sera* of 16 February, the CNR devoted \$3.2 million, only 16 percent of its funds, to biological studies. In the same year the 120 biological laboratories of Italy received about \$2.4 million from abroad. Most of this money comes from U.S. agencies like the National Institutes of Health, and from international agencies like Euratom. The American agencies are reducing their foreign grant programs, Buzzati noted, and Euratom's revision of its budget to emphasize the development of reactors and fusion research will cut its funds for biology.

Confronted by this situation, Italian biological and medical researchers receiving assistance from abroad met on 13 February at the Mario Negri pharmacology institute in Milan and drafted (i) a letter to President Johnson, thanking him for American assistance in the past, (ii) an open letter to the American scientific community about the shortage of Italian research funds for biology, and (iii) a request to the Italian government to compensate for reductions in foreign grants.

Meanwhile the prosecutions of Felice Ippolito, former head of the atomic energy agency (CNEN), and Domenico Marotta, former head of the Istituto Superiore di Sanità, continue. On 29 October Ippolito was found guilty of misappropriation of funds and misuse of his office for private gain. He was sentenced to 11

years in prison (the prosecution had asked 20) and a fine of \$11,000. The sentence, which has been appealed, caused shock because of the strength with which Ippolito had been defended during the trial, by researchers and by former ministerial superiors. Shortly before the sentences were read (Ippolito's father was sentenced to 2.5 years), a letter from 70 professors of physics was read in court, praising the contributions of CNEN to Italian physics and saying, "[Ippolito] has lived for years an intense and enervating life, has always appeared as a person devoted solely to the progress of CNEN. His exuberance, his preoccupation with looking far ahead may have degenerated into excessive optimism, ingenuousness or levities, but never to dishonesty or falsehood."

Ippolito was not in court to hear the sentence. He was in a hospital, where he had undergone surgery on his ear. He remained in the hospital through January, when he was reported to have staged a short hunger strike; in February he was transferred to a neurological clinic. Besides Ippolito and his father, five other men were sentenced, with terms ranging from 14 to 34 months.

The trial of Marotta, of Giordano Giacomello, his successor as director of the Sanità, and of other officials began last fall and has continued at intervals ever since. The trial has been delayed because some of the defense lawyers are involved in a much-publicized murder trial in Rome.

The trial has had its heated moments. One of the accused, Italo Domenicucci, head of the institute's administrative services, directly contradicted testimony given by Marotta

and characterized Marotta this way: "He wasn't the type to ask for counsel or advice: he decided and we followed."

The man who started the whole Sanità prosecution, Giuseppe Meli, former head of the contract office, has had his ups and downs at the trial. He now sits in the dock with the other defendants because he is accused of stealing documents. On 14 March, biophysicist Mario Ageno accused Meli of depriving institute scientists of their usual discounts from suppliers through improper delays in approving contracts.

In Marotta's trial his defenders assert, as Ippolito's defenders asserted, that, in Italy, administrators of many important agencies must act against the strict letter of the law in order to run their agencies in the public interest. This argument was rejected by Ippolito's judges, who are said to have been notably hostile (*Economist*, 7 Nov. 1964). Whether the defense of Marotta will be any more successful remains to be seen.

The present minister of health, Luigi Mariotti, and several of his predecessors have asserted the need for administrative flexibility in the institute, and a bill to clear up the tangled legal status of units of the institute is moving through parliament. Meanwhile, the atmosphere in the institute is one of discouragement. Last fall, it was reported, Mariotti felt compelled to address institute employees this way: "It is necessary that everyone assume his responsibility. If one acts within the limits of the law, one has nothing to fear. He who does not have the courage to do this can resign."

—VICTOR K. McELHENY