

RESEARCH IN PUBLIC INSTITUTIONS

Mauricio Fortes

Mexican academics and scientists have recently expressed concern about the lack of financial support given to scientists here, and have called attention to poor wages paid to researchers.

An examination of jobs advertised recently in the UNAM showed a great contrast between salaries offered and experience demanded of candidates to employment offered to a Senior Physics Professor and an administrative assistant. The new position of Physics Professor, announced in a recent issue of the UNAM *Gaceta*, required a person with a Ph.D., six years' experience in research and a reasonable number of publications in well known international journals, and offered a salary — for this highest paid academic position at the University— of 1,781,352 pesos, equivalent to some 712 U.S. dollars. The salary is certainly low for such a qualified professor but in view of the severe economic crisis affecting Mexico, one could understand such a wage policy. However, in the same issue of the *Gaceta*, an advertisement appeared for a B.A. graduate or an under-graduate who has almost completed his degree, required for "administrative chores". The required experience: one year; salary offered: two million pesos.

This example suggests that there is something wrong in the way Mexican society values its professional sector, in particular, the scientific

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community. We are all aware of the inflationary effects a global increase in wages and salaries would cause in response to the legitimate demands of unions, but we have reached a point where there is absolutely no relation between intellectual skills that took some ten years to acquire and the acknowledgement of such skills as measured by professional income.

Scientific Research

The National University of Mexico has close to a thousand full-time scientists working at different research institutes and centers. Scientific research policy is established by the Technical Council of the Scientific Research Coordination whose members are directors and a professor of each institute and center. In addition, the Schools of Science, Chemistry and Medicine have research Departments.

Basic science is mainly developed at public universities. In addition to the National University, the Advanced Studies and Research Center (CINVESTAV) of the National Polytechnic Institute offers graduate degrees in practically all scientific

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fields and is the second main research institution in the country. During the last ten years, both UNAM and CINVESTAV have opened additional specialized centers in several cities, mainly in astronomy, physics, biology and marine science. Faculty members in these centers usually teach at local state universities.

Administrative red tape is still carried out in an extremely centralized manner. A piece of equipment for the condensed matter laboratory

in Ensenada—a few miles across the border from San Diego—had to travel a long way to reach its final destination: From San Diego to San Antonio, Texas, for clearing import applications at the UNAM's international acquisition office; then to Mexico City for inventory purposes, and finally back to Ensenada, a border city that enjoys duty-free status!

Experimental scientists are suffering the most during this period of extreme competitiveness and "big-science" projects. Research equipment is very expensive and becomes obsolete quite fast with an ever increasing number of micro-processors in practically all stages of an experimental setup. Several groups have abandoned specific lines of research due to the practical impossibility of competing with other departments that enjoy sophisticated equipment.

The National University owns and operates two marine research ships.

ATTEMPTS TO COUNTER BRAIN DRAIN

In response to recent alarm calls by various Mexican academics about the loss of scientists and researchers to other countries, the National Autonomous University has announced plans for a government-backed "Program of academic leadership and support" for academic research careers.

The new program was announced at the end of April by President Salinas de Gortari. University Rector, Dr. José Sarukhán declared that the program would include scholarships and prizes for young professors and researchers. President Salinas said the program involved "an extraordinary financial effort" on the part of the government.

Julio Juárez Iglesias, representing young academics of the UNAM, said foreign universities and industries have been "on the lookout" for Mexican researchers lately because their work was the object of growing international recognition.

The announcement of the new program to support young academics followed a series of public statements made by distinguished Mexican academics, including UNAM Rector Dr. Sarukhán and the President of the Mexico College, Dr. Mario Oje-

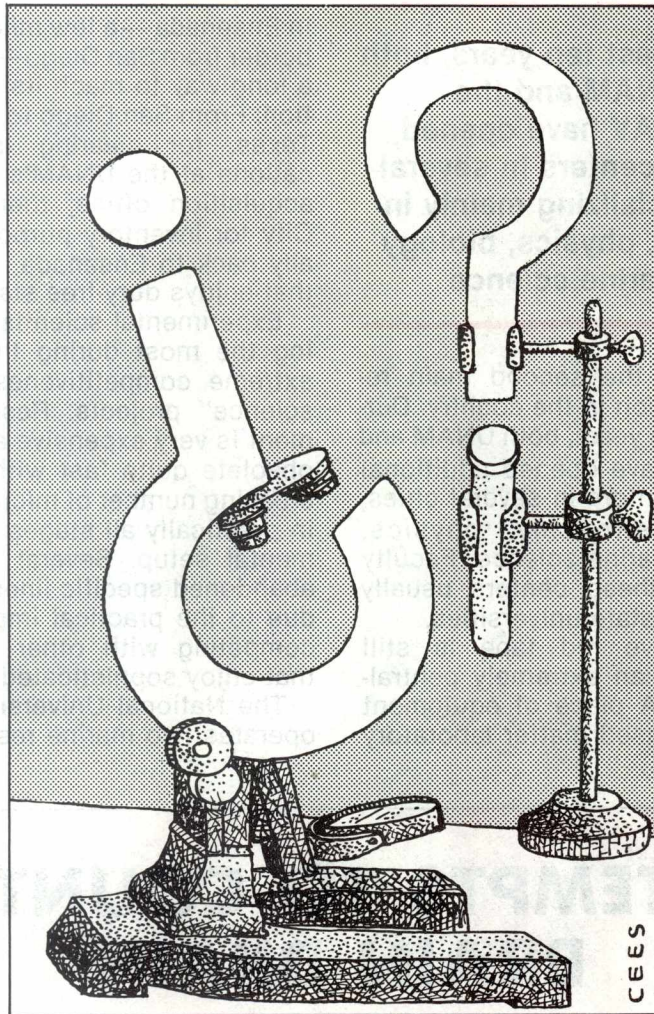
da, about Mexico's brain drain problem.

According to Dr. Fernando del Río, President of the Scientific Research Academy, the country has about 7,000 researchers in all the sciences, including the social sciences. This means an average of one scientist for every 10,000 inhabitants. Dr. del Río noted that this proportion is much higher in other nations.

Meanwhile, the National Association of Universities and Higher Education Institutes (ANUIES) has urged the government to increase spending on higher education by 1994 to 1.1% of the Gross National Product, from the current 0.5%.

In a report prepared by the Association in the context of a national debate on the modernization of education, the ANUIES declared that this budget increase is needed to provide higher education opportunities to every community with at least 100,000 inhabitants, as well as to improve teaching and research.

The ANUIES—which represents institutions with 78% of Mexico's total university enrollment—also recommended that private industry increase its financial contribution to higher education and scientific research. (*Jacqueline Buswell*).



The operating costs have become such a heavy burden for the University's annual budget that UNAM has agreed to share a third of the cruising time with the national petroleum company, PEMEX, to assist in its offshore oil exploration program. Superficially, it seems to be an interesting joint project with benefits to both parts but, in fact, it boils down to a kind of subsidy granted by the University to the largest company in the country.

Medical Advances

The National Institute of Health has a different status. Medical doctors have developed successful lines of research at several hospitals, particularly at the Nutrition Institute "Salvador Zubirán" and the Cardiology Institute. Salaries are no better at these institutions but the medical staff is allowed to have a private practice after their morning rounds. It is paradoxical, but several prevailing dis-

eases among the Mexican population have led to development of first rate research in fields such as amebiasis, cysticercus and other parasitic pathologies. Also, the medical profession has had a longer "incubating" period, being a more or less well established community since the beginning of this century.

During 1984, in the midst of severe economic problems, a special grant system was put into effect following a proposal by the Scientific Research Institute, aimed at reverting the dangerous trend of increasing emigration of the best minds in the country. The program, National Researchers' System (SNI), provides fellowships at four levels to social and natural scientists that were committed to a full time position in a research institute. These fellowships are a monthly, tax free payment to SNI members in amounts that vary between two and six times the official minimum salary.

The research done by its members is reviewed every three years by *ad hoc* boards whose members are distinguished scientists at the highest level. Special attention is placed on continuous research reflected in original publications and the capacity to form young research groups in each institution.

Although the SNI was created as a merit organization to stimulate and honor bright scientists, it has in fact become an integral part of their salary since a modest standard of living can hardly be achieved without the fellowship. In addition, scientists also depend on grants from the National Science and Technology Council for travel expenses and laboratory equipment.

Currently, SNI has almost 4,000 members of a total of approximately 10,000 active scientists in Mexico: a dangerously low figure for a country with a population of 80 million and, in spite of the effort, this figure does not show a trend to increase significantly in the next decade unless a dramatic change occurs. Many young students enjoying scholarships for graduate studies abroad are not returning after completing their studies; naturally, the brightest students have no problem in finding good positions in other countries. Some scientists bitterly complain that Mexico is exporting its best minds along with the traditional export of oil and raw materials.

Science and Development

Science may be an expensive investment in any country. Nonetheless, one can hardly imagine a successful national economy in the nineties without a solid and mature scientific community. One of the highest priced commodities in world markets is scientific knowledge itself as reflected either in a sophisticated computer chip or in the capacity to develop new technologies. These cannot be “copied” following the Japanese model, as many Mexican economists wrongly believe, without modern and large basic science groups including theoretical research in areas as varied as cosmology or quantum mechanics. Many people forget that this element was intensely pursued and cultivated in Japan and other countries in Southeast Asia during several decades even though basic science itself did not produce electronic gadgets to be sold in the market; nevertheless, it was an essential component of the technological innovation ladder.

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There are now a handful of private companies and three state institutes in Mexico that have acknowledged the need for the establishment of research groups within their facilities. This has opened a few job opportunities for people who have spent most of their lives in academic circles. It is still a very limited experience but it seems to go in the right direction, at least as long as corporate executives do not expect to obtain large profits in a short time. If this narrow minded approach is eliminated and large corporations recognize the value of science as a long term goal, we may feel more optimistic about the future of Mexican scientific research. □