

Center for Physics in Trieste Tries to Check 'Brain Drain' From 'Third World'

By WALTER SULLIVAN
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TRIESTE, Italy — A remarkable institution where highly talented physicists from underdeveloped countries can rub elbows with their peers — but are then required to return home — has been created here on a wooded height overlooking the Adriatic Sea.

It is the International Centre for Theoretical Physics, which flies the United Nations flag and is headed by Dr. Abdus Salam of Pakistan, whose own frustrating career inspired him to bring the institute into being.

Situated, as its deputy director, Dr. Paolo Budini, puts it, "in a corner of Italy but in the center of Europe," it has become a meeting ground for physicists from East and West, as well as from the "third world" of developing countries.

It has also drawn, as lecturers, such heroes of the "golden age" of physics, early in this century, as Drs. Werner Heisenberg, P. A. M. Dirac, Eugene P. Wigner and Hans A. Bethe. Its early sponsors included such figures as Drs. Nils Bohr and J. Robert Oppenheimer, both now deceased.

Branch of Atomic Agency

The centre was formed in 1964 as a branch of the International Atomic Energy Agency, whose headquarters are in Vienna and whose membership now exceeds 100 nations. A prime mission of the Centre (whose title uses the British spelling of center), according to Dr. Salam, is to check the "brain drain" from developing countries.

Men of genius in such countries, he points out, tend to go into mathematics and theoretical physics because their countries lack the facilities for other kinds of research. Such talented men sooner or later are drawn to great centers of

learning in the West or in the Soviet Union. Some never return to their native lands. Others, after reaching the first rank, return home but find themselves utterly isolated, Dr. Salam says.

Before establishment of the centre, he said recently, "the groups of which they formed a part were too small to form a critical mass; there were no good libraries, there was no good communication with groups abroad.

"There was no criticism of what they were doing. New ideas reached them too slowly. Their work fell back within the grooves of what they were doing before they left."

These men, he continued, "were isolated — and isolation in theoretical physics as in most fields of intellectual work is death."

This was Dr. Salam's own experience when, after working at Cambridge University in England and at the Institute for Advanced Study at Princeton, N. J., he returned to Lahore University, although he now credits Pakistan with having greatly improved the opportunities for physicists at home.

At the centre here, which last year moved into a \$1.5-million building erected for it by the city of Trieste, "associates" from developing countries and other areas are enrolled for from three to five years.

For three months of each year they work here, renewing their contacts with the main stream of physics. For the remaining nine months of the year they must return to their home institutions. This, Dr. Salam hopes, will enable such scientists to inspire a more rapid scientific evolution in their native lands.

Dr. Salam passed his university entrance examinations in



Dr. Abdus Salam

Pakistan at the age of 14 with the highest grades on record there. He has since been in the front line of several advances in physics theory. Today he confronts an interviewer with an impressive black mustache and an intent mien — except when he explodes with laughter.

Diversity of Nations

His time is divided between the centre here and the Imperial College of Science and Technology in London, where he holds a professorship.

The diversity of nations from which talent has been drawn to this centre is illustrated by the list of 33 associates who have worked here in recent months. They came from 15 countries, including Brazil, Kenya, Nigeria, Peru, the Sudan, Uganda and the United Arab Republic.

Such visitors mingle with

theorists from the United States, the Soviet Union and other advanced countries. There are symposiums, international conferences and lecture courses in all fields of physics. Those scheduled for 1970 deal with such subjects as condensed matter, plasma physics and high-energy physics.

Italy has supported the centre with an annual contribution of \$250,000. The International Atomic Energy Agency has also contributed. Starting next year it will provide \$150,000, with the United Nations Educational, Scientific and Cultural Organization adding an equal sum.

The Ford Foundation gave \$200,000 two years ago.

The centre is but one of several schemes for upgrading science in developing countries. Dr. Salam and others

hope that long-established universities in the United States, Britain and other countries will begin to provide associateships comparable to those at the centre here.

'World University'

Dr. Salam also is promoting the idea of a "world university" built on a confederation of advanced research institutes like his own. Still another scheme envisions an international science foundation that would provide grants to researchers in developing countries.

Such grants would encourage them to stay at home and work on scientific problems of special concern to such nations — problems that often are of little interest to the more advanced countries.

This proposal was spelled out at last month's Pugwash

Conference on Science and World Affairs, attended by leading scientists from East and West at Sochi in the Soviet Union. Dr. Robert E. Marshak, physicist at the University of Rochester and an early sponsor of the Trieste centre, has formed a committee within the American Academy of Arts and Sciences to press the idea.

The proposed foundation would depend on funds from private foundation, industries and governments of wealthier countries like the United States. Dr. Marshak has discussed the plan with representatives from the Departments of State and Commerce as well as other United States agencies.

The reaction, according to a press release by the University of Rochester, "seems favorable."