

# THE THIRD GENEVA CONFERENCE



On 31 August 1964, the Third United Nations International Conference on the Peaceful Uses of Atomic Energy (more familiarly known as the "Third Geneva") was opened at the Palais des Nations in Geneva by the Secretary-General of the United Nations, U Thant. It was somewhat narrower in scope than the previous conferences held in 1955 and 1958, the emphasis being on nuclear power and closely related topics; the conference showed that recent progress in this field had provided more than ample material for a major international gathering.

All three conferences have been organized by the United Nations, but on this occasion responsibility for the scientific aspects was delegated to IAEA. The UN Scientific Advisory Committee provided advice and guidance on the scientific side.

Under the presidency of Professor V. S. Emelyanov (USSR) the conference sat from 31 August to 9 September, to deal with a programme divided into eight general sessions and 36 technical sessions, for which a total of nearly 750 papers were presented. About 1800 delegates and advisers, representing 75 countries as well as UN agencies, attended; in addition there were some 2000 observers.

The central theme of the conference was experience in the construction and operation of power reactors and recent advances in power technology, together with forecasts of future developments. Nuclear fuels and reactor materials, health and safety, waste disposal, and economics of nuclear power figured largely.

Technical sessions were devoted to such subjects as the technical and economic aspects of the power reactor systems currently in operation or being built, and the main lines of development towards more advanced systems and development of the fast breeder. Parallel lines of development of alternative systems were also considered - some, such as organic reactors, having already been the subject of extensive trials, while others are in the conceptual stage. "Package" power plants designed for easy transport and assembly were described, as well as reactors intended to provide space heating and industrial heat and a variety of ship propulsion units.

Direct conversion of heat to electricity was discussed, together with the use of radioisotope heat sources for very small power units, the technique of separating the fissile isotope  $U^{235}$  from natural uranium and fuel enrichment, the use of research reactors, and reactor physics.

An important theme was that of integrating nuclear power stations into supply networks, including

the way in which this was being done in one or two developing countries.

A theme of much interest also was the possibility of nuclear energy for combined production of electricity and desalted water. Prospecting mining and treatment of uranium and thorium were discussed, and a general session was devoted to progress in research on controlled thermonuclear fusion.

The programme provided for only limited references to radioisotopes, which had been discussed recently at a number of specialized symposia and conferences. Two general sessions were therefore devoted to survey papers describing the applications of radioisotopes in industry, the physical sciences, the life sciences and radiobiology.

During the conference, a governmental scientific exhibition was held, in which eighteen governments took part.

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## THE TASKS AHEAD

The President of the Conference, Professor V.S. Emelyanov, at the opening session, defined the work of the Conference in the following statement (in part).

Another six years have passed and we are gathered together here again to discuss the results of much investigation and research, to assess the experience acquired in the course of those six years in the practical application of the discovery made a quarter of a century ago and to hazard a scientific forecast of future developments.

Much has been done during the past six years. They have been years of intensive scientific research. During this period, physics and atomic technology have recorded substantial advances in all the fundamental disciplines of nuclear physics - in the fields of low-energy physics, plasma physics and high-energy physics.

In the field of low-energy physics, considerable attention is currently being given to work on the practical application of the nuclear fission reaction. In research laboratories, ways of increasing the efficiency of plant and equipment are being studied, the accuracy of specific data indispensable for engineering and design calculations is being improved, means



The Secretary-General of the United Nations, U Thant (UN photo)

of controlling radioactivity are being sought, new means of protection against radioactive radiations are being developed, and research is in progress into new materials, resistant in radiation fields. The bulk of this research is directed towards practical ends,