with, during which there was discussion of the possible effects of a general increase in the level of radio-activity in the world as a whole. From these discussions it was evident that the use of radioisotopes in medicine is one of the outstanding contributions which nuclear energy is already making to the welfare of mankind.

On the general side, the feasibility of generating electricity by atomic energy was demonstrated beyond doubt, and the economics of atomic power generation was also greatly clarified. There would appear to be good reasons for expecting that capital costs of atomic power stations would come down during the next decade. Even with present costs, it was shown, atomic power stations would be economically competitive with power stations of a conventional type in many areas of the world where power costs are high.

Certainly the meeting of the world's specialists in the atomic sciences marked a new departure in international co-operation and was not marred by politics. It will go down in history as a major achievement of the United Nations.

PROF. M. S. THACKER

PROF. M. S. THACKER has been appointed Director, Scientific and Industrial Research. He took charge of his office on August 3, 1955.

Prof. Thacker received his early education in Ahmedabad and Bombay, and proceeded to Europe at an early age. He graduated in engineering from the Bristol University and undertook post-graduate research in the Department of Electrical Engineering of the same University. Later, he joined the Bristol Corporation Electricity Department as an engineer. He returned to India in May 1931 and joined the Calcutta Electric Supply Corporation, Calcutta, as a covenanted officer. He continued there till 1947, when he was invited to take up the Professorship of the newly created Department of Power Engineering, Indian Institute of Science, Bangalore. In 1949, he was appointed Director of the Institute.

Prof. Thacker is the author of numerous papers and memoirs in the field of power technology and high voltage engineering. During the past eight years, he has actively participated in a number of international conferences and committees as an expert dielegate from India.

He has also been intimately associated with many scientific and technical organizations in India and assisting several States in the development of power resources and distribution of electricity supplies. His counsel has been much sought by numerous committees and boards concerned with research and technological education and by several Universities in the country and outside. On the last Republic Day the President conferred on Prof. Thacker the award of *Padma Bhushan*.

We wish Prof. Thacker success in his new assignment.

DIRECT CONVERSION OF RADIATION INTO ELECTRICITY

PRODUCTION of electricity by direct conversion of atomic energy should be considered as a possible auxiliary power source, according to Dr. Ernest G. Linder, Paul Rappaport and J. J. Loferski, of the Radio Corporation of America, in a paper presented to the International Conference on Peaceful Uses of Atomic Energy at Geneva.

Discussing various known methods of converting atomic energy directly to electrical energy, Dr. Linder gives particular attention to the semi-conductor type of device employing radioactive material in conjunction with materials such as silicon or germanium—the method used in the experimental atomic battery announced by RCA in early 1954. In this type of conversion unit, high current multiplication is achieved in the semi-conductor material. For example, each beta particle produced by strontium-yttrium-90 radioactive source material produces in turn about 200,000 new electrons as it penetrates a silicon target, increasing output current and reducing internal impedance by a similar factor. However, power sources using radioactive material cannot be considered truly practical until solutions are found to problems of high cost of radioactive material, efficient shielding, radiation damage to target material bombarded by beta particles, and low efficiency.

At the present time, the available isotope nickel-63 meets all of the requirements except that of cost, but it is hoped that attention will be given to this and other materials in the same category.