

**RESEARCHES IN ATMOSPHERIC NUCLEAR  
EXPLOSIONS**

155. SHRI SITARAM JAIPURIA: Will the Minister of EDUCATION be pleased to state:

(a) whether it is a fact that, the National Physical Laboratory has made any researches in detecting atmospheric nuclear explosions of the high-yield of megaton range; and

(b) if so, what are the details of the researches so far made?

THE MINISTER OF EDUCATION (DR. TRIGUNA SEN): (a) and (b) Yes, Sir. Following high altitude explosions by U.S.A. and the U.S.S.R. in 1962, the National Physical Laboratory, New Delhi made some studies on effects of atmospheric nuclear explosions on radio propagation phenomena. The detections were made with ionospheric equipment used for radio studies. Results of the researches were published in the Indian Journal Of Pure and Applied Physics, 1966, Vol. 4, No. 3; pages 117 to 123 under the heading "Ionospheric Effects of Nuclear Explosions: High Altitude Explosions," a copy of which is available in the Library of the Parliament House.

**PROCESS TO RECOVER TIN METAL FROM TIN  
SCRAP**

156. SHRI M. C. SHAH: Will the Minister of EDUCATION be pleased to state:

(a) whether it is a fact that the Central Electro-Chemical Research Institute, Karaikudi has developed a new process to recover tin metal from tin scraps; and

(b) if so what are the main details thereof?

THE MINISTER OF EDUCATION (DR. TRIGUNA SEN): (a) Yes, Sir.

(b) This is an acid detinning process in contrast to the electrolytic alkaline detinning process presently in

vogue. The main steps in the process are:

(i) preferential chemical dissolution of tin metal from the tin-plated iron scrap using mineral acid solutions leaving behind unattacked iron scrap;

(ii) separation of tin metal from the solution in the form of floating metal sponge by a simple chemical process; and

(iii) direct melting of the metal sponge to produce high purity tin metal.

**STUDY OF SCIENCE POLICY IN INDIA**

157. SHRI M. C. SHAH: Will the Minister of EDUCATION be pleased to state:

(a) whether the Survey and Planning Unit of the Council of Scientific and Industrial Research has undertaken study of 'Science Policy in India'; and

(b) if so, what are the main findings of the study?

THE MINISTER OF EDUCATION (DR. TRIGUNA SEN): (a) Yes, Sir.

(b) The main findings reported in the Study are as under: —

1. Creation of a machinery for collection of research and development data, information on research and organisational problems, its analysis and preparation of documents for the formulation of science policy and other decisions.

2. Creation of a national policy making body and formulation of national scientific and technological policy keeping in view the social, economic and industrial programmes.

3. A national budget for science and technology and its channelling through a coordinating agency.

4. Planning for scientific research in relation to needs and requirements of economic and industrial development, and the creation of an inter-ministerial link