

Veniamin Aronovich Tsukerman (Obituary)

L. V. Al'tshuler, S. M. Bakhrah, V. A. Belugin, A. A. Brish, V. L. Ginzburg, N. G. Makeev, I. Sh. Model', Yu. A. Romanov, Yu. A. Trutnev, Yu. B. Khariton, and A. K. Chernyshov

Usp. Fiz. Nauk. 163, 119–120 (July 1993)

Our country's science has suffered a great loss. On 25 February 1993, the prominent scientist Professor Veniamin Aronovich Tsukerman died in his eightieth year. He was the founder of our country's pulsed radiography, a Hero of Socialist Labor, an Honored Inventor of the RSFSR laureate of the Lenin Prize and of four State Prizes, and a Doctor of Technical Sciences.

V. A. Tsukerman was born on 6 April 1913 in the city of Vitebsk. His working activity began in 1930 as a demonstrator in the X-ray laboratory of the Moscow Machine-building Institute, then he became a student in it and graduated in 1936. In 1934, while still a student, he was placed in charge of the X-ray laboratory. In 1940, the laboratory was transferred to the Institute of Mechanical Engineering of the Academy of Sciences of the USSR where Tsukerman was in charge of this laboratory until the beginning of 1947. To him belong the first publications both in our country's and in world science on radiological investigations of the phenomena of explosion and detonation, for which in 1946 he was awarded a State Prize of the USSR.

In 1946, Yu. B. Khariton invited Tsukerman to participate in the development of nuclear weapons, and all his subsequent activity took place in the All-Union Scientific Research Institute for Experimental Physics (VNIIEF) in the city of Arzamas-16 where he was in charge of one of the leading scientific research departments.

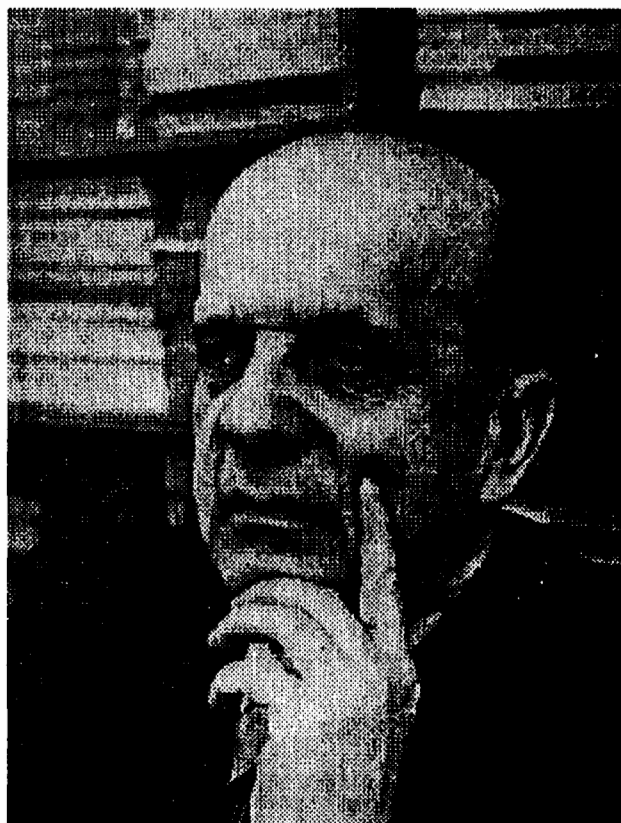
As a talented experimental scientist he proposed many valuable and original ideas which form the foundation of the scientific-technological work of the VNIIEF and of a number of associated organizations. More than a hundred articles, monographs, inventions, tens of millions of rubles of economic effect—this is the sum total of his work in science and technology. He has created a major scientific school. Among the pupils of V. A. Tsukerman there are ten doctors and more than 30 candidates of science, and laureates of the Lenin and State Prizes.

It is difficult to overestimate the significance of the work carried out by V. A. Tsukerman and by the scientific school founded by him in the area of creating methods and apparatus for the study of rapidly occurring processes, investigations of the state of matter at superhigh pressures and temperatures. The information needed for providing the basis for the efficient construction of the first atomic explosive was obtained by recording parameters arising for millionths of a second in shock waves with the aid of radiographic, photochronographic, and oscillographic methodologies developed under the supervision of V. A. Tsukerman. A still more weighty contribution was made by Tsukerman to the development and testing of subsequent prototypes of weapon's. Thus he together with Ya. B. Zel'dovich and A. A. Brish proposed and realized ideas and

technical suggestions which significantly improved the construction and the characteristics of atomic weapons. This work was awarded State Prizes (1949, 1955) and the Lenin Prize (1960) while in 1962 he was awarded the title of Hero of Socialist Labor.

V. A. Tsukerman was the founder of important directions of modern radiology in our country—creation of a highly miniaturized pulsed x-ray devices and development of powerful megavolt generators of x-rays. These devices and installations are widely used in different fields of defense technology and national economy, and have been awarded a State Prize (1978). The work of V. A. Tsukerman's school on research and development of pulsed sources of neutrons have also become widely known and acknowledged.

In the 1960's Tsukerman and collaborators constructed on the basis of a ^{58}Fe radioisotope sources for x-ray fluorescent analysis of rocks on Venus on the auto-



Veniamin Aronovich Tsukerman
(1913–1993)

matic interplanetary stations "Venera'13" and "Venera'14".

The scientific and inventive activity of V. A. Tsukerman is distinguished by the variety of ideas, proposals, realizations. This includes work on the use of radioactive oxygen for investigating physiological processes and the higher nervous activity, numerous developments in the field of surdototechnology, proposals on the application of converging ultrasound waves for local action on neurons in the brain. These proposals were developed in research on restoration of the hearing function in the case of severe form of deafness.

Characteristic traits of V. A. Tsukerman were clarity of purpose, boldness and imaginativeness of ideas, combined with a keen feeling for reality, creative inspiration, inexhaustible optimism and intense labor. He was a passionate propagandist of science and culture. He adopted an

active civic position on all questions of social life.

It is difficult to conceive that the entire fantastic amount of work was carried out by a man who could not see. This sounds improbable. Veniamin Aronovich in spite of grave affliction has achieved so much that his life can be characterized as a heroic feat.

The admirable human qualities of V. A. Tsukerman—kindness, responsiveness, readiness to participate in the realization of new ideas and proposals, and to come to the aid of those in difficult situations invariably attracted people to him.

The bright memory of Veniamin Aronovich Tsukerman, an outstanding scientist and a remarkable man, will remain in his work, his pupils, and the hearts of all those who knew him.

Translated by G. Volkoff