

though no one could seriously suggest (as your correspondent seems to allow) that sales of the orgone box could have continued.

It may just be that the scientologists are unjustly persecuted but all the evidence available suggests that they are a thousand times more dangerous to those who fall into their clutches than poor Reich ever was. The laughable scientific background to scientology does not prevent its being taken very seriously by some people.

It is foolish to say "the FDA alleges that the E-meters are a medical device". The scientologists themselves make claims tantamount to this. They may call themselves a church but your correspondent appears to be the first person to be taken in by this style.

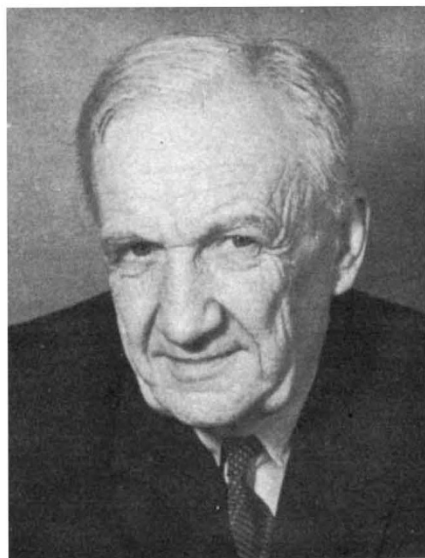
Yours faithfully,

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## Obituary

### Professor I. E. Tamm



IGOR EVGEN'EVICH TAMM, who died on April 12, was one of the Soviet Union's most distinguished and best loved physicists. Born in 1895, the son of a civil engineer, he studied at Edinburgh from 1913, but at the outbreak of the First World War returned to Moscow University, where he graduated in 1918. At that time theoretical physics was not a highly developed subject in the Russian universities. Making this point in a biography of Ya. I. Frenkel, Tamm recalls that Maxwell's theory was deemed to be too complicated to be treated in lectures. "To be sure it was taught in a special

'elective' course by A. Bachinskii, but I was given a top grade in the examination on that course only because in deriving formulae on the blackboard I used the symbol for the vector product and knew its meaning; no other questions were asked of me at all."

This did not stop Tamm from getting thoroughly immersed in the subject, but at the outbreak of the Civil War academic life became very difficult, especially because he was teaching at this time in the University of the Crimea, a region particularly affected by the turmoil of the Civil War. The company of Frenkel, however, another young theoretical physicist with similar interests, was most valuable. 1921-22 was spent at the Odessa Polytechnic under L. I. Mandelstam, an outstanding physicist. This was the beginning of a lifelong close association.

In 1922 Tamm returned to Moscow University, where he became a professor in 1930. Later he joined the new Lebedev Institute of the Academy of Sciences, while remaining, most of the time, part-time professor at the university. His earliest research work was in the field of electrodynamics and relativity. When the new quantum mechanics developed in the late nineteen-twenties, Tamm picked up the new ideas with enthusiasm. He was one of the first to apply quantum mechanics to the scattering of light by solids, and thus to explain the discovery by Mandelstam and Landsberg of a doublet of lines in the scattered light. In another important piece of work on solids he showed the existence of surface states for electrons in metals.

When in 1934, Cherenkov, a research student in the same institute, noticed a strange radiation accompanying the passage of fast electrons through a transparent substance, Tamm saw at once that this was predicted by Maxwell's equations if the speed of the particles exceeded that of light in the medium. He worked out the full theory of this effect with I. M. Frank, and in 1958 shared the Nobel Prize with Frank and Cherenkov.

As time went on, his interest shifted more and more towards the fundamental problems in physics. He attempted to build a theory of nuclear forces on the phenomenon of  $\beta$  decay, but recognized that the resulting force would be much too weak. While this work therefore did not directly yield useful results, it aroused his interest in the treatment of interacting fields, and he later proposed a technique for approaching the theory of such problems which, under the name of "Tamm-Dancoff method", is still one of the important tools of the theoretical physicist. Numerous other papers dealt with more specific problems in the theory or with the interpretation of experiments.

During the war and post-war years he, like most other scientists, contributed to the solution of urgent practical problems.

Rumour says that he contributed to the development of the fusion bomb in the Soviet Union; he certainly did important work on the problem of power from fusion.

But his influence on physics transcends the list of specific achievements. He was a most stimulating influence in discussion, because of his clarity of mind, his speed in seeing the point and, above all, his infectious enthusiasm. He was a person of fearless integrity, direct and simple in manner, and of extreme modesty. From 1953 he was a full member of the Soviet Academy of Sciences, and thus in a position which confers such a high status and so many privileges that an average person may well be excused for taking himself a little seriously as a result. But for Tamm to display his own importance would have been quite unthinkable.

He was an enthusiastic supporter of the Pugwash conferences, of which he attended several, including the one in London in 1962, where he put forward the idea of "black boxes" to verify a nuclear test ban treaty. While this idea was not ultimately accepted in international negotiations, it helped to create a more constructive spirit and played its part in bringing about at least a partial test ban.

Tamm was a passionate mountaineer, of professional standard, and he spent much of his vacation time in the mountains until a few years ago. During his last illness, which kept him confined to bed with a breathing machine, he was not given to complaining, in spite of much discomfort, and he continued working on some new ideas, but he did admit his regret that this kept him from the mountains. He will be remembered not only as one of the most distinguished but also one of the most charming persons in the world of physics.

## Errata

IN the article "Late Pre-Cambrian Glaciation in Australia as a Stratigraphic Boundary" by P. R. Dunn, B. P. Thomson and Kalervo Rankama (*Nature*, 231, 498; 1971), the sentence starting on line 21 beneath the subheading Sturtian Glaciation as Boundary should read: "The base of the proposed unit is to be marked by a reference point, called the Sturt Marker (Marker Horizon), provisionally placed in South Australia at the base of the granite conglomerate which forms the bottom member of the Fitton Formation<sup>33</sup>."

IN the article "Preliminary Observations on Tickling Oneself" by L. Weiskrantz, J. Elliott and C. Darlington (*Nature*, 230, 598; 1971), the words "a self-administered" on line 17 of paragraph 6 should read "an externally administered".