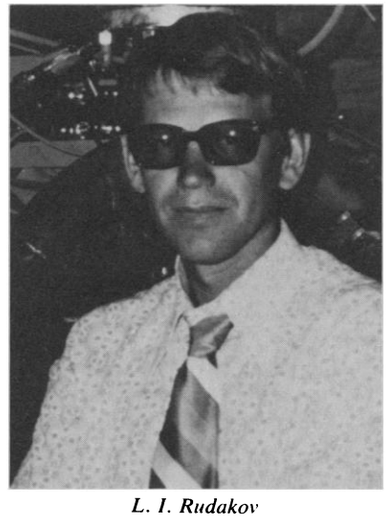
take. Study sections are instructed to consider proposals on their scientific merit alone. Thus an experiment of minor merit requiring a hecatomb of animals might in theory receive a favorable mark. In practice, study sections do turn down experiments that surpass a certain combination of harshness and triviality. Keith Murray, executive secretary of the NIH's experimental psychology study section, says that there have been occasional instances when an application was turned down because of unnecessary cruelty. He cites as an example a proposal, which the investigator submitted three or four times, to blind infant monkeys in order to study how well their mothers looked after them.

Thermonuclear Fusion: U.S. Puts Wraps on Latest Soviet Work

As a noted Russian scientist spoke about the latest advances in electron beam fusion last summer, "a number of mouths dropped open" at the three government laboratories where he spoke. The information he gave freely to an unrestricted audience was considered sensitive, by the American classification guidelines, and after he left, officials at each laboratory received phone calls from Washington urging them to keep the talk quiet and to remain noncommittal about the information and its importance. Just whom these measures would keep in the dark is a puzzle. The Soviets obviously knew about it, as did much of the American scientific community by the time the tour was finished. It seemed as if the system designed to keep American secrets from getting out was being applied to keep Soviet secrets from being broadcast.

The subject of the talk was the initiation of a thermonuclear "microexplosion" by means of a powerful electron beam. This is an esoteric science which researchers are trying to bend to the purpose of energy production but it is inevitably related—at least in a limited sense—to devices for thermonuclear macroexplosions, better known as H-bombs. Thus one reason for official concern could be the possibility of proliferation of thermonuclear weapons. Before such an arsenal can be built, however, a nation must build simpler fission bombs.



L. I. Rudakov

The Soviet scientist was L. I. Rudakov, an outstanding theoretical physicist and fusion administrator, who was touting the merits of his latest proposal, a 50 million ruble Soviet electron beam machine, on this trip. He is characterized by those who know him as an impressive individual and persuasive speaker who has spent most of his scientific career at the Kurchatov Laboratory in Moscow. That laboratory, named after the grandfather of the Soviet H-bomb, is a major Soviet center for weapon design.

During his American visit, Rudakov first laid his new ideas before the Gordon Research Conference held at Santa Barbara, California, on 30 June; then on successive days he presented much the same talk at the Physics International Company in San Leandro, the Lawrence Livermore Laboratory, and the Sandia Laboratories. After celebrating the Bicentennial in New Mexico at Sandia, which is the U.S. center for electron beam fusion, he gave his talk at the Naval Research Laboratory in Washington.

No American researcher says for attribution whether Rudakov's ideas are classified because the classification guidelines themselves are classified. What is or is not secret is considered just as sensitive as the secrets themselves. Speaking for the Energy Research and Development Administration, which manages all nuclear weapons research, L. E. Killion said Rudakov's design appears to be "a novel idea and we are going to look at it." When asked if it were classified, he said, "I was not there and would not want to comment on other details."

Scientists at the Gordon conference took a more lighthearted view of the situation. "There were funny stories going around about the work being classified at Sandia but declassified in Russia," says Alfred Wong of the University of California, Los Angeles, who spoke with conference participants. A number of scientists from other countries attended the conference, and those who did not will soon be able to find essentially the same material published in the 20 August issue of the Soviet physics journal, *JETP Letters*. Rudakov's colleague, V. P. Smirnor, is expected to talk at an international fusion conference in Berchtesgaden, West Germany, in October, presumably on the same subject.

Sometimes individual scientists have been known to overstep the bounds of propriety in promoting their own work, but apparently not in this incident. Rudakov is one of the top administrators at Kurchatov, and at the Gordon conference "he told me he had to have the idea declassified [in Russia], otherwise he could not have talked about it," said Wong.

Scientists at the Sandia Laboratories made the same assessment. "Of course he had to receive permission to give this talk," said Gerold Yonas, who heads the electron beam project. Yonas described Rudakov's idea for a pellet, which is a pie-shaped composite of gold, plastic, and fusion fuel, but would not describe the way in which the explosion was initiated by an electron beam. He said the information in the talk was insufficient and "I just can't get into that."

Apparently a brilliant idea underlies Rudakov's fusion pellet design and so considerable scientific prestige will go to those credited with it. Part of the ERDA policy of keeping mum may be motivated by embarrassment that the Soviets have taken credit first. If so, it is likely the American classification guidelines will soon be relaxed.

In July 1973, Rudakov talked about an explicit pellet design at a European fusion meeting, and within a year some related American work was declassified.

Whatever the reason for official silence, it is hardly motivated by the urgency of keeping secrets from the Soviets. In this instance, the information has been flowing the other way.—WILLIAM D. METZ