

GENERAL SCIENCE

Scientists' Group Raps U. S. Security System

➤ "RISKS OF politics" more than "risks of disclosure of information" now govern our security system, the Federation of American Scientists charged in a statement by its executive committee.

The majority report of the personnel security board which heard the J. Robert Oppenheimer case "bears the imprint of fair-minded men struggling unsuccessfully against the pressure of a security system extended beyond reasonable bounds," the scientists' group said.

The Federation called for a review of the entire security machinery. It also requested the Atomic Energy commissioners to review Oppenheimer's record and "do justice" to him as an individual within the bounds of law.

"Security machinery has only one justification, to protect a small area of vital national information," the scientists declared. "It cannot do more without sapping our national strength and eventually destroying our traditions and practices as a free people."

Although the majority findings in the Oppenheimer case are called "unfair," the Federation noted that the decision illustrates the "bitter fruits" of the present security set-up, and pointed out that the review board itself recognized the much larger issues involved when it noted that the reopening of the Oppenheimer case is the result not of a change in Oppenheimer but of a change in security regulations and the climate of national opinion.

"It is ironic," the Federation stated, "that his service included a major role in producing many of the very secrets the security system is designed to protect."

In the Army-McCarthy hearings, the scientists' group said, the American people are seeing the dangers of "mixing politics and security."

The Federation said that "if it does not make sense to find risk in a man who has proven himself in the most secret councils of government—and we believe it does not on the evidence so far provided—then attention must be directed to the security system under which the case has arisen."

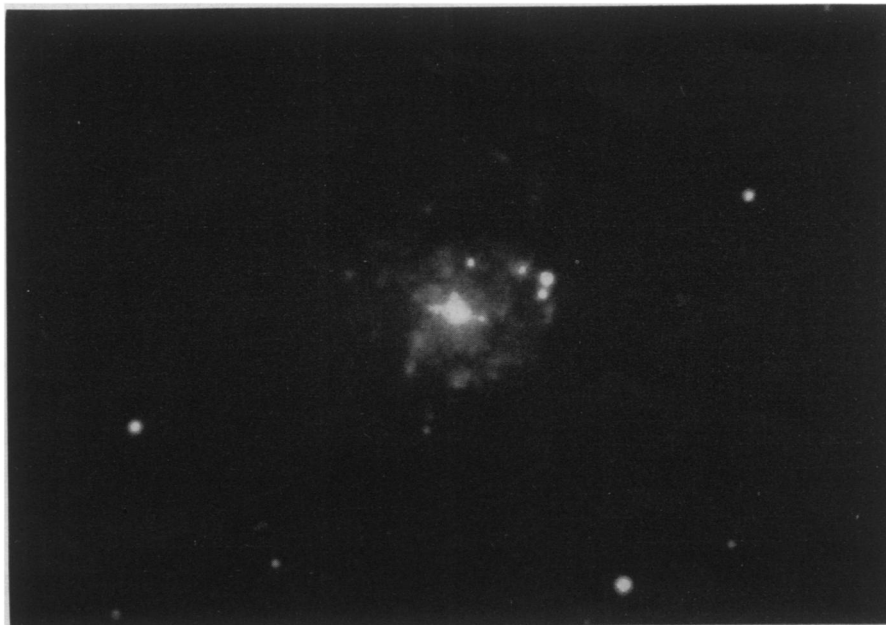
The fault, the scientists charge, lies in "criteria so loosely and generally drawn" that such "fantastic assertions as 'lack of enthusiasm' for official policy" can be seriously considered.

"The threat lies in the use of security machinery to dispense with technical consultants whose views may no longer be acceptable to the administration in office," the Federation states.

"The danger lies in the discouragement of independent minded men, including many scientists, from lending their talents to government."

The Federation of American Scientists is a nation-wide organization of scientists and engineers, with headquarters in Washington.

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PRE-SUPERNOVA PHOTOGRAPH—This view of spiral galaxy NGC 5668 was taken two years ago with the 48-inch Schmidt telescope, and shows how it looked before the titanic explosion. Comparison with the cover photograph illustrates how astronomers spot supernovae.

ASTRONOMY

Tremendous Stellar Burst

See Front Cover

➤ THE STELLAR explosion that produced the recently discovered supernova occurred about 20,000,000 years ago, astronomers at Mt. Wilson and Palomar Observatories have concluded. (See SNL, May 22, p. 324.)

The spectrographic study showing this was made with the 200-inch Hale telescope at Palomar, which is operated by Carnegie Institution of Washington and California Institute of Technology. (Another supernova discovery is reported on p. 381.)

A supernova is an exceptionally bright star that suddenly flares brilliantly. This one occurred in a vast, swirling aggregation of stars that is the spiral galaxy known as NGC 5668. The supernova, photographed with the 200-inch telescope, is shown on the cover of this week's SCIENCE NEWS LETTER, in a view enlarged six times.

The arrow points to the brilliant object in NGC 5668. Other stars in the field are close to us in our own Milky Way galaxy, and not in NGC 5668. White spot above supernova is nucleus of NGC 5668.

The explosion that produced this supernova was very roughly 10,000,000,000,000,000,000,000 (plus or minus a few billion) times more violent than an H-bomb.

(NGC 5668 had not been photographed with the Hale telescope before the supernova appeared. Consequently, a comparison view from the 200-inch is not available.)

Supernovae usually fade out not long after they burst forth, so several different studies

of this object were launched immediately. Photographs were taken with the 48-inch Schmidt and the 200-inch telescopes, and its spectrum observed. For the latter, light from the supernova is passed through a diffraction grating that spreads it out according to its component colors.

One such spectrum, secured by astronomer Milton L. Humason at the 200-inch prime focus, showed that NGC 5668 apparently is hurtling away from us at roughly 1,000 miles a second. Astronomers know that apparent velocity is a measure of distance, since the farther away a galaxy is the faster it seems to move.

On this basis, NGC 5668 turns out to be roughly 20,000,000 light years away, one light year being the distance light travels in a year, or six million million miles.

The supernova is a few hundred million times brighter than our sun, an estimate based not only on the rough distance figure but also on indications of its brightness, probably past peak when discovered.

Because spectrum photographs of the supernova, found by Dr. Paul Wild, provided considerable background light, they will be useful in another field of research. Indications are that the outburst occurred on the far side of NGC 5668, and that it is being observed through all of the intervening gas and dust in that galaxy as well as in our own. These indications appear in a spectrogram made by Dr. Armin J. Deutsch using the Hale telescope.

Science News Letter, June 12, 1954