

Quantum Mechanics, the first book in English on the subject. Published in 1929, it was reprinted in paperback in 1963. He was coeditor of McGraw-Hill's *Handbook of Physics* and edited *Momentum Books*, a paperback physics series following guidelines set up by the Commission on College Physics.

When the Optical Society of America gave Condon its Ives Medal last year, it cited his courage and candor in both his scientific work and his private life.

Condon's career often has been propelled onto the shoals of controversy, just as it has with the UFO study. On the wall of his penthouse hangs a Herblock cartoon, neatly framed and autographed, that depicts Condon tied to a chair being tarred and feathered by members of the House Committee on Un-American Activities. The caption reads: "After a while we may let you testify." This memento of a fight that began 21 years ago has served Condon well to this day: He calls personal attacks "old stuff."

In 1948 the question was security clearance. In 1969 the question is scientific method. The old fight began when the committee chairman, J. Parnell Thomas, called Condon "perhaps one of the weakest links in our atomic security." Although promised a hearing, Condon never got a chance to testify on his own behalf. In fact, he was cleared during the war and also in 1948 by the Department of Commerce and the Atomic Energy Commission and again in 1954 when he joined Corning. His clearance was suspended, however, by the Secretary of the Navy just before the 1954 elections and not reinstated until another investigation in 1966.

Now Condon has completed his UFO study amidst accusations that it was not conducted in a truly scientific manner. Two members of the UFO-study staff, fired before it ended, are among a small group that took potshots at the study even before it was completed. The group includes UFO-

enthusiast organizations, some other UFO researchers and writers and *Look Magazine*, which published an article last 14 May that essentially labeled the study a fiasco. Condon, while considering a libel suit against *Look*, thinks that he would have to prove in court that the article did some damage.

"However, that article did not damage me in the least," he says. "We received fewer than 25 letters about it, half of them favorable."

The details of the study were kept closely guarded by Condon and the University of Colorado, which received the Air Force contract, to stifle the controversy until the complete report could be made public. The general approach taken by Condon was as follows: Of the average 1000 or so saucer sightings logged in each year, 80-90% could be explained by known events, such as airplane contrails, kids' hot-air balloons and the like; the rest needed more investigation. The study group took a sample of these remaining sightings, including the most puzzling, and followed them up with on-the-spot interviews. Three teams of two men each conducted these interviews and were on the road much of the time.

Condon points out that the acquisition of hard data is the hardest task in a study of this kind. "We interviewed people. From a physicist's point of view, this is unsatisfactory." With sightings spread all around the country and with most sightings lasting only as long as ten minutes, there is no chance to get more than impressions from untrained observers. "We just can't get there in time with a camera, a spectrograph or a Geiger counter," Condon says.

There are a host of other problems that a UFO researcher must face. Early it was found that telephone checks with local police and newspaper offices were necessary because of the number of hoax calls. "It's scandalous what some people will do," laments Condon. Then there are the individuals, who for personal gain or otherwise, do not want

a study that might cast doubt on an outer-space explanation of UFOs. So Condon, quite unwittingly, found some natural enemies to his study even before its conclusions, one way or the other, were published. Ironically it was largely this group that accused the Air Force of not being scientific in its underestimation of outer-space visitors and thus indirectly prompted the Condon study.

Condon is upset by a couple of things, unrelated to his study, that he has found out while pursuing UFOs. One is that a large number of books and magazines for sale at seemingly every small town drugstore are devoted solely to the outer-space origin of UFOs. This one-sided presentation, he believes, distorts the problem in the minds of youngsters. He feels that the approach taken by these publications is more science fiction than science. He is glad that his study is receiving wide publicity because then it too will sell on magazine racks and at least show what a real study is like.

He also has discovered that the Air Force receives about 3000 letters a month from school children asking for more information about UFOs. The Air Force has a background memorandum of about a dozen pages, dubbed the "Kiddy Kit," that is sent in response to these letters. Many of these kits are used as the basis of papers in high-school science courses and, says Condon, accepted by many teachers without critical comment. As a one time president of AAPT, he is deeply disturbed by this.

With the study completed, Condon looks forward to getting back into teaching, writing and research. The study required his full-time attention from February to October last year. He plans to rewrite *The Theory of Atomic Spectra*. In one section of his report he thanks those who have contributed UFO material. He adds, however, that "it would be appreciated if no more UFO material is sent to the University of Colorado." —JJ

Condon Study Rebuts UFOs; Critics Offer Own Version

The final chapter in the story of unidentified flying objects may never be written; all future discussions, however, will have to consider the two-year study by Edward U. Condon's team at the University of Colorado whose report to the Air Force was released in January. Bantam Books published a paperbound edition under the title

Scientific Study of Unidentified Flying Objects.

In his conclusions and recommendations, Condon said "nothing has come from the study of UFOs in the past 21 years that has added to scientific knowledge." Further studies could not be justified in the expectation that science would be advanced, he said.

As Condon and everyone connected with the project expected, UFO enthusiasts promptly attacked the report as a biased attempt to hide the truth. The report had been attacked in a national magazine eight months before it was published (see adjacent interview story). When the report was published in January, it appeared on the news-

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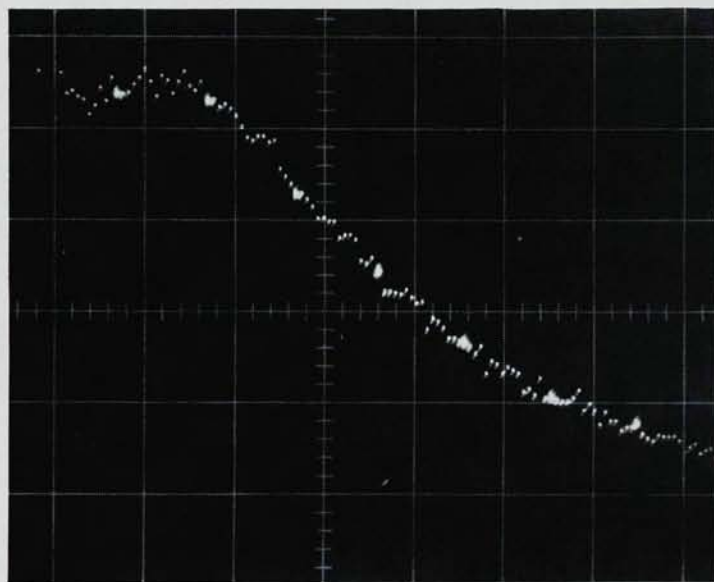


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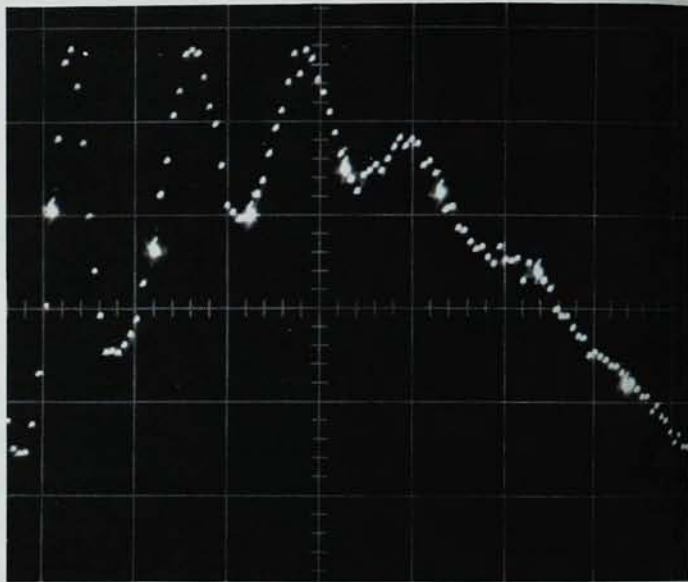
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stands simultaneously with an attack on it written by David R. Saunders, a psychologist dismissed from the Condon staff, and R. Roger Harkins, a Colorado newsman. Entitled *UFOs? Yes! Where the Condon Committee Went Wrong*, it was published as a paperback by New American Library.

At the same time, perhaps in anticipation of still further studies, the Library of Congress released a UFO bibliography listing more than 1600 references.

The Condon study was not the first undertaken by scientists. In 1953 the Central Intelligence Agency convened a panel headed by the late H. P. Robertson of the California Institute of Technology. Its members included Samuel A. Goudsmit, Luis W. Alvarez, Lloyd V. Berkner and Thornton Page. The panel found no threat to US security nor any evidence of foreign origin. Its report was not declassified until 1966, however.

Condon knew before he started that he was in for a fight, but still was surprised by the vehemence of the opposition. "Had I known of the extent of the emotional commitment of the UFO believers and the extremes of conduct to which their faith can lead them," he wrote in the report, "I certainly would have never undertaken the study."

US Scientists Earned Median Salary of \$13 200 in 1968

Median salaries for US scientists rose \$1200 (about 10%) from 1966 to 1968, according to the National Science Foundation. The median salary in 1968 was \$13 200.

Self-employed scientists reported the highest median, \$18 000. Next came those employed by industry and

To give the Condon report added stature, the Air Force asked the National Academy of Sciences to review it before its release. Gerald M. Clemence of Yale, former scientific director of the Naval Observatory, was chairman. Panel members included H. Richard Crane and David M. Dennison of the University of Michigan, H. Kefauver Hartline of Rockefeller University and William W. Rubey of UCLA. The panel found that the Condon team had made a "very creditable effort to apply objectively the relevant techniques of science to the solution of the UFO problem." It concurred with Condon's recommendation that no high priority for further UFO investigation is warranted.

For flying-saucer enthusiasts, the final sentence of the panel's report was harsh news: "On the basis of present knowledge the least likely explanation of UFOs is the hypothesis of extraterrestrial visitations by intelligent beings."

The Air Force ordered the Condon study in the hopes of allaying public fears and suspicions about UFOs. In particular the Air Force hoped to refute the charge that it was concealing information. Bantam Books ordered an initial press run of 200 000 copies. Whether wide circulation will help settle the argument or only intensify it remains to be seen.

nonprofit institutions, who earned \$14 700. Scientists in the federal government reported the same median salary, \$13 500, as that for all scientists.

In industry, physicists earned a median salary of \$16 200, surpassed only by economists, mathematicians and psychologists. Physicists earned the

in London. The subscription rate for North America is \$8.40.

A two-hour lecture film, "The Transuranium Elements," featuring Glenn T. Seaborg is available for free loan or purchase from the Atomic Energy Commission.

Two new bimonthly physics journals are offered by Plenum Publishing Corp. The *Journal of Low Temperature Physics* is edited by John Daunt of Stevens Institute of Technology; the *Journal of Statistical Physics* is edited by Howard Reiss of UCLA.

IN BRIEF

The National Bureau of Standards has combined all its units that gather, analyze and publish scientific information under an associate director for information programs. Edward L. Brady, a physical chemist who had been chief of the Office of Standard Reference Data, was named to the new post.

The *Physics Bulletin* was offered to the public for the first time with the January issue. The monthly magazine is published by The Institute of Physics and The Physical Society



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