

earlier artifacts can generally be attributed to seasonal occupation—no structures have been found that imply permanent shelters of any kind. Most open sites are younger, and they usually are low mounds of earth that contain pits, rows of fieldstones, remains of mud walls, or other indications of houses of some kind. Caves, by contrast, rarely have more than very shallow accumulations of the younger material. Surface erosion of older sites has not been sufficient to alter this picture; nor has promiscuous trenching or robbing of caves.

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## NEWS AND COMMENT

# UFO Project: Trouble on the Ground

**Boulder, Colorado.** The Air Force-sponsored investigation that was intended to still the controversy over unidentified flying objects (UFO's) has become mired in controversy itself.

The project, conducted at the University of Colorado under the direction of the eminent physicist Edward U. Condon, has been plagued with troubles almost as bizarre as the phenomena it is investigating. It has been criticized by reputable scientists who are interested in UFO phenomena, embarrassed by publication of an indiscreet internal memorandum, attacked by a mass-circulation magazine, disowned by a national group of UFO enthusiasts, threatened with libel suits and a congressional investigation, and depleted in staff strength by two firings, a heated resignation, and a narcotics arrest—all before the project has even had a chance to publish its final report. And still more controversy lies ahead, for one of the ousted scientists is preparing a popularized dissenting report which is scheduled to be published at the time the Condon group's final report is made public.

The full story of the Condon group's internal troubles is not known at this time, for Condon has refused to discuss the matter in any detail and has ordered

his staff not to talk to reporters. Condon discussed the controversy briefly in preliminary telephone conversations with *Science*, agreed to hold an interview with *Science*, then changed his mind, partly on the ground that his project should be judged by its final report rather than by its administrative problems, and partly because he felt the situation was too "complex and emotion-laden" for accurate reportorial treatment.

The University of Colorado undertook the UFO project in late 1966 at the request of the U.S. Air Force, which has been under mounting criticism for its handling of the "flying saucer" problem over the past two decades. Critics claim the Air Force has consistently refused to take UFO's seriously, and some even charge that the Air Force has deliberately suppressed evidence that UFO's are vehicles from another world. In an effort to still the clamor, the Air Force decided to commission an independent study by respected civilian scientists whose word might carry weight with a skeptical public.

But finding topflight scientists willing to tackle the somewhat "messy" UFO problem, where observations are difficult, professional recognition is slight, and the field is cluttered with crackpots,

was not easy. Various scientists were approached informally and turned the Air Force down. Finally, the Air Force came up with a seemingly perfect choice in Condon, a distinguished theoretical physicist, former head of the National Bureau of Standards, and former president of the American Physical Society and the American Association for the Advancement of Science. Moreover, Condon, a tough, fearless man, known for speaking out on vital national issues and for his battles with the House Un-American Activities Committee, seemed ideally suited to handle the controversial assignment. But even Condon's arm had to be twisted a bit. "He was not at all eager," says an Air Force UFO specialist. "He took the job out of a sense of duty."

The university's contract with the Air Force (ultimately for about \$500,000) became effective on 1 November 1966 and originally called for research to be completed by 31 January 1968, but difficulty in mapping out a methodology necessitated extending the project until 30 September 1968. The Condon group has now essentially completed its field investigations and is preparing its final report, which will be reviewed by the National Academy of Sciences; the report is then expected to be made public. But already critics are charging that the Colorado scientists have conducted a biased and less-than-diligent investigation and that any report the group produces will be suspect. The chief targets of criticism have been Condon, who is professor of physics and astrophysics at Colorado, and the project coordinator, Robert J. Low, who was previously an assistant dean at the university's graduate school and who has recently been appointed a special assistant to Colorado's vice president for academic affairs, though he still retains some

## APS To Stay Aloof from Politics

With the debate on the war in Vietnam in the background, members of the American Physical Society have voted to keep their organization out of politics.

The society recently rejected the Schwartz Amendment, which would have allowed its members to vote on resolutions having political and social implications beyond pure physics.

The amendment, introduced by Charles Schwartz, University of California associate professor of physics, was an attempt to involve the society in the discussion of the Vietnam war and other political issues.

The debate, which began within the organization more than 1 year ago, was resolved recently when more than half of the society's members took part in a mail ballot on a constitutional amendment, which would have allowed APS members to vote on resolutions on "any matter of concern to the society." The constitution now limits such activities to matters of direct professional concern to physicists. The amendment was rejected by a 2 to 1 vote.

The debate, which has drawn strong opinions from some of the nation's leading scientists, began when the editors of *Physics Today*, an American Institute of Physics journal, refused to publish Schwartz's letter on the morality of the Vietnam war; they said the letter did not have any relation to pure physics. Stating that physicists must recognize "the absurdity of complete political innocence," Schwartz circulated a petition for amendment of the APS constitution. The resolution has been debated throughout the spring.

Scientists opposing the Schwartz amendment included National Academy of Sciences president Frederick Seitz. A strong opponent was Federation of American Scientists chairman and Cornell professor Jay Orear.

—Marti Mueller

connection with the UFO project. Air Force officials fear the controversy will throw a cloud over the Condon group's final report no matter what that report says.

Perhaps the most substantial critics of the Condon investigation are two scientists who have had extensive experience with the UFO problem—James E. McDonald, senior physicist at the University of Arizona's Institute of Atmospheric Physics, in Tucson, who has been investigating UFO's almost full-time in recent years, and J. Allen Hynek, chairman of the department of astronomy at Northwestern University, who has long been the Air Force's chief UFO consultant.

McDonald, who leans toward the hypothesis that some UFO's may be extraterrestrial probes, expressed fears to the National Academy of Sciences as early as April of 1967 that the Colorado project was not being vigorously pursued. He has also expressed his reservations in speeches before technical groups, in newspaper interviews, in private communications to the Colorado project, and in an interview with *Sci-*

*ence*. He charged that Condon had repeatedly discussed UFO's in a "clearly negative tone," even before the project was off the ground. He said Condon had shown a "disturbing preoccupation" with crackpots while ignoring responsible witnesses; and he lamented that Condon, whose name was being used to secure public confidence in the project, was not personally examining witnesses or investigating cases.

### Accusations and Refutations

McDonald's accusations were based partly on information supplied by dissatisfied project scientists, partly on discussions with Condon and Low, and partly on newspaper interviews with Condon and on secondhand reports of Condon's speeches. However, Condon told *Science* that "McDonald doesn't know a damn thing about what we've done."

Hynek, who feels the UFO problem needs a thorough scientific investigation, has generally withheld criticism of the Condon study on the ground that the group's final report should speak for itself. But at a recent colloquium,

and in an interview with *Science*, Hynek said that Condon has "grossly underestimated" the nature and scope of the UFO problem. He also said the Condon group seemed to have adopted an attitude that UFO's must either be nonsense or else a sign of extraterrestrial intelligence, whereas Hynek believes the truth may lie between these extremes.

The events that brought the Colorado project's tensions to public notice revolved around an internal university memorandum, dated 9 August 1966, which weighed the pros and cons of taking on the UFO project.

### Memo Criticized

Critics of the Colorado project claim the memo indicates the university never intended to conduct an objective study. But several investigators connected with the project told *Science* they could see no indication the study was planned or conducted in a biased manner. Some felt Condon may have been skeptical about UFO's, but they said he seemed very willing to allow exploration of all approaches to the problem. Condon is said to have been unaware of the memo until it became a subject of controversy among staff members.

The memo ultimately found its way into the hands of McDonald and of the National Investigations Committee on Aerial Phenomena (NICAP), the largest organization of UFO buffs in the country. As a result, two of the Colorado project's staff scientists were fired. One was David R. Saunders, a psychologist, who was conducting a statistical analysis of UFO data. The other was Norman E. Levine, a young electrical engineer, who was working on radar and plasma-physics aspects of UFO's. Both men have subsequently criticized the project on essentially the same grounds as McDonald.

In a press release to a Colorado student newspaper on 8 February, Condon said the two were discharged for "incompetence," but many observers think he really meant "insubordination." Saunders was clearly a key staff member—Colorado's proposal for an extension of its contract devoted more space to describing Saunders' duties and responsibilities than it devoted to those of any other scientist. Condon later wrote, in a letter published in *Scientific Research*, that "one factor" in discharging the two men "was that they supplied outsiders with material taken from personal files (not project files)." Condon has told colleagues the memo was "stolen." Saunders and Levine contend

that the memo was in the "open" files.

Shortly after Saunders and Levine were fired, Mrs. Mary Lou Armstrong, an assistant to Low, made a bitter attack against Low and resigned from the project.

These internal frictions came to wide public attention when the 14 May issue of *Look* magazine carried an article entitled, "Flying Saucer Fiasco—The extraordinary story of the half-million-dollar 'trick' to make Americans believe the Condon Committee was conducting an objective investigation." The article was written by John G. Fuller, the author of several popular books and articles on flying saucers, with the active assistance of Saunders, Levine, their attorney, McDonald, Mrs. Armstrong, and R. Roger Harkins, a former reporter for the Boulder (Colo.) *Daily Camera*. Condon has made no detailed rebuttal of the *Look* article but has charged that it contains "falsehoods and misrepresentations."

Despite *Look's* 7.8-million circulation, the article seems to have had remarkably little impact. Condon and the Air Force say they have received only a few letters of protest. NICAP issued a ferocious statement, announcing, in State Department fashion, that it had "broken relations" with the Colorado project after 17 months of cooperation, but the research phase of the project was essentially completed by that time anyway. Subsequently Congressman J. Edward Roush (D.-Ind.) asked the General Accounting Office to investigate the Condon study, but the GAO refrained on the ground that it would be premature to try to evaluate the project before its report had been completed and reviewed by the National Academy. By what yardstick the GAO's accountants were supposed to judge the adequacy of a scientific investigation was not made clear.

Several other incidents have added to the project's woes. Condon, who is 66, was ill for a period. Threats of libel suits have been tossed around by both sides. A graduate student was dropped from the staff after being arrested (and later convicted) on narcotics charges. And another graduate student who left the project to enter industry has publicly criticized the project. Meanwhile, Saunders and Harkins are preparing a book to be published by New American Library shortly after the Condon group's findings and recommendations are made public. The book will describe the project's administrative problems and will present conclusions that the

## NEWS IN BRIEF

● **FUNDS FOR OVERSEAS PROGRAMS:** A portion of funds realized from the sale of U.S. farm surplus abroad will be used to finance educational activities of American colleges and universities overseas. An amendment to Public Law 480, the Food for Freedom Program, provides that not less than 2 percent of total proceeds from sale of surplus commodities abroad be used for the support of educational programs. Senator Allen J. Ellender (D-La.), who introduced the amendment, estimated that at least \$18 million should be available next year. Programs financed in the past under P.L. 480 have been limited to educational and cultural exchange programs for individuals under the Fulbright-Hays Act. The new amendment provides institutions with a new broad range of support which includes National Defense Education Act activities and other overseas programs.

● **ADDICT CENTERS:** The National Institute of Mental Health has announced the first federal grants to establish local narcotics addict treatment centers. The centers, which will serve 16,000 known addicts, will offer inpatient hospitalization, day care, residential facilities, outpatient treatment, and halfway houses to ease the transition of former addicts back into society. Cities receiving the six grants which total \$12.6 million are New York, Chicago, St. Louis, Philadelphia, New Haven, and Albuquerque, New Mexico. After 8 years of decreasing federal support, the cities will assume full financing of the projects.

● **SCIENCE IN STATE GOVERNMENT STUDIES:** The National Science Foundation, the Economic Development Administration, and the Commerce Department have announced support of a nine-state project to assess the roles of scientists and engineers in state and local governments. Funded at \$58,290, the project will examine various state activities in the use and development of scientific and technical resources. Participating in the program are the University of California, Kansas University, Western Kentucky University, Massachusetts Institute of Technology, Michigan State University, University of New Mexico, Union College, University of North Carolina and University of Mississippi.

● **APA CHARGES:** The American Psychiatric Association (APA) has charged that the Defense Department failed to preserve the confidentiality of psychiatric records by releasing to the news media the military medical records of New Orleans District Attorney Jim Garrison. While the Defense Department has denied any official involvement in the release of Garrison's records and said the breach was unintentional, the APA executive committee, in a formal statement, has asked for assurances that such violations of privacy will not be repeated.

● **NEGRO HISTORY:** The National Endowment for the Humanities has awarded workshop grants to seven institutions to promote instruction in Negro history and culture. The workshops will introduce published, unpublished, and graphic materials to teachers from universities across the nation. The institutions chosen for the grants are Boston University; Duke University; Cazenovia College in Cazenovia, New York; Fisk University; Howard University; Morgan State University in Baltimore, Maryland; and Southern University in Baton Rouge, Louisiana. Faculty members interested in attending the August workshops may inquire directly to the college or university concerned.

● **TEXAS LIFE SCIENCES CENTER:** The University of Texas Board of Regents has approved a 10-year program for expansion of Southwestern Medical School of the University of Texas at Dallas into what will be known at the University of Texas Life Science Center. Preliminary plans presented to the Regents by Southwestern Dean Charles C. Sprague call for developing a health profession campus at an estimated total cost of \$150 million.

● **NEW PUBLICATIONS:** A quarterly publication, *IBP Inter-American News*, has been started by the National Academy of Sciences "to further . . . cooperation among scientists throughout the Western Hemisphere through knowledge of related research projects." The publication, available, without charge, in English, Spanish, or Portuguese, may be obtained by writing to the International Biological Program Office, National Academy of Sciences, 2101 Constitution Ave., NW, Washington, D.C.

authors expect will differ from those of the Condon report.

The scientists who are critical of Condon are chiefly concerned that he will recommend against further serious study of UFO's. McDonald has been campaigning to have the National Academy, or various federal agencies, or Congress sponsor a large-scale investigation, but he has not been notably successful thus far. However, there are signs that the study of UFO's is becoming more respectable. In late May, the American Institute of Aeronautics and Astronautics set up an eight-member group to examine the UFO issue. Organized as a subcommittee of the AIAA's committee on Atmospheric Environment, the group is chaired by Joachim P. Kuettner, director of Advanced Research Projects at the Environmental Science Services Administration research laboratories at Boulder. The AAAS is considering the possibility

of holding a symposium on UFO's at its next annual meeting. The House subcommittee on science and astronautics has invited several scientists, including McDonald and Hynek, to testify at a hearing on UFO's on 29 July in Washington.

It is difficult to know what to make of the Colorado fracas. Some observers believe it represents honest disagreement over the adequacy of the study. Others believe it stems from strong personality clashes. And still others believe it represents a deliberate effort to sabotage the project by persons who fear they will not like the project's conclusions and recommendations. L. J. Lorenzen, head of an organization of UFO buffs known as the Aerial Phenomena Research Organization, believes there was "a strong attempt by the NICAP group (McDonald and Saunders are both close to NICAP) to control the study. When they found they couldn't

control it, they attempted to scuttle it."

Condon's supporters note that much of the criticism against the UFO project is based on newspaper quotes, on Condon's obvious delight in recounting humorous stories about UFO's, on statements from scientists who have been fired, and on a memo that was written by a subordinate before the project began. They do not find such evidence convincing.

The controversy has saddened even some of the investigators who sparked it. Levine told *Science* he is "chagrined at the way things turned out. This is not my idea of what science is, or the way science is run." But the controversy may not have been a total surprise to the old battler Condon. "I raise a little hell when I run things," he told the *New York Times* when he took on the project. "That's why we're trying to have a little fun when we get into flying saucers."—PHILIP M. BOFFEY

## British Civil Service: How To End an Era

*London.* The Wilson government has accepted the main recommendations of a blue-ribbon committee which has asked for a radical reform of the British civil service. In prospect are the most sweeping changes in the Home civil service since the famous Northcote-Trevelyan reforms of more than a century ago. The evils of that day were seen as idleness and the patronage system. Today the malaise is diagnosed as the "cult of the amateur," and the prescription is for "professionalization." A major aim of the reformers is that the way to the top be opened to scientists, engineers, and other specialists, who have been largely restricted to the middle levels of a bureaucratic caste system.

The new report\* of the committee headed by Lord Fulton damns the civil service system, but praises the civil

servants. The British civil service was one of the greatest and most typical of Victorian institutions and its members retain many Victorian virtues—intelligence, industry, and incorruptibility. But the British government machinery, which was designed to administer an empire, has proved less than efficient in dealing with proliferating social and welfare programs and nationalized industries and, perhaps more to the point, with economic planning and the management of national resources, including scientific resources and trained manpower.

Under fire from the Fulton committee and a legion of other critics is the archetype of the civil servant, the member of the top administrative class, of whom there are perhaps 3000 in a corps of about a half million. Until very recently, at least, the administrators' ranks have been filled by recruits who succeeded in the highly competitive examinations directly after taking

their university degrees, usually Oxbridge degrees. Typically, they were academic "high flyers" who had excelled in the classics, that is, Greek and Latin, language, literature, and ancient history and philosophy. They were products of public schools and the better grammar schools, which stress the formation of character as well as intellect and of a university education which trained the mind, but left it unencumbered with technical or professional training.

As the demands on government grew, it was necessary to expand the corps of "specialists"—scientists, engineers, architects, physicians, technicians—but these usually provided expertise and acted as consultants to the non-technically trained administrators who made the key recommendations to their ministers.

The operational weakness of the administrative class, according to Fulton, is their lack of managerial skills. For one thing, members of the administrative class are frequently moved from job to job and ministry to ministry as they progress upward through the hierarchy. They seldom have time to develop a professional grasp of the substance of the work of the ministry they will soon leave. Administration in the British civil service, as in most bureaucracies, is preeminently the art of the committeeman and of the drafter of policy papers. The civil servant seldom

\* *The Civil Service*, CMND 3638, vol. 1, Her Majesty's Stationery Office, 17s, 6d, and four volumes of appendices.