News of Science

Scientists' Committee on Security

The Scientists' Committee on Security, Inc., an independent volunteer group formally organized on 1 Jan. 1956, is now planning to expand its activities in the area of science and security. The committee seeks to fulfill several functions:

1) To act as a clearinghouse for information and responsible scientific opinion on matters of information security and personnel security. The committee attempts to answer inquiries from individual scientists and others. Upon request, it will offer informal suggestions to help insure that individuals with clearance difficulties receive the full protection of existing regulations, but it does not judge the merits of individual cases.

2) To undertake, from time to time, special studies of particular, important issues of science and security and to prepare and make public appropriate reports.

3) To cooperate with and to assist Government agencies in establishing and maintaining realistic security programs that safeguard both the long-range security of the United States and the traditional rights of its citizens.

4) To stimulate constructive thought on questions of information security and personnel security.

5) To foster a better popular understanding of the true relationship of science and security.

Present members of the Scientists' Committe on Security are Ernest C. Pollard, chairman; Ralph S. Brown, Jr., vice chairman; John B. Phelps, secretary; Hans G. Graetzer, treasurer; and Earle C. Fowler, Robert L. Gluckstern, Samuel A. Goudsmit, William A. Higinbotham, Franklin Hutchinson, G. Evelyn Hutchinson, William J. Knox, Henry L. Kraybill, Lester Lewis, Theodore K. Osgood, George F. Pieper, Waldo Rall, Julian M. Sturtevant, and Hugh C. Wolfe.

For its expenses, the committee has a very small budget maintained entirely by voluntary contributions, chiefly from working scientists. SCS members have written several articles in the area of science and security. Members have conferred informally with Government officials and have presented formal testimony upon request. The committee has submitted documentary material, with examples and illustrative personnel security cases, to Government groups on other occasions. It is expected that all these activities will be expanded.

In recent months the committee has learned of many instances in which clearance problems have affected the ability of scientists and engineers to find employment, commensurate with their ability and experience, *outside* the classified technical areas where clearance is understandably required. This situation—clearly contrary to the intent of security policies—is manifested in a variety of individual cases and is believed by the committee to be serious.

The committee is now preparing a report on this special problem and will be grateful for any relevant information or examples. The committee is also assisting the Commission on Government Security and has an immediate need for detailed information on actual security cases involving scientists or engineers for use in formulating and supporting recommendations for changes in personnel security regulations.

All correspondence on individual cases is strictly confidential. The committee earnestly solicits the comments and suggestions of scientists and others, and will appreciate views and information on security matters. Communications should be sent to the Scientists' Committee on Security, Inc,., 2153 Yale Station, New Haven, Conn.

Oldest Traces of Early Man in the Americas

What are perhaps the oldest surely dated traces of early man in North and South America have been discovered near Lewisville, Denton County, Tex., by members of the Dallas Archeological Society. Charcoal from ancient campfires, associated with remains of extinct Pleistocene animals and a man-made flint spear point identified with the Paleo-Indian Clovis or Llano cultural complex, has been dated by the radiocarbon technique as being more than 37,000 years old. Wilson W. Crook, Jr., and R. K. Harris, both of Dallas, are responsible for the discovery; the membership of the Dallas society carried out the excavations, and the exploration department of the Humble Oil and Refining Company made the radiocarbon age determinations.

The Clovis-type spear point, as well as the Llano cultural complex containing it, has been recognized for some years, and the six previously established Clovis sites (Clovis, N.M.; Angus, Neb.; Dent, Colo.; Miami and McLean, Tex.; and Naco and Hereford, Ariz.) have contained "kills" by what were probably nomadic hunters. Thus one or more of the distinctive projectile points has been associated with bones of extinct Pleistocene animals, most commonly the mammoth. However, the Lewisville site is the first "camp" site of these people so far discovered; it has some 14 hearths where meals were cooked and around which, presumably, the hunters lived temporarily.

As a result, the remains of a great many food animals and sources, heretofore unknown for Clovis man, have been recovered. These include specimens tentatively identified as extinct and possibly extinct species such as elephant, bison, camel, horse, glyptodon, antelope, and bear. In addition, there are remains of deer (perhaps two types), wolf, coyote, badger, raccoon, skunk, rabbit, prairie dog, wood rat, field mice, birds, egg shells, snails, freshwater clams and mussels, terrapin, grass snake, mud dauber nest and larvae, and numbers of charred hackberry seeds.

From the excavations conducted by E. H. Sellards of the Texas Memorial Museum at Austin, it has been learned that Clovis spear points are stratigraphically older than the well-known Folsom type, previously dated at about 10,000 years ago. How much older was not known until the Lewisville dates were run. According to Crook and Harris, the apparent gap of 27,000 years between Clovis and Folsom may not be as great as it seems, since Lewisville is the only date for Clovis and the dating for Folsom is based on only two sites, Lubbock, Tex., and the Folsom layer at Sandia Cave, N.M.

The Lewisville site was exposed by the removal of some 25 feet of overburden to supply earth for the Lewisville Dam at the Garze-Little Elm reservoir. In 1951 Theodore E. White, then of the River Basin Surveys salvage group, collected paleontological specimens at the site and first noted the fire-burned areas. Since that time local archeologists have maintained a constant vigil as erosion produced the succession of finds that have culminated in the present discovery.

The Lewisville observations indicate that one other complex, that of Sandia Cave (lower, Sandia level) and Lucy, N.M., may possibly be equal in age to, or older than, Clovis. Radiocarbon tests on material from Sandia Cave have

yielded somewhat inconclusive results, but both the tests and typological study suggest at least contemporaneity or precedence for Sandia man. In the case of Lewisville and the Clovis type, two separate radiocarbon tests of different charcoal from two different hearths yielded identical results of "more than 37,000 years."

Among other very early American sites, apart from the Folsom and Sandia finds, are unidentified human fire-hearths near Las Vegas, Nev., dated at some 23,000 years ago by the radiocarbon method, and unidentified hearths on Santa Rosa island off California, dated at about 30,000 years ago by the same method. The artifacts and human remains at Midland, Tex., and the bone artifacts, possibly human, at Potter Cave, Calif., also seem quite old, but they have not yet been effectively dated. At present, Lewisville seems to be the oldest surely dated find in the New World.

Nuclear Notes

One of the best-kept secrets of the World War II atomic bomb project—the process for extracting plutonium—has been revealed some 13 years after the method was developed. The disclosure has been made in a chapter of a new book, *Progress in Nuclear Energy, Series III, Process Chemistry,* published by the Pergamon Press, London, and in an announcement by the University of California. The process—which worked in defiance of chemical principles then known—may well have given the United States the bomb a year or more ahead of expectation.

The disclosure of the process, which has been generally superseded and is now only of historic importance, also pointed up the important role played by Stanley G. Thompson, a chemist in the Radiation Laboratory of the University of California. During the postwar period, Thompson has earned a reputation because he was codiscoverer of five synthetic elements—97, 98, 99, 100, and 101. But even his fellow chemists, except for a few colleagues, did not know that he had been chiefly responsible for the break-through that helped bring early success to the bomb project.

* * *

In a recent speech Willard F. Libby, commissioner, Atomic Energy Commission, urged chemists to learn a way of adapting the plutonium in atomic weapons for peaceful power uses. He challenged scientists to discover a way to "burn up" plutonium for fuel, should the day come when the weapons stockpile is considered large enough.

The fact that plutonium is highly dangerous has so far hindered its use in power development. Plutonium, like radiostrontium, emits alpha rays and accumulates in human bone. The need for increased safety precautions has so far made plutonium less attractive to experiment with than enriched uranium-235, the current source of power fuel.

* * *

The successful conclusion of an unprecedented power demonstration by an atomic ship propulsion reactor has been announced by the Atomic Energy Commission. The nation's first practical reactor power plant, a land-based prototype of the one used in the *Nautilus* at the commission's National Reactor Testing Station in Idaho, was routinely shut down on 8 Aug. at the end of what is believed to have been the longest full power run ever completed by any type of propulsion plant—land, sea, or air.

On a single charge of uranium fuel (and using only part of that charge) the nuclear reactor operated at an average power of 100 percent for 66 days and nights. The test was designed to prove the reliability and stamina of pressurized water reactors for ship propulsion. The prototype of the reactor now in the *Nautilus* met the demanding test requirements that were placed upon it.

* * *

Work has started on Bulgaria's first atomic research center near Sofia, which will house a 22,000-kilowatt reactor that is being provided by the Soviet Union. Foundations have been laid for a building in which 500 natural scientists and technicians will live and work while workmen are busy on the site of the reactor building.

* * *

The West Berlin city government has decided to buy a research reactor, set up a nuclear research institute, and engage two atomic scientists to organize a program in the peaceful uses of atomic energy. The program will be planned by an advisory commission that is made up of representatives of private industry. Max von Laue, a Nobel prize winner and head of the Max Planck Institute for Physical Chemistry in West Berlin, is chairman of the commission, which also includes the two newly appointed natural scientists—Karl Eric Zimen, formerly director of the Institute for Nuclear Chemistry at Gothenberg University, Sweden, and Arnold Flammersberg, at present lecturing at Göttingen University in West Germany.

In a recent lecture Zimen pointed out that Berlin should really be in the forefront of nuclear research because of its decisive contributions in the past. He recalled that decades of research in Berlin culminated on 22 Dec. 1938 in the first splitting of the atom. On that day Otto Hahn, Lise Meitner, and Fritz Strassmann demonstrated fission of uranium.

Zimen also commented that Hahn was concerned from the first that his discovery might be used for destructive purposes, and that he tried to keep the experiment a secret. He even attempted to disprove his own theories, although they had been proved by successful experiment.

According to the city government's plan, work on setting up the research institute is to be started next year, the reactor is to be put into service in 1958, and an accelerator is to be added. The establishment is to be put into full operation by 1959.

* * *

Australia is the fourth nation to sign an agreement with the United States on the exchange of atomic energy information in the classified field. As a major supplier of uranium, Australia has entered into a pact that is similar to this country's agreements with Britain, Canada, and Belgium.

* * *

In a recent interview with the press, Ralph E. Lapp of Washington, D.C., physicist and private consultant on atomic energy, commented that "it is rather ridiculous to have Japanese scientists, rather than Americans, putting out most of the news about U.S. atomic blasts in the Pacific." Atomic Energy Commission practice has been to make only short announcements of its Pacific tests before they are held, then to report afterward that they have been successfully concluded. Most of the information released has appeared in news stories from Japanese natural scientists who keep a close watch on nuclear explosions through monitoring devices.

Rabbit Embryos from One-quarter of an Egg

F. Seidel has published an analysis of the capacities of individual blastomeres (cells) of the rabbit egg to differentiate at the four-cell stage [*Naturwissenschaften* **13**, 25 (July 1956)]. In operating on eggs, he destroyed one cell at the two-cell stage by puncture; when the remaining cell divided, he destroyed one of its daughter cells, thus obtaining a single one of the four cells of the four-cell stage. After operation, the eggs were implanted into uteri for from 7 to 9 days of further development. Eighteen out of 30 were recovered.

Two results occurred: the single cell either gave rise to a complete and symmetrical embryo with normal extra embryonic tissues or to a mere blastocyst with no organized embryonic region. Seidel interpreted the first result to mean that a single cell of the four-cell stage may have the capacity to form an entire embryo along with its extra embryonic tissues. The failure of some single cells of the four-cell stage to differentiate an embryo implied that the capacity to form