Summary and Conclusions

A number of interesting and rather unexpected results have emerged from our study. All of these results are extremely tentative and will need to be reevaluated carefully as new data become available from Olduvai Gorge and elsewhere.

1) The range of prey types and the proportion of various sizes of prey taken by Bushmen and by early Olduvai hominids are very similar.

2) When the proportions of Chelonia, Carnivora, and Bovidae are plotted on a triangular graph, the monthly kills made by the Bushmen divide into two distinct clusters. One cluster contains only dry season months, the other only rainy season months.

3) With the same three taxa, the Olduvai levels separate into two clusters on the triangular graph that are almost identical to those of the Bushmen. Only four levels appear to be rainy season occupations. Three of these are among the earliest occupations in the Gorge. The majority of the Olduvai levels appear to be dry season occupations.

4) Patterning of both Bushman and Olduvai data within the dry season cluster may suggest that the majority of Olduvai levels represent early or late dry season occupations. Only four levels appear to have been occupied during the main part of the season. This conclusion is highly speculative and should be regarded with caution until additional data become available.

In conclusion, the archeological record from Olduvai Gorge may reflect only part of the total settlement system of these early hominids. Throughout most of bed I and bed II times, the area of the Gorge that has been sampled thus far appears to have been occupied almost exclusively during the dry season. During the rainy season the Olduvai hominids either moved to nearby areas that have not been sampled or, more probably, as part of their seasonal round, they abandoned the area of the Gorge entirely.

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NEWS AND COMMENT

White House Science Office: House and Senate Agree on Bill

Congress has cleared the way for the return of a science adviser to the White House. House and Senate conferees resolved differences over details of a science policy bill (*Science*, 16 April) before the Easter recess, and both houses are expected to pass the compromise version soon after Congress reconvenes on 26 April. The legislation is reportedly acceptable to President Ford.

Restoration of a science advisory office to the Executive Office of the President is an objective that has been ardently pursued by leaders of the scientific community since President Nixon relegated the advisory apparatus to the National Science Foundation in early 1973. Since then, NSF director H. Guyford Stever has doubled in brass as President's science adviser.

The new bill (S. 22 and H.R. 10230) provides a legal basis for the prospective Office of Science and Technology Policy (OSTP) significantly different from the one that served the old Office of Science and Technology (OST). The new bill accords the office much broader and more specific policy responsibilities. More important, it gives the office statutory existence whereas OST was created under a reorganization plan proposed by President Kennedy.

Proponents of the new office concede that its effectiveness will depend primarily on the quality of the relationship between the President and his science adviser, who will be director of OSTP; nevertheless they argue that the science adviser's position will be inherently stronger because he will have a clearly defined role in the decision-making process in the Executive.

The key congressional figures in fashioning the new legislation were, on the House side, Science and Technology Committee chairman Olin E. Teague (D–Tex.) and the ranking minority member of the committee Charles A. Mosher (R–Ohio) and, on the Senate side, Senator Edward M. Kennedy (D–Mass.). Kennedy is chairman of a Labor and Public Welfare Committee subcommittee which

shares jurisdiction over science policy questions with panels from the Commerce and the Aeronautical and Space Sciences committees.

The campaign for restoration can be said to have begun almost with word of the abolition of OST, but the building of a public case began with the testimony by prominent scientists in hearings on federal policy, plans and organization for science and technology called by Teague in the summer of 1973. This led to a series of studies and later hearings. Outside Congress, the most conspicuous effort by the science establishment was made by an ad hoc committee appointed by the president of the National Academy of Sciences, Philip Handler, and chaired by James R. Killian, Jr., science adviser to President Eisenhower. The committee's report (*Science*, 5 July 1974) strongly and unsurprisingly concluded that the White House could benefit from a "scientific and technological presence."

In Congress, the House has been generally sympathetic to arguments from the scientific community, but has sought to fashion legislation which would be congenial to the White House. To a degree, Kennedy has pushed for a science office which would have somewhat broader policy responsibilities and greater accountability to Congress than the White House seemed to find comfortable.

The compromise version of the bill does in some respects make OSTP and its director more directly answerable to Congress than was true with OST. For example, the director and his associate directors are subject to confirmation by the Senate, and it is clear that the legislators expect to be able to call top OSTP officials to testify on the Hill. At the same time, it is acknowledged that these officials may decline to comment on certain matters that deal with privileged communications with the President.

The office will also be responsible for preparation of an annual Science and Technology Report that is to be transmitted by the President to Congress. The report is to cover a broad range of developments affecting science and technology, to analyze and forecast problems, and to recommend policies and legislation on science and technology related issues.

The report apparently would supplant the annual report of the National Science Board (NSB), which this year took the form of a report on science indicators (*Science*, 12 March). In practical terms, the transfer of responsibility for making the paramount science policy report may not mean much change in the way the report is prepared since the NSF office which has the capability for data gathering and analysis is likely to carry on doing for OSTP what it did for the NSB.

One feature of the former White House science advisory system which would not be replicated under the new legislation is the President's Science Advisory Committee (PSAC). In its latter days PSAC got into the bad books of Presidents Johnson and Nixon not only by providing some unpalatable advice but by allowing it to become public. Nixon's disenchantment with PSAC was accounted a major factor in his decision to jettison OST from the White House.

It seems not impossible, however, that PSAC may rise again. The new bill mandates creation of a President's Committee on Science and Technology to conduct a sweeping survey of the federal science and technology effort. The committee will also make recommendations on organizational reforms and on methods of increasing the effectiveness of federally sponsored research, and also on ways to improve such activities as technology assessment, technology transfer, and federal-state cooperation in science and technology.

A Two-Year Study

The committee, to be made up primarily of distinguished nongovernment scientists, engineers, educators, and management experts, will be commissioned to do a 2-year study with a preliminary report expected at the end of a year.

After the group's final report is delivered, the President would have the option of continuing the committee if he felt it likely to be advantageous and could assign it to function as he felt appropriate. This could serve as a recipe for a revival of PSAC.

It should be remembered that the new science advisory office will not be returning to a vacuum in the White House. An informal advisory group made up almost wholly of well-known university and industrial scientists and science administrators has been mustered, mainly on the initiative of Vice President Rockefeller, to advise the Administration. And in November, President Ford announced formation of two panels to undertake the study of important national problems. An Advisory Panel on the Contributions of the Technology to Economic Strength has been headed by Simon Ramo, vice-chairman of the board of TRW Inc., and an Advisory Panel on Anticipated Advances in Science and Technology has been chaired by William O. Baker, president of Bell Laboratories. Subgroups from these panels have been actively dealing with a number of problems, including food and nutrition, basic sciences, and regulatory activities affecting health and safety. One of the major objectives of the panels has been to establish an agenda for the new office so that the panels may help to impart early momentum to OSTP. (There is speculation that the panels might also provide a director for OSTP since both Ramo and Baker along with NSF director Stever are the persons most often mentioned as possibilities for the post of science adviser.)

The new bill provides that the director of OSTP shall act as chairman of a Federal Coordinating Council for Science, Engineering, and Technology. The council which is created by the legislation is essentially a renamed and somewhat revised Federal Council for Science and Technology, which is abolished under the new bill. Like its predecessor organization, the new council's members are representatives of federal agencies with scientific and technical orientations and its purpose is to coordinate science activities and plan better use of technical resources.

The two issues that caused the first meeting of the House and Senate conferees to run aground were settled with compromises. The Senate bill had included the word "engineering" in all major titles as a result of a heavy lobbying campaign by engineering societies. The final version carries the word engineering in almost all significant references to manpower, education, or policy making, but omits it in the title of OSTP and the bill, which is called the National Science and Technology Policy, Organization and Priorities Act of 1976.

A section of the Senate bill which provided for a state and regional science, engineering, and technology program has been scaled down considerably. A program of grants that would have offered up to $200,000 to each state to encourage science policy machinery has been dropped. A plan for a 52-member intergovernmental advisory panel to coordinate federal-state action in science and technology was replaced with a more modest alternative put forward by Senator Frank E. Moss (D–Utah), chairman of the Committee on Aeronautical and Space Sciences. Moss proposed a panel which would include the directors of OSTP and of NSF and at least ten members representing the interests of the states to be appointed by the director of OSTP after consultation with state officials. The panel would be charged principally with helping to identify and define problems at the state level that science and technology might help to resolve.

House conferees had opposed the grant program because they felt that the proposal was out of place in legislation creating a new government entity and also because the additional cost of $8 million would pose a potential violation of the congressional budget act.

The new bill would authorize $3 million for the 1977 fiscal year, which begins on 1 October to fund OSTP and $1 million for the President's Committee on Science and Technology for fiscal 1977.

While it is always possible that something untoward will happen to the science policy bill in the legislative homestretch, it seems likely that the House and Senate will pass the bill handily, and that it will be hospitably received at the White House. While the prospect of a new science presence in the White House will obviously please its many proponents, it should be noted that the OSTP will inherit some of the chronic problems which afflicted OST.

For most of its existence, for example, OST was relegated to junior status in the White House hierarchy because it never acquired a functional role in the budget-making process. Rightly or not, OST was increasingly regarded as a special pleader for funds for the basic research community and was treated somewhat distantly by the Office of Management and Budget (OMB). The new legislation seeks to give the OSTP a more formal place in the process, particularly in a section which requires the office to prepare and update a "five-year outlook," and to identify problems and opportunities in science and technology. The law would require the OSTP director to consult with OMB officials and others to make certain that these emerging problems are taken into account in preparing annual budgets. The compromise version, however, is condsiderably milder than the original Senate version in the language charging OMB officials to take OSTP recommendations into account.

How successful the new office will be in dealing with this and other issues, most observers think, will depend in large measure on the momentum established by the new director of OSTP and his staff. And the timing of the return of the science adviser to the White House is hardly brilliant because of the quadrennial uncertainty that will persist until the first Tuesday after the first Monday in November.—JOHN WALSH

Massachusetts Juvenile Justice: De-institutionalization on Trial

In the early 1970's, with wisps of the radicalism of the 1960's still in the air, Massachusetts embarked on a controversial social experiment: it closed all its training schools (reform schools) for juvenile offenders and proclaimed that thenceforth "community-based" treatment would be the core of its system for dealing with juvenile delinquents. This was a very trendy thing for Massachusetts to do; for years, penal experts have been saying that institutionalization of deviants does them more harm than good, but action has lagged far behind the rhetoric. Massachusetts thus became the pioneer among states in efforts to rehabilitate, or at least control, youthful offenders through programs that do not involve incarceration. Fashionable as the idea is, it is running into strong countercurrents of public opinion now, at a time when people are getting fed up with rising crime rates and faith in "rehabilitation" is at a low ebb.

The new system in Massachusetts has not wrought any miracles, and there are some people who think it is in greater danger now than at any time since its inception of being sandbagged by those who believe that the proper place for an outlaw is jail. One indication of the tone of the times is a recent Boston *Globe* article reporting that there are 72 bills pending in the state legislature that call for mandatory minimum prison sentences for a great range of offenses, including such traditional juvenile pursuits as car theft and tombstone defacement.

Can the new system ride it out? Virtually no one believes it is likely, or desirable, that the old training schools should be reopened—the state has moved too far to revert to the old zoos. But the growing pressure for more "security," that is, incarceration, leads one child advocate to predict that the state could revert to reliance on a network of "mini-jails," located in communities perhaps, but in no way part of them.

The Massachusetts juvenile corrections revolution came about almost inadvertently; the original intent was the more modest one of reforming the training schools and turning them into "therapeutic communities." The change was instigated by then Governor Francis Sargent, who, in his search for a fresh mind to head the Department of Youth Services (DYS), hit upon Jerome Miller, then professor of social work at Ohio State University.

Miller took to the job with gusto, and although he moved on in 1972 (he has had two successors), the imprint of his personality and his modus operandi live on. He immediately started shaking up the corrections establishment by issuing edicts about the way things should be conducted in the training schools. These were seemingly innocuous directives—for example, banning involuntary haircuts—designed to cut down on dehumanizing regimentation and conformity within the schools. But the resistance he encountered led him to conclude that the only way to change the system was to obliterate it entirely—and fast, before the forces of resistance had a chance to mobilize. ("Slow change is no change," according to Miller.) He is quoted in a 1973 issue of the Boston *Real Paper* as saying: "My goal was to tear down the system to the point where Heinrich Himmler and the SS couldn't put it back together again." Unable to fire political appointees who had gained Civil Service status, he simply pulled the rug out from under them by abolishing their fiefdoms. In less than 2 years, Miller closed down all six training schools, whose population only a few years before had been 800. It has taken several years to deal with the staffs of the institutions, some of whom were transferred to other programs while others were left with nothing to do. Miller's successor, Joseph Leavey, says that "the biggest problem has been not what to do with the kids but what to do with the staff."

Miller then set up his own precarious system of juvenile corrections based on contracting for a variety of services ranging from nonresidential "street" programs to a rigidly limited number of "intensive care" slots for children whose violent behavior made incarceration necessary. He decentralized the youth