Expansion of Idaho Reservoir: Indians, Scientists on Warpath

Pocatello, Idaho. In the dry regions which characterize much of the American West, no subject will provide a hotter discussion than changes in existing arrangements to distribute the scarce waters used to cool and nourish the parched land. Westerners who advocate larger storage and irrigation projects are, most often, in accord with the popular will. These projects bring the possibility of more farms, more water for existing agriculture, and a general boost for the whole economy of the irrigated section.

This being the situation, it is highly unusual for the people of such a region to raise violent opposition to a proposal for expanded irrigation facilities. Nonetheless, an objection has now been widely expressed in southern Idaho, one of the most extensively irrigated areas of the semiarid West.

The dispute rages over whether to raise the height of an existing reservoir behind the American Falls dam on the Snake River southwest of Pocatello. The Bureau of Reclamation, which has authority over the installation, says that the dam is deteriorating and should be replaced in the near future. Since the Snake River has undeveloped potential for irrigation, many people have been tempted by the idea of a higher dam at American Falls. Such an expanded project suits the desires of the Bureau of Reclamation, an agency which needs new work to continue justifying the existence of its highly developed engineering staff. It may seem especially attractive to the Bureau during the current budget crunch, since the Administration is actively discouraging all new construction projects which are not directly related to Vietnam. If any new dams are to be built in this country, a likely candidate for construction would be a replacement for a defective structure.

In this matter, as on several other Idaho proposals, the requirements of the Bureau of Reclamation seem to be similar to those of the Idaho Water Resource Board. The board was created by the Legislature in 1965; the impetus for the formation of this board came from the Idahoans' fear that other states would "steal" Idaho's water surplus unless the state moved in an organized manner to use it within its boundaries. Such a threat, it was felt, was posed by the downstream states in the Columbia River system (Washington and Oregon) and, even more awesomely, by the water-thirsty areas of California. Further development of the Snake, Idaho's principal river, is crucial for greater use of the state's water resources. Of the various projects that have been proposed, enlargement of the American Falls Reservoir promises the quickest and cheapest means of tapping part of the Snake River's unused potential. The increased storage could be used to irrigate hundreds of thousands of downstream acres directly south of the river. Such utilization would help thwart other states that covet this now unused water.

The Case for Replacement

Although some critics dispute the Bureau's contention that the American Falls dam needs rapid replacement, the Bureau makes the following case:

► The top 8-foot section of the 81-foot-high structure was not built to withstand the pressure of ice; thus, the reservoir cannot be kept full in the winter.

► Cracking has resulted from a chemical reaction between the alkali of the cement and the reactive constituents of the aggregates in the concrete. This phenomenon, the Bureau says, affects a number of older concrete dams, particularly in the West. The Bureau says that the engineering profession in general first recognized this problem of alkali-aggregate reaction during the 1930's. (The dam was finished in 1927.)

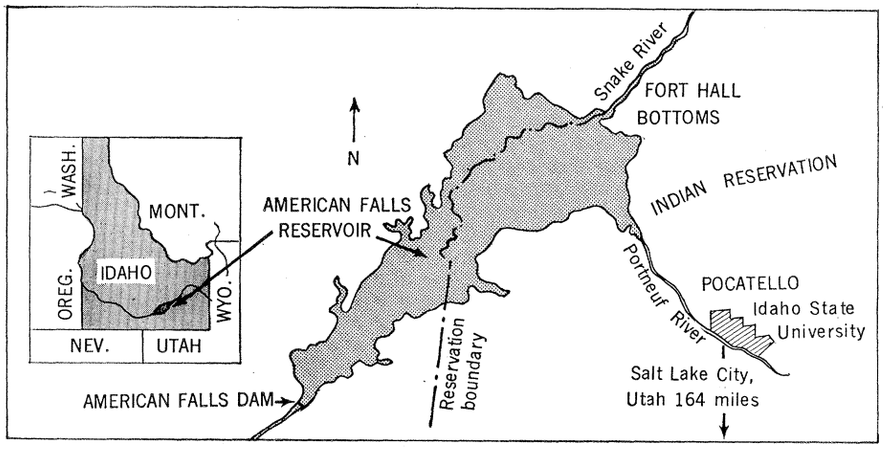
► The deterioration of the concrete has lessened resistance to sliding of the concrete blocks at the horizontal construction joints.

The debate about replacement of the American Falls dam has occurred in the last half dozen years, but more fuel has been thrown on the fiery discussion during recent months. About a year ago the Bureau of Reclamation issued an information report on the replacement of the dam. On 8 April 1967 the Idaho Water Resources Board held a public meeting on the subject in Pocatello. The chairman of the Board is George L. Crookham, Jr., owner of a seed company in southwestern Idaho and an aggressive leader who has a reputation as a "dam-builder." The implied question which the Board was asking the area's residents was: "Why not build a higher dam at American Falls when we replace the present structure?"

War Whoops in Pocatello

Board members soon became graphically aware of objections to a higher dam. More than 200 people attended, many of whom represented organizations with strong opinions about the proposed construction. The assault against an enlarged dam was spearheaded by a phalanx of leaders of the Shoshone-Bannock Indian tribes. The Indians' objection to an enlarged reservoir is simple: it would flood a cherished part of their reservation—the Fort Hall Bottoms, which lie immediately to the east of the American Falls Reservoir. This area of some 10,000 acres is only about a quarter as large as the original Fort Hall Bottoms, most of which were inundated after Americen Falls dam was built.

The Bottoms are highly regarded for a variety of reasons. In a region of low rainfall and somewhat sparse vegetation, the Bottoms are marked by the emergence of cool, clear springs, some of which pour forth a considerable volume of water; the plant and animal life is much richer in the Bottoms than in the surrounding countryside. G. Wayne Minshall, a limnologist from Idaho State University, calls the Bottoms "an oasis in the middle of a desert." The Shoshone-Bannock Indians have utilized this area for a long time; Earl Swanson, Jr., director of the Idaho State University museum, estimates that people have been living around the Bottoms for the past 8000 to 10,000 years. Many species of migratory birds—among them ducks and Canadian geese—are attracted by the ample feeding grounds in the Bottoms. The Indians hunt and fish a great deal in this area, and the tribes obtain extra



Indians, scientists and other groups have joined together to oppose a plan to raise the height of the American Falls Dam. An expanded American Falls Reservoir would inundate portions of the Fort Hall Bottoms on the Shoshone-Bannock reservation, a site highly valued for its scientific resources by professors at Idaho State University.

revenue by selling hunting licenses for the area to non-Indians. The Bottoms are also used by the Indians for berry-picking, for trapping, and to provide forage for the buffalo herd which the tribes imported last year. The Indians look forward to the time when they can serve roasted buffalo at their tribal celebrations.

The principal economic use of the Bottoms is as a winter range for cattle-raising, the main economic activity of the tribes. One Indian leader interviewed by *Science* stressed the importance of the cattle industry to the Shoshone-Bannocks: "Our people can't compete in many fields, but we do know the cattle business."

On several occasions the Idaho Water Resources Board and the Bureau of Reclamation have acknowledged that it would be difficult to assess the cash value of some of the losses that would be suffered if the Bottoms were inundated. As the Bureau noted in its report:

> Compensation for some adverse effects is impossible since there is no practical means of identifying their monetary value. Part of the Indians' culture has developed around the use of the Fort Hall Bottoms and eliminating a part of this use would require psychological adjustments and cause hardships that cannot be evaluated or fully compensated for. Unusual birds, animals and fish inhabit this land and water area; inundation will cause a decrease in numbers among those species which cannot adjust to another habitat. Certain knowledgeable interests acquainted with the area surrounding the reservoir have expressed the view that historical, biological, zoological and archeological values would be lost if the reservoir is enlarged. No rational method for fixing a monetary value for these losses has been found.

The Indians might be more inclined to consider generous compensation for the inundation of their lands if they believed that such payment would be assured. The Shoshone-Bannocks are a fairly small tribal group (about 2800 members) and very poor. (Senator Robert F. Kennedy was exposed to this poverty when he investigated Indian education at the Fort Hall reservation on 2 January.) The tribes could well use money obtained from selling or renting a portion of their remaining bottomlands.

But the tribal leaders are unwilling to negotiate with those who want to build a higher dam. Basically, they do not trust the white man ever to give them adequate compensation for what they give up. John Pappan, the Bureau of Indian Affairs superintendent for the Shoshone-Bannock reservation, has said: "If he [the Indian] is skeptical of many proposals, it is because history has taught him to be." In testifying for her people, Mrs. Angela Butterfield, the attractive and articulate tribal secretary, said: "we are not interested in talk of exchanging our *unreplaceable* Bottom Lands for 'comparable' lands because we know with certainty that there *are no* comparable lands to be had. If there were, they would have come under non-Indian ownership long ago."

Partly because of their feeling that the Indians' refusal to give up the Fort Hall Bottoms is a just cause and partly because of their belief that the Bottoms are a valuable scientific resource, many of the scientists at nearby Idaho State University in Pocatello have supported the Indians in their adamant stand on this matter. Several testified at the April Pocatello hearing. In November, 17 scientists at the university signed a statement initiated by A. E. Taylor, a chemist who is dean of the graduate school, which requested the assistance of the country's scientific community in opposing the "unnecessary inundation" of the Bottoms. The statement noted the high number of large springs—perhaps as many as 50—and observed, "their essentially pristine conditions, remarkably high rates of flow, and the influence of the streams to which the springs give rise upon terrestrial habitats, offer opportunity for ecological investigations perhaps unequaled elsewhere on this continent. . . . To the best of our knowledge, there is no other such complex of large springs and unspoiled streams in North America. The Fort Hall Bottoms comprise a living laboratory of rare value for research and teaching."

One of those who signed the November statement was Earl H. Swanson, Jr., the director of the university museum. In his testimony at last April's hearing Swanson said that the museum opposed raising the American Falls Reservoir, since "the reservoir perimeter is a unique area for the study of . . . the relationships between plants, animals, and men. The opportunity to study the history of environments during the last 200,000 to 500,000 years in one locality is rare," he continued. "These resources include fossil vertebrate animals, the campsites and tools of prehistoric men, mollusks, [and] plants. . . . These resources, especially those of the fossil animals and plants, occur in large numbers, are well preserved, and can be associated with one another and with the geological beds which enclose them." Swanson added that there were an "estimated 1000 species of plants within the Fort Hall Bottoms, a remarkable sample out of slightly less than 3000 species in all of Idaho." Swanson said that the Bottoms had been in existence for 40,000 years and that he knew of "no other locality whose vegetation history can be carried so far into the past." In the paleontological work carried on in the area by the university museum, fossil elephants and camels have been found, but this work, Swanson says, is far from completed. He argues that the American Falls Reservoir region "is one of the 3 or 4 great areas in North America for the study of fossil vertebrates of the Pleistocene geological epoch." In an interview, Swanson said that he thought only one paleontologi-

cal site—Rancho La Brea in southern California—was superior to the Fort Hall Bottoms area in all respects.

At the meeting, the Indians and the scientists received support from several other powerful groups. Arleigh Johnson, chairman of the Idaho State Fish and Game Commission, read the Commission's statement opposing the raising of the reservoir; the Idaho Wildlife Federation also expressed its disapproval of the move. Another significant expression of support for the Indians came from many of the organizations representing farmers who use water from the Snake, especially those who live upriver from the American Falls site. The farmers favoring the expanded reservoir tend to be those who live downriver from American Falls in that area south of the Snake which would be irrigated as a result of the expansion.

Despite the opposition expressed at the Idaho Water Resource Board hearing in Pocatello last April, the plan is far from dead. If anything, the fight has grown more severe in recent months. Comments released by Board chairman Crookham a couple of weeks after the Pocatello meeting served to escalate hostilities between the opposing parties. For instance, Crookham said that the Pocatello meeting "was loaded with crusaders, the kind of folk who would be among the first to protest supermarket prices." When the professional director of the Board, Robert R. Lee, wrote the Shoshone-Bannock tribes in September asking permission to meet with them about the reservoir proposal, the tribal Business Council sent back a blistering six-page reply. The Business Council said that Lee had dangled the prospect of large sums of money, which would be paid for the Bottoms, in an effort to create dissension in the tribe. The Council argued that Lee and the Water Board had no authority to authorize expenditure of such sums and that the Board was trying to use the "age-old principle" that has characterized the white man's dealing with the Indians—that of "divide and rule." The Council quoted Lee's statement that "we are all citizens of Idaho and should leave open opportunities for communication." The scathing reply was: "This sounds very much like talk concerning the Viet Cong. You consider us the enemy, but you will keep the line of communication open so when we are ready to sue for peace you will listen. Well, we are not suing for peace." The

NEWS IN BRIEF

● **CORNELL AERONAUTICAL LABORATORY**: A committee appointed by the Cornell University Board of Trustees has recommended that the university end its association with the Cornell Aeronautical Laboratory (CAL). The laboratory, which was a gift from the Curtiss Wright Corporation in 1946, has been a separately incorporated, wholly owned subsidiary of Cornell since 1948. CAL is self-supporting and does applied research valued at about $30 million annually—more than two-thirds of which is performed under contract to the Department of Defense. Of the DOD contracts, about one-half are classified. The committee stated "if the aims and programs of the laboratory are to remain much as they now are, the continuance of a 'Cornell' board of directors for CAL is probably not in the best interests of either CAL or Cornell." The committee will present further recommendations in April.

● **URBAN DEVELOPMENT INSTITUTE**: President Johnson has announced the establishment of a major new research institute for the study of urban problems. The institute, which has been likened to a civilian-oriented RAND Corporation, is expected initially to undertake contract research for the federal government. During its formative stage, the institute will receive both funds and guidance from the Department of Housing and Urban Development, although it is not expected to have major expenditures until it begins recruiting officers and a staff in mid-1968. Objectives of the institute include building an analytical capability for the study of urban problems as a whole and providing an independent and objective base from which urban problems can be assessed and solutions can be proposed. In naming a six-member panel to set up the institute, President Johnson fulfilled a pledge he made to Congress 2½ years ago when he announced that he would create such an institute as a part of his then proposed Department of Housing and Urban Development. Named to the panel were J. Irwin Miller, chairman of the board, Cummins Engine Company, Columbus, Ind.; Arjay R. Miller, president, Ford Motor Company; McGeorge Bundy, president, Ford Foundation; Kermit Gordon, president, Brookings Institution; Richard Neustadt, director, Kennedy Institute of Politics, Harvard University; and Cyrus R. Vance, New York attorney and former Deputy Secretary of Defense. The panel will nominate a board of directors for the Institute for Urban Development, help select a site, and draft incorporation papers.

● **MAMMAL IDENTIFICATION**: A Mammal Identification Service has been established at the Smithsonian Institution to identify wild mammals that are important in medical research. Ronald H. Pine is curator of the service, which is jointly sponsored by the National Institute of Allergy and Infectious Diseases and the Smithsonian.

● **REGIONAL R & D STUDY**: A study of the impact of science and technology on U.S. regional development is being conducted by a special committee of the National Academy of Sciences and the National Academy of Engineering. The Committee on Science, Engineering, and Regional Development will analyze the relationship of research and regional economies and prepare a report of its findings. The study, financed by a $95,000-contract with the Department of Commerce, is scheduled for completion by July. Daniel Alpert, dean of the Graduate College, University of Illinois, is chairman of the committee.

● **SEA GRANT PANEL**: The National Science Foundation has announced the appointment of an Advisory Panel for Sea Grant Institutional Support. The panel will review and evaluate proposals and provide policy guidance for the Sea Grant Program. Panel members are Sanford S. Atwood, president, Emory University; Douglas Brooks, president, Travelers Research Center, Hartford, Conn.; John C. Calhoun, Jr., vice chancellor, Texas A & M University; Joseph Henderson, director, Applied Physics Laboratory, University of Washington; Chalmer G. Kirkbride, vice president, research and engineering, Sun Oil Company; David Potter, general manager, Defense Research Laboratory, General Motors Corp.; Robert H. Roy, dean, engineering science, Johns Hopkins University; H. Burr Steinbach, director, Marine Biological Laboratory, Woods Hole, Mass.; Bernard Berman, president, Bissett-Berman Co., Santa Monica, Calif.

Council indicated that it was tired of being "outslickered" by the white man and said, "we will fight you in every court in the land as long as there is a court available. We will fight you in every other way possible, and there are many. In the words of Sir Winston Churchill, 'We will never surrender'."

In October the Idaho Water Resource Board said in a position statement, "there is an unidentified quantity of Snake River water available at American Falls which will not be developed by any other proposed upstream project." The Board recommended that the Bureau of Reclamation investigate the feasibility of enlarging the dam "without inundating Fort Hall bottomlands." The Board said that diking and pumping to protect the Bottoms appeared to be feasible—an idea which the Indians dispute and which the Bureau of Reclamation has previously rejected because of the expense involved. The Board also asked the Bureau to explore the possibility of building a replacement at Eagle Rock, a short distance downstream from the present site, thus expanding the reservoir, but not at the cost of inundating the Fort Hall Bottoms. The Bureau of Reclamation is scheduled to make its next report on the American Falls dam next month. Whatever course of action is decided upon, the Bureau hopes to obtain authorization for a replacement for the dam in the near future.

The Indians Hold the Key

Unless the Shoshone-Bannock leaders should change their minds, it would be surprising if the relevant public agencies pushed ahead with a proposal to enlarge the American Falls dam. The Indians own the land, and they seem to have the whip hand in this controversy. Last May, Bureau of Reclamation regional director Harold T. Nelson wrote that "the dam would not be enlarged without full consent of the Tribes." Crookham has said that there will be no use of the Fort Hall Bottoms without adequate payment and agreement of the Indians. But some of those connected with the Idaho Water Resource Board think that the Indians are making a big mistake. As Board director Robert Lee commented in an interview in his Boise office: "The day that Indian rights would be trodden on is over. This project has such a favorable cost-benefit ratio that we could afford to pay a good deal for the use of the Bottoms. Here's a chance for the Indians to really take Uncle Sam if they only wanted to do it.

As of now, the Indians would rather keep the bottomlands than deal with Uncle Sam. The Indians, the Idaho State University scientists, and the other important groups which have expressed a desire to preserve the Fort Hall Bottoms may well prove successful in their battle. If they are, they will have won a rare victory in the water-conscious West—a victory for those who put a higher priority on preserving a piece of land than upon water storage.—BRYCE NELSON

American Science Policy: OECD Publishes a Massive Critique

A report that is believed to be the most comprehensive look at American science policy ever taken by outside observers has just been issued by the Organization for Economic Co-operation and Development (OECD), an international group with 21 member nations.* Though balanced in appraisal and basically laudatory in tone, the 622-page volume—the seventh in a series of OECD reviews of national science policies—is filled with impressions of weakness in the American system.

The heart of the report, covering the first 125 pages, consists of separate assessments of the organization of American science and technology by four European experts: H. G. B. Casimir, director of Philips Research Laboratories, the Netherlands; Théo Lefèvre, former prime minister of Belgium; Pierre Massé, board chairman of Electricité de France; and C. H. Waddington, former member of the United Kingdom Advisory Council on Science Policy. The remainder of the volume is devoted to a "background report," prepared by the OECD secretariat, which summarizes and analyzes the goals, implementation, and impact of the U.S. research and development effort.

Much of the background material will be familiar to American readers, but the remarks of the four experts should serve to place American achievements in a fresh perspective. The four examiners made no effort to produce a unified analysis. Instead, each has described his personal impressions—based on a hectic 2-week visit to the United States, a study of the relevant literature, and previous contact with American science. The result is rambling, repetitive, sometimes contradictory—and illumined with flashes of insight. The examiners don't hesitate to stick pins in America's scientific and technological smugness. And they grapple with the big "where are you going?" questions that are too often ignored by specialists working within the American scientific system.

Some of the most trenchant observations are made by Waddington, a professor at the Institute of Animal Genetics, Edinburgh, Scotland. Waddington believes America's vaunted scientific superiority is at least partly an illusion caused by high-powered public relations and the nearsightedness of American scientists. He suggests that America's multitudinous scientific journals constitute "a powerful publicity machine" that overemphasizes American achievements. "It is perhaps inevitable," he says, "that after a time the readers of such journals come to feel that such technological developments as jet propulsion, radio, radar and T.V. are essentially American, and the contribution of such Europeans as Whittle and the German rocket scientists, Marconi, Watson-Watt, and Baird are forgotten, and it is an occasion for surprise when the Nobel prize for optical

*Available in the United States after 15 March from the OECD Publications Center, 1750 Pennsylvania Ave. NW, Washington, D.C.; $12. The final version will contain an account of the "confrontation meeting" at which U.S. science officials discuss the report with OECD. Earlier OECD studies have reviewed science policy in Belgium (1966), France (1966), Greece (1965), Japan (1967), Sweden (1964), and United Kingdom-Germany (1967).