other diseases. Earlier this month, however, at the request of the House Interstate and Foreign Commerce Committee, the FTC agreed to postpone this requirement until July 1965. The postponement, which was grudgingly agreed to by the FTC, was at the request of committee chairman Oren Harris (D–Ark.), who said he felt it might be preferable to regulate the matter through legislation rather than by administrative decree. Harris added that, since the cigarette industry had said it would challenge the FTC regulations in court, the ensuing litigation might delay any regulation for as long as 4 years. The length of delay that might be involved in taking the congressional route is, of course, uncertain, but since congressional procedures offer ample opportunity for those who want to stretch out matters, it would not be surprising if more than 4 years were to pass with the labeling issue still under congressional consideration. Harris, in asking the FTC to hold off, stated that there seems to be a "prevailing sentiment" among the committee members "that appropriate requirements with respect to a warning on the label of cigarettes may be advisable." And he announced that hearings would be held next year as a follow-up to hearings that were held in June. Just what might be elucidated by a second round of hearings is not clear.

Self-regulation

While Congress ponders its role in the regulation of tobacco, the cigarette industry itself favors self-regulation. Toward this end it has drawn up a Cigarette Advertising Code, which is a sort of confession of past sins and a promise to go straight. The code specifies, for example, that "cigarette advertising shall not represent that cigarette smoking is essential to social prominence, distinction, success, or sexual attraction." "Sample cigarettes shall not be distributed to persons under twenty-one years of age." "Cigarette advertising may use attractive, healthy looking models . . . provided that there is no suggestion that their attractive appearance or good health is due to cigarette smoking."

Violations of these or other regulations are punishable by a fine up to $100,000, at the discretion of the administrator of the code, who is Robert B. Meyner, former governor of New Jersey.

In addition to looking after its interests in Washington, the cigarette industry has also been attentive to the importance of scientific research in its struggles with the health issue. The organization charged with handling this function was once known as The Tobacco Industry Research Committee, but it recently changed its name to The Council for Tobacco Research—U.S.A. The reason for this, it explained, is to "clarify the fact that the organization is devoted to health research rather than to industry, commercial or technological study." Since it was established in 1954, the Council, under the direction of a scientific advisory board, has reported grants totaling $7.2 million to 155 researchers in hospitals, universities, and research institutions. In its latest report, it observes that "after 10 years, the fact remains that knowledge is insufficient either to provide adequate proof of *any* [original italics] hypothesis or to define the basic mechanisms of health and disease with which we are concerned. It is true now as it was in 1954 that continued research in all areas where knowledge is deficient offers the best hope for the future."

Thus, in its struggles against the Surgeon General's indictment, the tobacco industry has staked its case on self-regulation, congressional study, and scientific research, none of which seems to bear very much relation to the PHS study's flat assertion that "Cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action."

Meanwhile, amid indications that the Johnson administration is not inclined to go to war with the tobacco states, the PHS has taken a few steps in accord with the recommendations of its advisory report. It has awarded 10 grants, totaling $266,000 for studies of why people smoke and how they may be counseled to give up the habit; and the Children's Bureau, which along with the PHS comes under the Department of Health, Education, and Welfare, held a National Conference several months ago on Smoking and Youth. Out of this conference have come two pamphlets, "Your Teenage Children and Smoking," and "Smoking, Health, and You." Neither pamphlet can be faulted by those concerned about adolescents acquiring a taste for tobacco, but with the cigarette industry spending around $135 million a year on advertising, the efforts to date by the PHS fully justify Terry's prophesy of "10 years plus."—D. S. GREENBERG

Water Resources: Congress Votes Research Centers for States; River Basin Planning Bill Advances

It may be too much to say that the cup runneth over for the advocates of water resources research and planning, but their cause has been prospering lately in and out of Congress.

Enacted this summer was a Water Resources Research Act (P.L. 88-379) which will foster with federal funds the establishment of water research centers in land-grant colleges and state universities and further encourage water research through grants and contracts with other institutions. Congress also appears on the verge of passing legislation to help finance river basin planning by groups of states. In view of the original opposition to this latter measure, its passage could be likened to Eliza's carrying her baby safely across the ice.

In two special fields of water research, desalinization and weather modification, which have attracted much more attention and bigger expenditures than have other more prosaic or, at any rate, less well publicized forms of research, there are clear signs of heightened activity. (Desalinization and weather modification will be dealt with separately and in more detail in later articles in this space.)

The water research act is one evidence of a sharpening realization by Congress and the public of the serious and immediate implications of the nation's available water being of fixed amount while the use of water increases very rapidly. The legislative history of the bill, however, bears the sharp imprint of national politics, of some strong political personalities and interagency rivalries.

In a pattern not uncommon where federal science is concerned, authority to do research on water is diffused through more than a score of government bureaus answering to a half dozen standing committees in each of the houses of Congress.

In years past, much of the water research performed was done by agencies with responsibilities in reclamation and irrigation, conservation, flood control, and agriculture. Congress was conditioned to think about water in terms of large public works projects rather than in terms of research.

The Eisenhower administration saw a contradiction in the government's paying subsidies for agricultural surpluses while at the same time spending

federal funds on projects to bring new land into use for farming and grazing. President Truman curbed some of these projects during the Korean War, and under Eisenhower a "no-new-starts" policy was proclaimed.

While the embargo was not absolute, dams and reservoirs and ponds are an important political stock in trade, and Congress was restless over limitations on public works projects of the kind often alluded to as "pork barrel."

Because of these congressional hard feelings and because of genuine and growing concern about problems of water scarcity and water pollution, sentiment for action built up in the late 1950's. A conference of western Democratic senators held after the new Congress convened in 1959 put forward the idea of a study of the nation's water situation and the problems which would have to be faced by 2000.

A resolution was duly passed, and a select committee was appointed from among leading members of the Senate Interior, Public Works, Commerce, and Agriculture committees. The chairmanship went to the late Senator Robert S. Kerr (D–Okla.). With feet firmly planted in both the Finance and Public Works committees, Kerr at the time was well on his way to becoming a colossus in the Senate, but held no major committee chairmanship.

As a former governor of a state once famous for its dust storms, Kerr had experience with problems of water resources management. In the Senate he was chairman of the Public Works subcommittee which handled the Army Engineers' requests on civil projects, and it would be fair to say that Oklahoma did not suffer, during the dry period, from a shortage of public works projects. Kerr, however, favored a limited federal role in national water resources planning. The committee staff produced a series of 32 studies dealing with separate aspects of the water problem, and the senator felt the committee's job was to sound the alarm by publishing its forbidding findings about water supply and potential demand. However, other members of the committee, Senator Clinton P. Anderson (D–N.M.) perhaps most notably, felt that a final report with specific recommendations should be filed, and Kerr was persuaded.

A major recommendation was that "the Federal Government should undertake a coordinated scientific research program on water." The select committee indicated what it meant by water resources research when it urged that existing programs be strengthened by the following means.

"(a) Expanding the program of basic research dealing with atmospheric physics, solar activity, hydrology of ground water, movement and recharge, the physical chemistry and molecular structure of water, photosynthesis, climatic cycles, and other natural phenomena associated with water in all its forms. Such research is essential to a major breakthrough in such fields as short and long range weather forecasting, weather modification, efficient management of underground reservoirs, evaporation reduction, desalinization, and pollution abatement, as well as to major improvements in the works for the storage and control of water."

The report also called for a "more balanced and better constructed program of applied research for increasing water supplies through desalinization, weather modification, and evaporation and evapotranspiration reduction."

Administration Acceptance

The report was published in the first weeks of the Kennedy administration. Its recommendations were incorporated in the first Kennedy message on natural resources and became part of the administration program. The President at the time asked both the National Academy of Sciences and the Federal Council for Science and Technology, which is made up of top officials from federal agencies with science functions, to undertake studies on natural resources policy, including water research policy.

The NAS study was to provide recommendations on long-range policy for water resources research, and the Federal Council was expected to come up with an interim report with practical application to immediate planning and budgeting.

The National Academy of Sciences–National Research Council committee report came in during the summer of 1962, but at that time the Federal Council's committee appears to have reached an impasse. In September of 1962 a special task force was set up under Roger Revelle, then science adviser to the Secretary of the Interior. The Federal Council was under pressure from Congress and prodding from the White House, and the task force, with new staff help, did finish its report to the President and submit it early in 1963.

The Federal Council committee, which had first to find out what was really being done in water resources research, and where, and then come up with specific recommendations, faced no easy task. Much of the heavy going it encountered, however, was due to conflict among the agencies over certain types of research. The statutory authority of most of the science agencies is general, and several agencies may undertake the same kind of research.

One task of the Federal Council was to draw lines of authority more clearly and cut duplications of research. The agencies, however, in a few sensitive areas, reacted like frontier prospectors involved in a claim dispute. One of the sharpest clashes developed over research on water quality and pollution between the Interior Department's Geological Survey and the Public Health Service in the Department of Health, Education, and Welfare.

The Kerr committee was fully aware of this internecine conflict when it called for a *coordinated* scientific research program on water, and congressional criticism of interagency squabbling has been sharp.

The situation was reminiscent of that which existed when early efforts were made to coordinate research in oceanography, another interdisciplinary field in which research is carried on by a number of agencies. Once again with water research, the Office of Science and Technology was called on to act as honest broker in the compromises which were the condition of coordination.

In part, at least, in response to a task force recommendation, OST added a water expert to its staff. William C. Ackerman, who is returning to his post as chief of the Illinois water survey after a year with OST, spent much of that year seeking to improve the sluggish flow between agencies of information on water research, which had been one of the problems in the past, and to help bring about a reconciliation of conflicting agency claims and ambitions. Some of the outstanding difficulties seem to have been overcome, and prospects for development of effective coordinating machinery are said to be much better.

While the bureaucracy was becalmed, however, legislators interested in water problems grew impatient. Anderson had moved into the chairmanship of the Senate Interior Committee and, after a year of waiting, decided to take

steps to implement the recommendations of the select committee. One result was the introduction by Anderson and others of a bill to encourage river-basin planning. The Eisenhower administration had backed a bill on the same subject, and the new proposal was accepted by the Kennedy administration as part of its program.

Stiff opposition developed among groups suspicious of federal meddling in the affairs of the states. The Army Corps of Engineers was less than delighted with the prospect of infringement of its own considerable authority in planning for rivers and harbors, and the Engineers' influential friends came out against the bill (S. 1111).

Advocates of the measure persevered, however, and 2 years of discussion and revision produced a viable bill. Key to the compromise was a guarantee of authority of the states. Water rights problems between the states were not to be affected, nor were existing agencies to be disturbed. Provisions for a new kind of mixed federal-state river-basin planning commission also helped gain acceptance for the proposal.

Funds for Planning

The outcome is a bill which provides $5 million a year for 10 years for comprehensive planning and grant authorization. The Senate has passed its version of the bill, and the House version, which differs in only a few details, was favorably reported by the Interior Committee on Tuesday.

The spirit of compromise engendered on the river-basin planning bill smoothed the way for the Water Resources Research Act. Another Anderson bill, the water research measure was patterned on the venerable statute which created the agricultural experiment stations back in the 1880's. From the beginning the proposal had the built-in support of the land-grant colleges and state universities, which were designated its chief beneficiaries.

The bill was designed to achieve the double purpose of increasing water research through establishment of the new centers and increasing the number of water researchers by financing graduate study through the assistantships accessory to university grants and contracts. The bill provides $75,000 in fiscal 1965 for each state (rising to $100,000 a year in the fourth year and after) for establishment or expansion of water research "institutes" at land-grant institutions, or their state-designated equivalents.

In the second major title, the bill authorizes $1 million a year for 10 years for additional water research programs in institutions not covered by the first title. Not only private colleges and universities but foundations, private research firms, and state and local governments are eligible. The bill is to be administered by the Secretary of the Interior, and an Office of Water Resources Research has been set up in the Interior Department to oversee the new program of grants and contracts to universities and other research institutions. Acting director of the office is John C. Calhoun, Jr., science adviser to the Secretary of the Interior.

President Johnson, in signing the bill into law, voiced disapproval of one feature of title II which requires the Secretary to submit proposed grants, contracts, and other arrangements to the House and Senate—in effect, the two Interior committees—for approval. Johnson objected on the grounds that the provision "violates the spirit of the constitutional requirement of separation of power between the Executive and Legislative branches," and also because it would invite delay. He asked Congress to amend the act.

The bill was signed in July after passing through the legislative mill without serious difficulty. Agency support for the measure seems in some quarters to have amounted to faint praise. For there were some misgivings in the agencies about the effect on in-house research because of a possible diversion of funds for water research and of a drain on research manpower.

Passage of the bill does raise the question of whether the creation of 50 centers of water research will result in a harmful dispersion of talent. Although the bill permits states to combine funds to build centers for two or more states and interstate cooperation is encouraged, observers say these joint efforts are unlikely to materialize in very many cases.

A current shortage of hydroscientists was recognized in the Senate report on the bill, which noted, "we cannot vastly increase water research speedily if we would. The needed hydroscientists are not available. Experts in related fields must be recruited to specialize in the water field. Greatly increased numbers of the presently sharply limited cadre of hydrologists, hydroengineers, and hydroscientists of many disciplines must be trained to staff an adequate national research effort."

The clear alternative to distributing research centers on a basis of equal shares was federal support of extramural research in a few "centers of excellence." A general program was chosen because water problems are both widespread and diverse, and because it seems to offer a hope of training or converting more water researchers. This alternative also avoids the problem of locational politics, or at least transfers it to the states. A few research centers might well have been located in deference to the wishes of influential legislators, a not unheard of practice.

The water research bill, all in all, offers some interesting examples of the various kinds of politics which affect science legislation. The episode provides a fairly typical instance of how the federal government, when confronted with a particular problem involving a shortage of scientific and technical manpower, moves to establish a "need" and then prescribe the remedy. The form of the new water research bill constitutes one means of avoiding the old pork barrel approach in locating new research facilities. And the delay caused by the failure of coordination among the agencies encouraged Congress to keep the initiative.

—JOHN WALSH

Medical Ethics: British Unit Offers Guidelines for Research Involving Human Subjects

Concern over the ethical dilemmas which the growth of medical research poses for the investigator has been growing in Britain, as well as in this country. In the annual report of Britain's Medical Research Council to Parliament for 1962–1963 (published in July 1964), the Council issued a thoughtful statement entitled "Responsibility in Investigation on Human Subjects." Coming from an institution which supports most medical research in Britain (and which is roughly comparable in scope and stature to our National Institutes of Health), the statement is particularly significant. The Council clearly intends that the work under its jurisdiction should meet the ethical standards it outlines.

The following are major excerpts from the statement.

. . . A distinction may legitimately be drawn between procedures undertaken as part of patient-care which are intended to contribute to the benefit of