

whole thing and are staying out of the fight, and to the awkward situation that scientists from developing nations, who are often paid by their governments, are in. "I'm afraid we're going to lose the whole bit. We haven't really been able to convince the developing countries that they will benefit from the research." A veteran international observer is also pessimistic: "Scientists . . . like Revelle and Fye . . . are well received wherever they go. But they don't understand that the legal adviser to the foreign ministry of the Cameroons can make one speech in the United Nations and wipe out that goodwill."

In one sense, then, the scientists' reaction to what appears to be a world wide jeopardy to future ocean research boils down to a fundamental problem of science and scientists. Thus, when the heat is on and grave matters of

state hang in the balance, and the scientist is called in to explain what he can do to help, he really cannot promise anything. He can't promise that he will make his, or any other country any richer, nor can he revolutionize its system of military defenses. Backed to the wall, all he can say is that more research will lead to more knowledge and that it is a good thing. Nothing more. Philip Handler, President of NAS, who has become active in the fight to preserve ocean research freedoms, took exactly that line in a speech to probably his most sensitive forum, the United Nations Seabeds Committee, which deals with ocean research, last March. Addressing the delegates, many of whose governments feel uneasy about having American scientific ships moving in their waters, Handler said: "Some of the information of marine science may eventually be-

come of some economic significance," such as the distribution of mineral ores and the occurrence of earthquakes and volcanoes. But it was "up to others" to decide on the economic consequences. "The primary purpose of the marine geologist . . . is better understanding of the recent geological history of the earth." Regulation, he warned, could result in "stifling of scientific creativity," and the danger of "second class research." Ultimately, he warned, through pursuing "short term goals" in science, "we may lose the unique scholar driven by his own curiosity. . . . I submit that mankind cannot afford such a loss."

The delegates from Latin America, Asia and Africa who heard this may be pardoned if they regarded it as a modern equivalent of the white man's burden.

—DEBORAH SHAPLEY

Land Use Control: Rockefeller Task Force Calls for Boldness

At a conference on 24 May, a task force on land use and urban growth sponsored by the Rockefeller Brothers Fund presented what the chairman of the Council on Environmental Quality, Russell E. Train, described as a "seminal report."* Although many reports so described are soon forgotten, Train is not the only knowledgeable observer who believes that public interest in land use problems is now such that any good ideas offered about this complex issue may fall on fallow ground.

In congressional testimony 2 years earlier, Train had observed that, of the various problems bearing upon environmental deterioration, the "single most important . . . remain[ing] substantially unaddressed as a matter of national policy" was that of land use. What Train meant was this: During the 1960's the federal and state governments had finally begun to respond in

a serious way to the problems of air and water pollution, but, with few significant exceptions, this was not true of the equally troublesome and vastly more complex matter of preventing abuse of land and encouraging enlightened land development practices.

Even land use questions of obvious regional, statewide, and sometimes national consequence were being treated as largely a responsibility of local government. Furthermore, many of the problems of air and water pollution to which the federal and state governments were addressing themselves could not be overcome in the absence of national and state land use policies. Note, for instance, the effect freeway construction can have on urban air quality.

It was 2 years ago that the Nixon Administration first presented its proposed national land use policy legislation. This was a measure to have the states establish programs of state and local regulation aimed chiefly at preventing misuse of areas of "critical state

concern" (such as important wetlands), ensuring the proper placement of major facilities (such as airports or highway interchanges) and compatible use of the surrounding land, and ensuring that facilities needed within a region (such as low-income housing) are not excluded by discriminatory local zoning.

Legislation embodying the objectives of the Administration bill ultimately was reported out of the Senate Interior Committee, but no floor action followed until last fall when the Senate passed a bill from which meaningful sanctions against states that fail to establish land use control programs had been stricken. On 22 May, the Interior Committee ordered reported a new land use bill, generally similar to last year's but stronger in certain particulars, as in its provision for control of large-scale recreational homesite subdivisions. A land use bill is also undergoing committee "mark up" in the House, and there is a good chance that some kind of land use policy bill will be enacted during this session of Congress. A number of states have enacted land use control laws over the last 2 years.

One significant thing about the task force report is that it calls for abandonment of the deeply ingrained idea that private ownership of land necessarily carries with it a "right" to develop that land. Conservatives in Congress and elsewhere are sure to find a recommendation of this kind to have a dis-

* Entitled *The Use of Land: A Citizens' Policy Guide to Urban Growth*, the report is to be published in June [(Crowell, New York), 384 pp.; hardcover, \$10; paperback, \$3.95].

tinctly gamy flavor. It is especially noteworthy, therefore, that the 12-member task force that prepared the report includes two practical politicians (Mayor Pete Wilson of San Diego and former Mayor John F. Collins of Boston), a practicing land use lawyer and former city attorney, and several prominent businessmen. Among the latter is the developer of the new town of Columbia, Maryland, James W. Rouse, whose mortgage banking firm has financed the development of more than a billion dollars worth of real estate. Far from espousing a "no growth" philosophy, the task force sees continued growth—and continued opportunity for people to migrate freely about the country—as not only inevitable but desirable.

The task force study has been chaired by Laurance S. Rockefeller, president of the Rockefeller Brothers Fund, and directed by William K. Reilly, a lawyer and urban planner on leave from the staff of the Council on Environmental Quality (while serving with CEQ, Reilly played a large part in the preparation of the Administration's land use policy legislation). The task force reports to the President's Citizen's Advisory Committee on Environmental Quality, of which Rockefeller was chairman when the study was initiated last summer.

The report includes these major conclusions:

- Across the United States—and especially in states, such as California, Colorado, and Florida, which are feeling heavy pressures of development—there is a "new mood" on the part of a public that wants no more of the old growth-at-any-price philosophy. From this new mood springs public demands for managed growth and, in some places, for no growth, the latter attitude ranging from "stop-till-we-plan" to "stop, period."

Specifically, the report cites such evidence as the growth ceiling established by Boca Raton, Florida, the decision by Colorado voters last November not to allow spending of state funds for the Winter Olympics, and the approval by California voters of a bitterly contested proposal to establish stringent regulation of land use along the California coast.

- The new mood notwithstanding, the U.S. population—and new home construction and other development that has been associated with population increase—will inevitably continue well into the 21st century. Given the number of women of childbearing age

or younger already alive today, population growth would not stop before the year 2020 even if the natural birth-rate were to fall immediately to 1.8 births per woman, a rate lower than any ever experienced in American history (the projected rate is 2.1).

According to Census Bureau estimates, by the year 2000 the U.S. population will rise to 264 million, for an increase of 60 million over the 1970 level, with about 27,000 new households being formed each week during the next decade or so. Increasing family income and personal consumption as well as the growing number of families will make for increased use of land. More income can mean more homes on 2-acre lots, more highway and air travel (hence more road and airport construction), more demand for energy and thus more power plants, and so on.

First Line of Defense

- Success in reconciling the inevitable pressures for growth with the new demands for environmental quality will depend in part on guiding and restricting development, without necessarily compensating landowners for restrictions that reduce the market value of their property (assuming that appreciable value remains). "We see protective regulations—agricultural, natural areas, or floodplain zoning; conservation restrictions; protective orders; and so on—as an essential first line of defense to keep private space open."

The report adds, with emphasis, that where protected areas are carefully selected through comprehensive planning, states should authorize and encourage very-low-density zoning, with requirements of up to 50 acres or more per dwelling. As the task force points out, 60,000 acres of farmland in Marin County, California, already have been zoned for 60-acre minimum lots. To preserve open space, prime farmland, and ecologically sensitive areas primarily by public purchase of fee title or development rights is simply not economically feasible, the report says.

- Court rulings with respect to how far government can go in restricting the use of land without offering compensation present a generally confused situation. In certain states, such as California, the courts have tended to uphold noncompensable restrictions, whereas in some other states the courts have not done so. The U.S. Supreme Court, the task force says, has

"wavered between strict and broad construction" of the so-called "takings clause," the Fifth Amendment clause which states that private property shall not be taken for public use without just compensation.

In the mid-1850's the Supreme Court was actually permitting what amounted to the outright uncompensated physical taking of property, something nobody would regard as fair or constitutional today. Later, the court reversed itself, but went to extremes in protecting industry against even the most reasonable regulation, as in throwing out a Pennsylvania law forbidding coal mining that would cause the land to subside under homes. On the other hand, the court ruled against a brickyard owner in Los Angeles who argued that a local ordinance had robbed his property of more than 90 percent of its value. And, in the famous *Euclid* case decided in 1922, the Supreme Court upheld the constitutionality of urban zoning in general but without specifically addressing the takings issue.

Viewing these and other Supreme Court rulings together, many state courts have interpreted them to require a "balancing" test, with the social value of a zoning ordinance to be weighed against the loss suffered by private property owners. Although this might seem fair, the landowner holds an advantage, for the loss of land value usually can be established through conventional appraisal methods, whereas zoning authorities may be unable to determine the value to the public of preserving a wetland or a historic building.

In the face of this confusing and unsatisfactory state of existing law, the task force recommends that state and local government proceed boldly. Its comment on this point is perhaps the most significant part of the report and is worth quoting at length:

Since the courts have always adapted constitutional principles to meet the needs of the times, they no doubt will continue to do so, adopting the principles to our increasing awareness of the need for environmental protection. State and local governments should not refrain from exercising their police power because of fear of adverse court decisions. Nor should legislative bodies fall victim to arguments that land use regulation is impossible without massive payments to all affected landowners—payments that are obviously unavailable in tight governmental budgets. *It is important that state and local legislative bodies continue to adopt planning and regulatory legis-*

(Continued on page 1092)

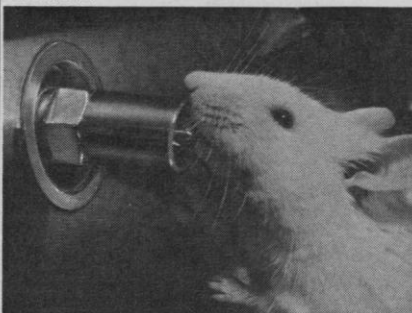
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NEWS AND COMMENT

Continued from page (1040)

lation aimed at carrying out land use objectives and that legislative bodies make clear that police powers are regarded as valid authority to achieve more orderly development and to protect natural, cultural, and aesthetic values.

The chapter of the report devoted to the status of land use law was based largely on a background paper prepared by Fred P. Bosselman, John Banta, and David Callies, members of a Chicago law firm who are consultants to both the task force and CEQ (Bosselman, also a consultant to the states of Florida and Virginia, is an unusually influential figure in the field of land use law). Russell Train referred approvingly to the task force's comments on the takings clause issue and indicated that, on this point, the report was anticipating an evaluation of land use law to be made by CEQ itself. What ever the inclination of Train and his colleagues, however, CEQ cannot deal as forthrightly with such a politically sensitive issue as can a private task force that does not have to worry about embarrassing a politically conservative President.

An Ambitious Document

This article touches selectively on only a few of the main points of the task force report, an ambitious document which attempts to deal broadly with land use regulation at the state and local level. Its numerous findings and recommendations range from the extraordinarily complex problem of the land use control process in an dynamic urban setting to the much simpler (but still largely unaddressed) problem of preventing promoters of recreational property from abusing their customers and raping the land. Seminal or not, the task force report should stand for some time as a useful document.—LUTHER J. CARTER

(In a later article the writer will discuss current legislative efforts at coping with the land use problem in a fast-growing state—Colorado.)

Erratum: In a news story on the National Academy of Engineering (NAE) and the National Academy of Sciences (NAS) (*Science*, 18 May, p. 717), in the sentence beginning "In the engineers' view, the March decision became inevitable after the NAE council for the third time rejected a formula on governance. . . ." the first reference to the "NAE council" should have read "NAS council."

Erratum: The reference to Bouguer anomalies in the caption to Fig. 2 of the report by W. H. Kanes *et al.* (*Science*, 1 June 1973, p. 950) is in error. Isostatic anomalies are meant.—Ed.

RECENT DEATHS

Edward A. Ackerman, 61; executive officer, Carnegie Institution of Washington; 8 March.

Henry F. Adams, 90; professor emeritus of psychology, University of Michigan; 16 February.

Karl M. Bowman, 84; former professor of psychiatry, University of California, San Francisco; 2 March.

Kenneth H. Brookshire, 40; chairman, psychology department, Wright State University; 1 March.

Harold D. Carter, 68; professor of education, University of California, Berkeley; 3 March.

Hobart C. Carter, 65; former chairman, education department, Mary Washington College; 24 February.

Edward M. A. Chandler, 81; professor emeritus of chemistry, Roosevelt University; 22 March.

James A. Coss, 100; former chairman, chemistry department, Morning-side College; 5 February.

Sandor S. Feldman, 82; clinical professor emeritus of psychiatry, University of Rochester School of Medicine and Dentistry; 23 March.

Frederick W. Grover, 96; professor emeritus of electrical engineering, Union College; 30 January.

Frank T. Gucker, Jr., 72; research professor emeritus of chemistry, Indiana University; 6 March.

Arthur W. Leighton, 79; professor emeritus of engineering, Tufts University; 9 March.

Edward A. Lincoln, 83; former professor of education, Harvard University; 7 March.

Robert A. McCleary, 50; professor of psychology and physiology, University of Chicago; 20 March.

Philip D. McMaster, 81; professor emeritus of physiology, Rockefeller University of Chicago; 20 March.

Judith W. Onley, 41; associate professor of psychology, University of Rochester; 6 March.

Harold E. B. Pardee, 86; associate professor emeritus of clinical medicine, Cornell University; 28 February.

Abe Pepinsky, 84; professor emeritus of psychology, Haverford College; 31 January.

Harold Prophet, 39; research manager, Dow Thermal Research Laboratory, 20 December.

Sam Shulits, 70; professor emeritus of civil engineering, Pennsylvania State University; 27 February.