

of the impacts of freeways on urban slums and of ecological effects of nuclear power plants, for example.

The political and economic future of technology assessments is uncertain. Much depends on how the NSF fares in Congressional budget reviews now going on.

The spending authority the Science Foundation is seeking is currently being reviewed by the research subcommittee of the House Committee on Science and Astronautics. Subcommittee chairman Emilio Q. Daddario (D-Conn.), an original sponsor of the technology assessment idea in Congress, is bound to look favorably at least on the direction NSF is moving. But the actual allocation of funds depends on later review by the Committee on Appropriations. And NSF has never fared well before it.

At the same time, a spate of new bills is being introduced in Congress, aimed at creating new ways to look at emerging technology. Daddario is expected to propose a congressional committee to alert other committees to threats within their jurisdiction. His broader 1967 bill to establish a Technological Assessment Board was proposed, he says, "not as a piece of perfected legislation but as a stimulant to discussion." In addition, Rep. Joe L. Evins (D-Tenn.) is author of a bill that would create National Environmental Laboratories, concerned in part with technology assessment. Various other bills would shift responsibility for assessing certain specific technologies from one Federal agency to another, and a bill by Sen. Mike Gravel (D-Alaska) would establish a commission of outside scientists to look at the Atomic Energy Commission's safety program.

Many private groups are interested in technology assessment. The most ambitious plan to date is Project Eagle, proposed by a group of scientists and others to create regional centers to coordinate interdisciplinary university and industry evaluations of emerging technologies. The group suggests funding of \$10 million this year and \$200 million next, the money to come mainly from industry. Group members are now preparing a detailed proposal for the business-oriented Public Affairs Council. Dr. Robert Cancro, a Menninger Foundation research psychiatrist and a member of the Project Eagle group, is convinced the scheme is more viable than anything proposed by NSF. His proposal is devoted exclusively to technology assessment, he says, and it is flexible enough to provide the rapid decisions that he insists are required as environmental problems grow worse.

Project Eagle will rely on computer models. Other proposals envision various kinds of simulation. □

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OA O OBSERVES

Comet in ultraviolet

The nature and origin of comets is one of astronomy's many long-lived puzzles. A few comets are known to return periodically, but most seem to make only one appearance. The question remains open whether they were originally parts of the solar system or are objects from interstellar space that are captured, permanently or momentarily, by the sun's gravity.

Comets near the sun are surrounded by a coma or cloud of material evaporated by the heat. Astronomers have suspected that hydrogen, which is both the most abundant element in the universe and widely present in interstellar space, is a main constituent of cometary comae. But as long as comets had to be observed from the ground there was no way to be sure; hydrogen identifies itself by wavelengths of ultraviolet light that are absorbed by the air.

The Orbiting Astronomical Observatory OAO-II was sent up to make ultraviolet observations (SN: 12/21/68, p. 616), and presented the first opportunity to view a comet in the ultraviolet. The University of Wisconsin experiment on OAO-II, directed by Drs. Arthur D. Code, Theodore Houck, Charles Lillie and Robert Bless, is now observing the comet Tago-Sato-Kosaka as it recedes from the sun.

Reduction of the data is not far enough along, says Dr. Lillie, to tell relative quantities of different substances, but certain qualitative conclusions can be drawn. The comet appears brighter than expected in the wavelengths associated with hydrogen, indicating that that element is indeed a major constituent of the comet. The scientists are finding hydroxyl (OH) to be prominent as well.

Simple molecules seem typical of the comet's coma at its present distance from the sun, about eight-tenths of the earth's distance, says Dr. Lillie. Presumably, the heat at that point is enough to vaporize the molecules, but not enough to dissociate them, and those that are being seen are leading to the conclusion that carbon, water, ammonia and oxygen are present in the comet.

Dr. Lillie points out that the substances found in Tago-Sato-Kosaka are typical of planetary atmospheres such as are found around the outer planets of the solar system. Astronomers believe that the inner planets once had those substances in their atmospheres but were unable to hold them gravitationally.

Dr. Lillie suggests that there may be a connection between the comets and the lost atmospheres of the inner



Cerro Tololo

Tago-Sato-Kosaka: Typical of planets.

planets, but he admits that it is very hard to imagine how material escaping from the inner planets could have got to the outer reaches of the solar system where the comets begin their journeys. At present, he says, he is not propounding a new theory of cometary origin; he is merely pointing out an interesting coincidence. □

HEALTH POLICY

Limiting Medicare costs

Health, Education and Welfare Secretary Robert Finch last year set limits on the payments to physicians under the Federal Medicaid program serving the medically indigent. This year, in the face of rising dissatisfaction both with the Federal health care programs and the nation's health system itself, the Administration is seeking to extend the controls. Coming under question are both hospital bills and doctors' payments under Medicare, providing medical care to the elderly.

Indications in key Congressional committees this week are that Congress may well go along, despite objections from the American Medical Association.

According to John G. Veneman, undersecretary of Health, Education and Welfare, if hospital rates were set in advance as the Administration is now proposing, institutions would have an incentive to help control cost.

Under the present program of physicians' fees, says Veneman, customary charges reflect whatever physicians choose to charge in a market where the demand of health personnel exceeds the supply. He suggested doctors' fees all be based on charges received by 75 percent of the medical profession in 1969 so that fees would increase in relation to other parts of the economy, the Medicaid formula.