ETV: Ford Foundation Calls For Nonprofit Satellite System

An otherwise routine economic struggle among this country's major communications interests for control of a potential system of domestic communications satellites was dramatically altered early this month by a proposal from the Ford Foundation that the system be owned not by any of the "regulars" but by a new nonprofit broadcasting association operating in the public interest. The authorization of a domestic satellite system was already up for discussion, following an invitation from the Federal Communications Commission last March to "interested parties" to make known their views on the matter. What Ford has done, by its intervention in the closed world of the communications industry, is to tie the question of the economic benefits of the new technology to the question of its cultural benefits—specifically, to the possibility of expanding noncommercial television. It has also pretty well insured that, whatever the decision, it will be made in a public forum. Ford, in fact, has touched off a debate that may surpass in intensity the initial struggle over authorization of the Communications Satellite Corporation a few years ago.

The proposal outlined by Ford in its 1 August statement to the FCC promises an almost-utopian expansion of existing facilities for television broadcasting—at prices that would please a Scrooge. The system, which Ford names the Broadcaster's Nonprofit Satellite Service (BNS), would initially consist of four synchronous satellites in each of the four continental U.S. time zones, with the possibility of a fifth to serve Alaska and Hawaii. It would provide six channels in each time zone for commercial networks and five in each zone for noncommercial television. Of these five noncommercial channels, one would be available for cultural and informational programs directed mainly to homes, and four would be available for instruction at all academic levels. This model, designated BNS-1, is estimated to be about ten times as powerful as existing broadcast facilities; a second model, BNS-2, offers a system larger by 20 channels.

The initial capital costs of BNS-1, including satellites and sending and receiving stations, are estimated at about $80 million; its annual operating costs, at about $19.3 million. BNS-2 is estimated to cost about $92.6 million initially and about $22.2 million annually. The estimated cost of providing service comparable to BNS-1's by way of terrestrial channels is about $200 million a year.

Ford calculated the costs of programming for the noncommercial channels, and of providing four regional programming centers, at about $50 million in capital and about $60 million in annual operating expenditure. The proposal did not take into account the costs of instructional TV, arguing that these should be borne by the taxpayers —like any other educational costs— and not by the broadcasting system. It did point out, however, that instructional programs reaching millions of students could probably be provided for about $65 million annually—a figure it termed "trivial" when measured against the present annual $39-billion cost of education in this country.

What is ingenious about the Ford proposal, however, is not so much its technical and economic aspects and benefits—these are largely inherent in the technology itself—as its concept of the social organization backing it up. For the essence of the scheme is that the costs of programming noncommercial television would be paid by the commercial networks from the difference between what they now pay the telephone companies for land-line transmission and what they would pay the nonprofit BNS under the new system.

This novel notion is not as farfetched as it may initially appear. Under the present system, the networks make annual payments to the telephone companies (chiefly A.T.&T.) of about $65 million for transmission services considerably more limited than those promised by satellite technology. At present, network programs are made available to their subsidiaries and affiliates in one of four ways: by A.T.&T. coaxial and microwave lines; by the reception and rebroadcasting of signals of other stations in the same network; by station-controlled or privately owned relay systems; or by "bicycling" tape and kinescopes from station to station.

Because of the costs of other methods of transmission, educational television is relayed almost exclusively by tapes; no real "network" exists. Even the three commercial networks, however, have major gaps. In its statement to the FCC, for instance, ABC reported that more than 100 of its 268 affiliates are not served by microwave, and that even the stations that are connected are linked for only about 14 hours a day because of the costs. This means that for 10 hours daily even the networks aren't networks in any functional sense. A television satellite, whoever its sponsor might be, would not only interconnect the now-disjointed educational stations but also provide continuous service for the commercial stations at charges estimated in several studies to be about half the present costs.

At this rate the networks can afford to be generous to ETV. Cultural programming offers competition for viewers but it does not compete for advertisers. Furthermore, the networks are habitually edgy over public criticism of the intellectual level of their standard offerings. A distribution system that would permit the networks to rationalize "I Love Lucy" on the ground that it was paying for the New York Philharmonic has definite attractions for them.

At the same time, the Ford proposal appears to do no serious harm to the direct financial interests of A.T.&T. or the other carriers. The $50 million that the Bell System currently receives from the networks represents less than ⅓ of 1 percent of its net earnings (in 1965) of $11 billion. The carriers themselves have argued that at present rates their television services are unprofitable for them. And it appears from press statements by A.T.&T. officials that, because of the expansion of long-distance services, any facilities not used for television transmission would be immediately devoted to the telephone network. It is not surprising, then, that, in his letter to FCC chairman Rosel Hyde, Mc-

George Bundy, president of Ford Foundation, concluded that under his proposal "everyone is better off than he was before." "This is not magic or sleight-of-hand," Bundy wrote. "It is a people's dividend, earned by the American nation from its enormous investment in space."

Despite the attractive rationality of the Ford Foundation proposal, it is hardly surprising that not all participants in the debate view the picture in the same way. The differences grow in part from the differing chief interests of the protagonists. The Ford Foundation's concern is focused principally on finding a way to obtain funds for a massive expansion of educational television. The Foundation in the past has been ETV's principal benefactor, having contributed more than $100 million to its development during the last 15 years. The $6 million the Foundation gives annually to the National Educational Television and Radio Center (NET) is its largest perennial grant. But major resources from elsewhere have not been forthcoming. With what Bundy termed the "shining exception" of the Educational Television Facilities Act of 1962, the federal government has stood aside—and the 1962 act carried an appropriation totaling less than the money (about $10 million annually) spent by Ford alone during the years since the act was passed. The result of what amounts to a starvation diet for ETV is that it is generally agreed to be what Bundy called it: "a depressing failure." But the Foundation believes that, with proper financing, the desert would bloom, attract great talent, and develop into a service that would greatly enhance the quality of American life and culture.

A.T.&T. and the Communications Satellite Corporation—another aggressive contender in the field—are less interested in our cultural climate than in our business climate: what is most important to them is the overall efficiency and economy of the whole communications system. Comsat's presence among the competitors for the operation of a domestic satellite system is perhaps one of the most hotly contended of all the current issues. Comsat argues that legally it is the only U.S. entity authorized to own and operate satellites for either international or domestic communications; competing claims it dismisses as possibly meritorious but essentially academic. Comsat's position is held in apparent isolation. Most of the parties involved believe

Mohole: Aground on Capitol Hill

If Project Mohole ever reached the seaborne stage, how would it maintain its record for misfortune? By ramming a cruise ship loaded with orphans, or perhaps by inadvertently sailing into a Red Chinese port? We shall not know for a long time, if ever, for last week the luckless project was firmly aground on Capitol Hill, with the House reaffirming its earlier decision to cut off funds for the ever-costlier program to drill a hole deep into the ocean floor (*Science*, 13 May).

This action came after a revelation that is politically titillating but, like so much of the controversy in Mohole's long and unhappy career, irrelevant to the question of whether the U.S. Government should pay for drilling a hole in the ocean floor. The revelation was that, shortly after the House voted to withhold Mohole's funds last May, relatives of George Brown, chairman of the board of Brown & Root of Houston, the Mohole design firm, contributed $23,000 to the President's Club. This is a Democratic fund-raising organization that milks fat cats by promising them entrée to the White House in return for contributions of at least $1000. (Brown himself gave the Club $2000 in April, and Brown & Root's president, Herbert J. Frensley, also gave $1000.) A few days after donation of the $23,000, Lyndon Johnson asked the Senate to reverse the House action. This the Senate did by voting to restore the $19.7 million of Mohole funds that the House had cut from the National Science Foundation budget. The funds were needed to continue construction of the huge Mohole drilling platform, begun earlier this year in San Diego. Following the split between the two houses, Senate and House conferees met a few weeks ago to attempt to reconcile their Mohole differences. However, the House conferees refused to go along with the Senate, and last week, by a vote of 108 to 59, the House backed them up. Now it is the Senate's turn to decide whether it will accept the House action or stand by its conferees, but, all around, it is agreed that if Mohole is not dead it is barely breathing.

If an autopsy report is ever required for Project Mohole, it will have to ascribe the demise to multiple and needless injuries. Conspiratorial minds will see a direct connection between the $23,000 donations to the President's Club and Johnson's plea to save Mohole, and so it was played by Representative Donald Rumsfeld, an Illinois Republican, on the floor of the House. But the White House, under Kennedy and Johnson, regularly backed the project all the way, and it is doubtful that a political contribution spelled the difference between a presidential plea and presidential acceptance of a decision to kill off a long-standing project in which a good deal had already been invested. Furthermore, Brown has long been involved in Democratic politics, and though the timing looks suspicious he has long been a big contributor to the Party.

Apart from the wildly rising cost estimates—from $5 million at one point to more than $125 million at present—Mohole's greatest wound was the recent death of its congressional guardian, Representative Albert Thomas of Houston, who long served as chairman of NSF's appropriations subcommittee. Thomas, an old associate of Brown's, may or may not have had something to do with Brown & Root's getting the design contract. But in any case it looked as though he did, and, at the time of his death, vast resentments toward the project had accumulated. When Thomas's successor, Joe L. Evins (D-Tenn.), took over, one of the first actions of the subcommittee was to deny funds to Mohole, ostensibly on the grounds that the costs had got out of hand and that economy was necessary because of the war in Vietnam.

What must be observed is that Mohole, whatever its scientific merits, is now the albatross of the scientific community, with every misadventure and miscalculation feeding the widespread impression that the scientific community has grown rich and rotten on government subsidy. Scientifically its demise might be a great loss, but politically Mohole is a running sore.

—D. S. GREENBERG

that the FCC is authorized to charter a non-Comsat domestic system if it chooses, and that Comsat's monopoly is specifically limited to international satellite communications operations. Moreover some outside forces—probably including the Congressional liberals who filibustered against giving Comsat the international monopoly in 1961—would probably argue that the domestic rights should go to almost anyone other than Comsat: giving the corporation a domestic monopoly in addition to its foreign privileges would seem to confirm their worst expectations. And there is the further argument that since Comsat is now a participant in an international telecommunications consortium, which has something approximating a collective veto over the company's actions, giving the corporation rights to the domestic system would be inviting foreign control of an important national asset.

In any case, what Comsat wants is to put up a multipurpose satellite system. It argues that separating television satellites from other satellites for telephone and telegraph transmissions would create technical difficulties, and that it would cost more than a unified system. This is evidently an arguable point. Ford and the networks point out that the two kinds of transmission have differing technical requirements: telephone communications require privacy, and elaborate switching equipment to insure it, while television communications consist of broadcasts to an undifferentiated audience.

More important is the point that Comsat is a profit-making company and is owned chiefly by the carriers; it would undoubtedly continue to charge high rates for its services and for use of its ground facilities. Comsat needs to increase its investment—now about $200 million—in order to have a larger rate base on which to calculate its earnings. But turning over domestic operation to Comsat would leave both the networks and ETV in pretty much the same relation to the communications monopolies as before.

Virtually the same arguments apply to the stance of A.T. &T. which, while it has not proposed a system, generally takes the same position as Comsat—that a multipurpose system is more efficient and that, in any case, communications satellites should be run by the existing carriers and not by any newly authorized domestic competitors. A.T.&T. does not argue that Comsat should run the system. But this is a matter which, in view of the fact that in some areas of communications Comsat is A.T.&T.'s alter ego, is probably of relatively little consequence.

The Ford Foundation plan, however imaginative, is far from being a comprehensive model of a system ready to go into operation. Ford submitted it, in fact, not as a preliminary to a request for authorization for itself—it has expressly disclaimed any interest in running such a system—but in order to provoke discussion, promote the interests of ETV in the larger decisions about satellite communications, and buy time while a special commission of the Carnegie Corporation, headed by James Killian, completes a study begun last year of the future of educational television. Accordingly it is of relatively little consequence that Ford's proposal has several vulnerable spots: the plan does not deal adequately with the problem of financing instructional television, for example; nor is it clear that the revenues from the BNS would be sufficient to support cultural programming at the level the Foundation seems to demand. It is also uncertain, despite the networks' apparent interest in the plan, whether network stockholders would agree to turn profits, realized from economies in transmission by satellite, over to what is, in effect, a charitable venture. The communications companies are beginning to develop arguments challenging the Foundation's cost estimates and questioning the wisdom of the radical reconstruction of relations in the communications industry that the plan envisages. While the arguments will rage at least until October, when the FCC is scheduled to receive final comments on the proposals, it appears likely that from now on even the most self-interested pleadings of the industry—as well as the offerings of other critics—will contain far more in the way of concessions for educational television than would otherwise have been the case.

—ELINOR LANGER

Announcements

The Department of Health, Education, and Welfare will sponsor a national conference on **air pollution** 12–14 December in Washington. The purpose of the meeting is to "examine the current status of air pollution control and to make recommendations for the improvement and acceleration of control efforts throughout the country." Representatives of business, labor, civic organizations, and all levels of government are expected to attend. The tentative program lists plenary sessions on health, technology, economy, and the effects on communities of air pollution; and panel sessions on motor vehicles, heat and power generation, industrial operations, solid waste disposal, and pollution control programs at the state, local, regional, and national levels. Additional information is available from the executive secretary of the conference, Arthur C. Stern, National Conference on Air Pollution, U.S. Public Health Service, Washington, D.C.

Scientists in the News

The State University of New York has appointed **Joseph K. Hill** president of the Downstate Medical Center, Brooklyn, and dean of its college of medicine. Hill, vice president for administration at the downstate center since 1963, will succeed **Robert A. Moore**, who has announced plans to retire at the end of this month.

Recent Deaths

Llewellyn M. K. Boelter, 67; dean emeritus of the UCLA college of engineering; 27 July.

Philipp Frank, 82; retired lecturer on physics and mathematics at Harvard; 21 July.

Robert P. Grant, 50; director of the National Heart Institute, NIH, since March and formerly chief of the European branch of NIH's Office of International Research; 16 August.

Frank Lanni, 46; professor of microbiology at Emory University; 30 July.

Theodore C. Merkle, 47; associate director of the Lawrence Radiation Laboratory; 12 August.

John W. Turrentine, 68; first president of the American Potash Institute; 11 August.

John Leyden Webb, 52; chairman of the pharmacology department at the University of Southern California; 22 July.

Uco Van Wijk, 42; associate professor of astronomy at the University of Maryland; 10 August.

D. Wayne Woolley, 52; biochemist, Professor at Rockefeller University; 23 July.