DOCUMENT RESUME

ED 079 966 EM 011 299

TITLE	Educational Telecommunications. Cable Conference.
INSTITUTION	Michigan State Board of Education, Lansing.
PUB DATE	73
NOTE	65p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Administrative Personnel; Broadcast Industry; *Cable Television; Conference Reports; Educational Technology; *Educational Television; Federal Aid; Government Role; *Media Specialists; State of the Art Reviews; Statewide Planning; Technology; *Telecommunication
IDENTIFIERS	CATV; Franchising; Michigan Department of Education

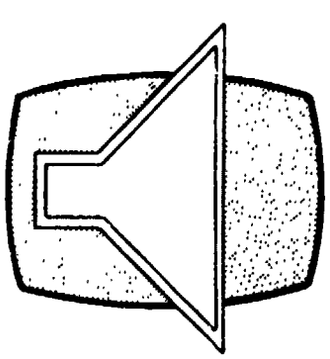
ABSTRACT

The Michigan Department of Education sponsored a conference which brought educational administrators and cable television (CATV) entrepreneurs together for a common exploration of their respective concerns in order that they might develop a working relationship leading to the effective utilization of CATV by educators. Major topics dealt with: 1) the state of cable technology; 2) federal and state regulations of CATV; 3) local franchising; 4) utilization of cable by educators; 5) the promise and the realities of CATV; 6) federal funding of educational involvement; and 7) a demonstration of duplex television and video cassettes. Each presentation was followed by a question and answer session, and the conference concluded with a panel discussion. (PB)

MICHIGAN DEPARTMENT OF EDUCATION

EDUCATIONAL TELECOMMUNICATIONS

CABLE CONFERENCE



MICHIGAN STATE BOARD OF EDUCATION

	Term Expires
Dr. Gorton Riethmiller, President 9088 Beeman Road, Chelsea, 48118	Jan. 1, 1975
Mr. James F. O'Neil, Vice President 16057 Alpine Drive, Livonia, 48154	Jan. 1, 1975
Dr. Michael J. Deeb, Secretary 39236 Twenlow Drive, Mt. Clemens, 48043 . . .	Jan. 1, 1977
Mrs. Barbara A. Dumouchelle, Treasurer 29755 East River Road, Grosse Ile, 48138 . . .	Jan. 1, 1979
Ms. Marilyn Jean Kelly 9000 E. Jefferson, Detroit, 48214	Jan. 1, 1977
Mrs. Annetta Miller Huntington Woods, 48070	Jan. 1, 1979
Mr. William A. Sederburg 1850 Abbott Road, East Lansing, 48823	Jan. 1, 1981
Mr. Edmund F. Vandette U.S. 41, Chassell, 49916	Jan. 1, 1981

- - - - - - - - - -

Dr. John W. Porter, Superintendent of Public Instruction
Chairman, ex officio

Governor William G. Milliken, ex officio

CONFERENCE RATIONALE

To bring educational administrators and CATV entrepreneurs together for a common exploration of their respective concerns so an effective working relationship can be developed in the utilization of the cable by educators.

AMOS B. HOSTETTER, JR.

M.B.A. Harvard

Executive Vice-President, Treasurer, and Director of Continental Cablevision, Inc., Boston, Massachusetts

Formerly:

Co-founder, Continental Cablevision, Inc.

Research Associate, Cambridge Capital Corporation, Boston

Assistant to the Treasurer, American and Foreign Power, New York

STATE OF CABLE TECHNOLOGY

Bud Hostetter

Mike Deeb, Vice President, Michigan State Board of Education, opened this meeting in a very statesman-like manner; and on behalf of the cable people who are here I would like to respond that we appreciate the way he has cased the issue; it is a constructive approach. We are dealing with a technology that is extremely new and bodes great things for the democratic process--the ability of people to come back into real and meaningful communications with themselves. Certainly a fundamental part of that great promise relates to cable's potential impact on education. What is education today? What can education be when we have a truly interactive dialogue on a one-to-one basis? These are the questions we must jointly examine. As a representative of the cable industry I am glad to be here and look forward to working with you representatives of Michigan's educational community in realizing cable's promise.

I thought that in the brief time available I'd try to cover four subjects. First, a "Rome to Roosevelt" of cable. I guess that phrase dates me a bit, so in this case maybe we could call it "Lansford to Lansing". Second, a brief description of the technology and what some of the visionaries see in the future. Third, a discussion of what I would call the current institutional structure of the industry. I think it is important for a group like this one to understand that while there is a tremendous future out there for us, today's systems, manpower and capital are not the ones on which we can immediately superimpose our home communications center. Fourth I hope to talk a bit about what in my view are the requirements for reaching the goals that we see for the future.

In addition, if we have time either now or in the question and answer session, I'd like to give you one man's view of what I would call generically the NEA-PUBLICABLE position on cable. I think there are some highly constructive elements in that program, but I think also there are other elements that need some reshaping and I'd be happy to comment on those. It is good for anyone in the communications business to realize that communications is an interactive process; I would hope for and expect questions when I wrap up.

Cable is about a twenty-year old industry, it dates to 1948. There is some dispute over where the first operation was, but the industry probably had its birth in Lansford, Penna. The concept was evolved by a man trying to sell television sets in Lansford when the nearest station was in Philadelphia, 80 miles away. Lansford is in a valley, and so the only receivable

signal originated from a hill top outside of town. Initially, for use in his appliance store, this pioneer entrepreneur put a line on his mountain top antenna and ran it down to his shop, laying in on the ground, through the trees, or any other way he could devise to get this long lead line down to town. Pole attachment agreements were unheard of. In his zeal to sell sets, he began to offer people connection to that line for continuing reception. This was the genises of today's industry. It was not long before the commercial viability of that approach was identified and cable spread in the rural pockets removed by distance and terraine from TV transmitters. The TV blackout of the early 1950's gave cable a big boost, set ownership expanded while sources of signal remained constant. By 1960 there were perhaps 600 systems in the country, providing low-band service channels 2 through 5. The technology of broadband distribution was not, as yet, developed.

In the early 1960's solid state technology began to be applied to cable distribution and about 1965 the first transistorized broadband systems (service on channels 2 through 13) became operational. The rate of technical advancement since then has been astounding and with today's 20+ channel, 2-way equipment, these 1965 systems are obsolete by about two generations. While such equipment's physical life may be 20-30 years, there is a clear pattern of technical obsolescence which must be kept in mind when considering cable economics. While low band systems may appear inferior by today's standard, they were the state of the art eight years ago, and the capital committed must be recovered. This pattern will likely repeat.

By 1970 the industry had grown in subscribers to something like 8% of the national TV homes. It was recognized that in carrying 10 or 12 channels of television, we were utilizing only a small part of the CATV's information capacity. Enterprising operators began inserting into their distribution systems programming generated right in the local community. The industry had begun what we call cable casting, or narrow casting. The second description highlights what we think is the really unique capacity of cable origination -- the ability to reach very tightly defined, small markets, whether they be communities or subcommunities within communities. The cable, as a closed circuit distribution system is not interferring in any way with one of our key national resources, "through the air frequencies". Yet it offers the ability to transmit massive amounts of information to broad or narrowly defined audiences using frequency multiplexing techniques. In terms of community identity, community information exchange, debate of the really important local issues, cable offered a significant breakthrough in communication. Understanding of the fantastic potential of this evolving antenna system reached the national level in 1970-72 and the FCC rules of March, 1972 hopefully represent the beginning of a new broadband communications industry.

Okay, so much for "Lansford to Lansing." Now let's talk a bit about what the industry is today. Today we have approximately 9% of the national TV homes connected to cable. In the State of Michigan that number is somewhat lower (I think the Michigan count is something like 125,000 households out of an estimated 2 3/4 million) so let's say maybe 5% penetration in Michigan. Assuming a $5 monthly rate, the national industry has gross sales of $360 million, and probably a billion dollars in invested plant. Now you know those statistics have a lot of digits and sound like pretty big numbers, but lets keep them in perspective. If you go through Fortune's 500, you get down to about the 300th largest company in this country before you

drop below $360 million in sales. So there are 300 individual operating companies in this country larger than the entire cable industry. Just as a parenthetical, last year we, Continental Cablevision, were ranked the 17th largest company in the industry. We represent about 1% of the national subscribers. It is less than 12 months ago that we stopped being eligible for loans under a program to foster small business -- SBA, SBIC, etc.

While we're discussing tremendous promise and applications of this technology, let's keep in focus the institutional structure of the industry today. We are basically dealing with small companies in small towns Even TelePrompTer, the largest operator with 600,000 subscribers, is doing only about 35 million dollars in sales, which by any standard in corporate America is a peanut. In terms of individual systems, the largest individual systems are in San Diego and New York with something like 50,000 subscribers. At $60 a year, $5 a month, that's $3 million in gross sales. I would venture to say there are five different supermarkets in Lansing which do more than 3 million dollars in annual sales. So my first plea to you is recognize the industry today for what it is -- a very promising, but very small and fragile entity.

The profitability of today's industry is another poorly understood dimension. There are approximately 12 companies that are public in the cable business, hence information on these companies is available. To my knowledge of those 12 only 2 are recording an after tax profit. While financial information on the entire industry is only sketchy, I would estimate that the industry's overall return on invested capital is on the order of 3% to 4%.

You ask, why then are we fighting, clawing and beating each other over the head in an attempt to get new cable franchises? I think maybe the best analogy I can give you is in real estate. If someone told me a square block of downtown Lansing was going to be available for auction today, I would likely be interested. While I haven't the vaguest idea of what I could do with it today, I would definitely be interested if I thought I could pave it over and use it for parking and from parking revenue at least pay the taxes and carry the capital committed. Someday I may figure out what other things to do with that parking lot that would yield its best economic utilization. I probably will take that speculation if in the interim I wouldn't lose any money carrying the property.

From an operators' point of view, I think this is the strategy that is behind the mad scramble for cable franchises. The antenna service demand has supported the construction of the cable plant. From an operating point of view it has been marginal, but we're in a position to capitalize on a hoped-for higher economic use. Believe me, it is not because any of us have gotten rich as yet operating cable systems. Money has been made selling cable systems, but not operating them. There is little income being generated which can be diverted or grabbed off by special interest groups.

It is worth noting that the economics of antenna service in the major market under the new FCC rules are not likely to carry the capital invested as has been the case historically. This could have good or bad results. The incentive is clearly created to develop new services. However, if they don't come quickly and some early efforts fail we could destroy the industry's ability to attract required new construction capital.

The fourth area I want to comment on is what I believe are the essential ingredients of an environment which will be conducive to the growth of cable television. First and foremost is a public understanding of the fragile nature of the industry. The things I'm pointing out to you are not widely understood by the public at large. I think they look upon it as big business with big profit, something that everybody can take a piece of without affecting its viability. At this stage in the industry's development, that is categorically not true. Let's keep in mind that only live geese lay golden eggs.

From a better public understanding must flow what I would call intelligent and flexible regulation, the second ingredient for an environment conducive to cable. I think we have made strides in this regard. The FCC rules issued, effective March 31 of this year, are a first crack at synthesizing a public policy toward cable television. Previously the FCC's deliberations and strategy have been in dealing with cable only as it impacted broadcasting. I believe they have now concluded that such an undetermined approach is not in the public interest. Cable has a way of its own, and we must create an environment in which we can find that way.

I have used the words intelligent and flexible. I think the essence of high technology innovation, and creativity, is the flexibility to experiment, to try different things, to make mistakes, to be free of constraints that are imposed purportedly in the public interest, but which in fact constrain the latitude of the entrepreneur to experiment with new things. There has been talk in a number of states about the appropriateness of cable regulation by state utility commissions. Independent of the adverse impact which classic utility regulation would have on cable's ability to attract capital, it would represent a major constraint to cable's development because of its fundamentally rigid nature. In my judgment, classic utility regulation and the industry's need for flexibility to experiment are unreconcilable forces. Let me give you an example. In Portsmouth, New Hamshire, we are engaged in some experimental two-way transmissions with Sanders Associates, a visual display company which has been primarily a military supplier. If the state of New Hampshire's PUC were regulating Cable TV today we would be required to go to them and obtain an experimental authorization to conduct these tests. In our application we would be asked to spell out in advance what the object of the study is, what the hoped-for results are, etc. In my judgment, we never would have undertaken the project given that administrative burden. In the final analysis we don't know what we are hoping to find, we don't know what the experimental results will be. If the industry gets wrapped in paper, filing, procedures, permissions, etc., you must recognize that many such projects will be deferred or never undertaken. I think we should recognize that until the industry's services and demands are well defined,we cannot apply standards of reasonable returns or nondiscriminatory pricing between various services, etc. Premature applications of such fundamental utility concepts will retard development of the very services which some feel will be public necessities.

The third fundamental requirement of a conducive environment is the availability of manpower. Today this industry employs about 10,000 people. The growth that we all would like to see occur is something like a ten-fold growth in the next ten years. To do that we need massive insertions of bright, energetic, aggressive, creative people. I think the kind of attention and notariety that the industry has gotten of late is a good start in that direction. If the resumes I see coming over my desk from recent graduates

of national communications schools is any indication, we are starting to attract the right kind of interest.

Finally, and most fundamentally, industry growth will require capital in massive quantities. Let's look at some numbers. Michigan has approximately 2 3/4 million households according to the 1970 census. Given the technology that we know today, one-way, twelve channel cable distribution systems, it would require about $200 million to wire all the homes in the State. When we start talking about two-way systems with interactive terminals in the home, you can probably double that number to $400 million. This is a quantity of capital that few corporate users, except the electric utility and the telephone industry, attract out of the private capital market. I think our clear preference would be that this industry go forward in the private capital mode, but we must recognize the massive task to be done. It may be that it can't be done; some are already proposing that we look for major subsidies of the magnitude of the Highway Act as the way to accelerate the process. I think I will sign off here and save my comments on the NEA-PUBLICABLE approach for a later point in time. Let me take ten minutes to find out what I didn't cover. Any questions?

Question and Answer

How do you feel about exclusive vs non-exclusive franchises?

Under existing state law, with the exception of two or three states, exclusive franchises cannot be granted. If you are asking me, "Do the economics require it?", I'd say yes. The law does not now allow exclusive franchises and the practicality is that once someone is in and has built on a particular street it is very unlikely that anyone else will try it. The entry cost is simply too high. Therefore, I have no objection to nonexclusive franchises and in the absence of new state legislation there doesn't seem to be another choice.

Wouldn't one advantage to having CATV conrolled by local state commissions of communications be that the commission would protect an individual interested in investing in cable television against competition? I think past history serves as an example; two telephone companies cannot operate within a given city and do it on a competitive basis. You are a cable operator and you seem to be set against regulation, but I think there is some advantage to regulation because it seems that it would protect the operator as well as the public. I guess we have to recognize that the broadcast spectrum and facilities are to serve the public, and that they are a privilege granted to broadcasters. Cable television is an extension of that privilege to serve the public.

I'll try to take the hostility out of the question and answer the factual part of it. We, in fact, would gain territorial exclusivity (or could gain it) if it was the will of the legislature. In my judgment, there are some other pluses. We would gain the right of eminent domain, we would be able to come in and say, "notwithstanding the fact that it interferes with your tulip bed, we're putting a pole in your backyard." These are the kinds of rights that we could get from state legislation, I would submit to you that until

such time as the state can also deliver to the industry guaranteed demand for known services at compensatory prices, which is deliverable for electric power or for telephone service, that such regulation will have an extremely adverse effect. If we look at cable on a rate of return, utility-type regulation, the revenue requirements that a commission would likely say we are entitled to would produce $7, $8, or $9 monthly rates. I know that in Jackson, Michigan, which is one of our systems with eight signals available off air, that pricing is an invitation to zero demand. We could not sell the service. So I think the kind of thinking that is fundamental to existing public utility regulation offers us some pluses, but it also offers a rigidity and a pricing structure that we know we can't survive. These are the elements we most fundamentally oppose.

You say that you need massive inclusion of people for specific skilled jobs. What types of skills are peculiar to cable that are not already being supplied by TV technicians and this type of thing? What characteristics do you specifically need in your area?

Well, until we define what our bag of services is going to be, I can't give you an all-inclusive response to that question. The kinds of skills that are now in demand involve technical backgrounds. An example is the guy who can work with a soldering iron and the circuit diagram -- perhaps the same kind of skills that a TV repairman is applying. We find that the vocational schools are a good source for us. However, there is a new dimension to it, we want them to take the bench 30 feet off the ground and work on it there, and we want them to do it in the middle of a hail storm. So it is a cross of a utility pole line construction man's temperament and a TV repairman's engineering background. These are the fundamental skills required to maintain the plant. But looking beyond our nose, longer term, we need people who have creativity and vision in what I would call "information handling." What are the requirements of the central taxing agency here vis-a-vis various regional offices? What information has got to be exchanged? What's the bit rate at which it must be handled by a particular computer? What are the police surveillance requirements in downtown Lansing? How would the surveillance system be installed? Where would the information flow to? These are questions of conceptualizing new uses and being able to turn them into the hardware.

Is there a standard length term for a cable franchise in a given community? If so, what is it?

I don't think there is any standard. There are existing grants that were made in perpetuity. There are probably existing one-year permits, where each year the operator has to seek and obtain a renewal. I'd say an average and a standard suggested by the FCC is in the range of 15 years. You should recognize the trade-offs involved. On the one hand what rights of public review should be reserved over time in a rapidly evolving technology? On the other hand what is areasonable term for recovery of the massive capital investment required to build the plant? I think I can argue with strong support from the Rand Study for the Dayton area and other economic studies, that the kind of urban systems we are talking about building will not pay back in either 15 or 20 years. If the public wants to reserve the right to review at such intervals, that's okay. But if that review may involve termination of a franchise, we'll have to devise a way to deal with the unrecouped capital that the operator has at the end of such a franchise.

There will have to be an indemnification provided. To do otherwise would effectively cut off the industry's capital flow.

Your reference to subsidies interests me. Are any Federal Agencies providing development money for cable?

There are several pilot projects that have come recently out of HUD, specifically, the new community development area. There was a grant made recently in Johnathon, Minnesota. We are starting to see from various government agencies, including HUD, HEW, and the Minority Affairs Section of the U. S. Justice Department, what I would call catalysts funding, particularly for programming uses. But recognize that this is money being spent to find applications of cable that make sense. When and if these applications are found, I think such funding will have served its purposes. The job of building the railroad tracks, of mass applications, will likely remain to be funded by the private sector of the community.

You mention Jackson, Michigan, where you have a system. I believe there are three separate companies operating in and around that community, and I wonder if their programming or their common channel is interchangeable or interconnected in any manner. Are they three separate units at this time?

Your factual statement is right . . . well, it's not quite right. There are basically two companies represented. Their systems are not interconnected at this point. To interconnect them for the purpose of origination on a channel or two would be a relatively modest undertaking, by that I would say $15,000 or $20,000 investment.

Our community is studying cable television. What do you recommend that we do first to make sure we are heading in the right direction? Who do you talk to first?

I think in the packet of information that was distributed here, there is an extensive bibliography. I would certainly suggest that you, within the city council or within the community outside the city council, try to develop a group of people who are up to speed with what's going on in cable, who have read a major portion of that bibliography. Beyond that the first mechanical step involves drafting an enabling ordinance. An ordinance that says we are going to grant a cable franchise and we are going to grant it with these provisions. Your second step is to request applications from any interested party willing to comply with those requirements. Your third step is to decide which of those applicants best suits the standards which you have set. I wholeheartedly agree with NEA in saying that an essential element is open public dialogue in setting the standards for the system, and selecting among the various applicants.

You talked about a subsidy, such as the Highway Act. Are you proposing that this should be done?

I obviously garbled my thoughts if you got that impression. My statement is that I do not think at this point in time that it is appropriate, or more important, politically likely, that we could get subsidies from either federal or state funds to construct cable. My position is that this industry has grown to what it is on private capital, and I think it can continue to grow on that basis assuming the elements of a conducive environment which I described and that federal and state subsidies will not be forthcoming or

necessary.

I think I have sort of overstayed my welcome here, and I'll be available for another question and answer period later.

Thank you.

GARY L. CHRISTENSEN

L.L.B. University of South Dakota

Formerly:

General Counsel, National Cable Television Association, Washington, D.C.

Assistant General Council, National Cable Television Association

Attorney, Federal Communications Commission, Washington, D.C.

City Attorney, Elk Point, South Dakota

Deputy States Attorney, South Dakota

FEDERAL AND STATE REGULATIONS

Gary Christensen

It's a pleasure to be here with you today in Lansing. Marshall McLuhan says that television is a cool medium, and I think they made the atmosphere reflect that.

Let me just briefly tell you what a cable operator anywhere in Michigan has to face when he considers the regulatory atmosphere within which his business must survive.

First of all, lets go back to basics. A cable television system, as we know it today, is very similar to the human body. It has a "head", which we call the "head-end", which receives electrical impulses, and those signals are processed in the "brain" or signal processors, modulators, demodulators and then the signals are passed out through the "central nervous system" down the trunk line and they feed out into the hands and the arms, legs, and feet of the cable system, which is the distribution and the customer taps. That is a traditional CATV system. It receives a signal from a central point and distributes it to multiple points.

It was this type of system that the FCC first started to consider back, really, in 1959 when they decided that they had no jurisdiction to regulate CATV. The economic pressures of the opponents of the cable television technology continued to press for additional restrictive regulations on the cable TV industry. So, beginning in 1963 the Commission began to act first on those CATV systems that were served by point-to-point microwave services and after establishing their jurisdiction in that area they moved to general jurisdiction over all CATV systems, whether microwave served or not. It was in February of 1966 that they imposed almost comprehensive regulation on the CATV industry, which led to a freeze on the development of that industry in the major television markets of the country.

Now the major television markets of the country contain within 35 mile circles around a central point in each market about 85 percent of the population of the United States. So this large area was prohibited from the development by cable television.

Now, what those federal regulations attempted to do was to establish some kind of a formative direction for cable television as it existed then. In the six years that has followed the Federal Communications Commission has adjusted its regulatory program to reflect the changes in the cable television technology, which is what Mr. Hostetter has just mentioned to you. So when we talk about the regulatory atmosphere within which cable television must operate, there are essentially four different areas.

First, there is the area regarding the delivery of signals which are received off the air. Then there is the delivery of the nonbroadcast signals. Then there are technical standards imposed upon the industry. And, lastly, there is an attempt to resolve the very difficult problem of the relationship between Federal, State, and Local regulatory jurisdictions.

I will have to paint this with a rather broad brush to get through what has really been the product of six years of regulatory consideration at the federal level and which resulted last February in a document about 300 pages long. So, you can see there are a lot of things I will not be able to discuss with you.

Let me tell you that the number of signals that cable TV systems are allowed to carry is determined by their geographic location. If they are in one of the 50 largest markets in the country, they are entitled to carry three full network stations, three independent stations and an unlimited number of "unobjected to" educational television stations and an unlimited number of non-English broadcast stations. When I say "unobjected to" educational television stations, what I mean is that the local educational television station has the opportunity to object to the importation of distant educational television stations; if it does not object, then the cable television operator in a given community can import an unlimited number, provided he can get the micro-wave frequencies to do so.

In markets 51 to 100 the complement is three networks, two independents, again, an unlimited number of unobjected to ETV's, and an unlimited number of non-English broadcast stations. In addition, in these top 100 markets, the 100 largest markets, the cable operator, under the new rules, is entitled to import two additional signals, from a distant market, usually independent television stations, which we call two "wild-card" signals. In the small markets, 101 down to about 224 the complement is one independent, three networks, unlimited unobjected to educational television stations, and an unlimited number of non-English broadcast stations. Notice here that there is no provision for the importation of two "wild-card" signals.

Now, what does all this mean? This means that the cable television operator who faces entry into any new locality must measure the available signals off-the-air, fit them to this complement which the FCC allows him to carry, and then see if he can find an attractive combination which will allow him to market his service. In Michigan, for example, you have four major markets -- four top hundred markets -- you have Detroit, which is number five, you have Kalamazoo - Grand Rapids - Muskegon - Battle Creek which is 37, Flint - Bay City - Saginaw which is 61 and Lansing - Onondaga, which is 92. Around those cities, each one of those cities, there is a 35 mile zone drawn; and within that 35 mile zone these signal limitations apply. Outside that zone there is no limitation on the number of signals which can be provided.

Now, as a limitation on what the CATV operator can do with those signals, the FCC has incorporated a copyright concept; and that's the concept of program exclusivity, which means that if a local station is broadcasting "I Love Lucy" at 6:00 at night and a station which a CATV operator is importing from a distant market also broadcasts "I Love Lucy" at the same time period, then "I Love Lucy" on the distant, or imported signal must be blacked out, so that the viewers cannot see "I Love Lucy" on the distant channel. They are forced to turn to their local channel if they want to watch "I Love Lucy." This is really the concept of nonduplication or copyright exclusivity written into

federal regulations as opposed to the copyright law.

There are two types of exclusivity which the FCC has imposed on cable television. One is for network programs. There the time period is simultaneous. A network show, "Dean Martin", being broadcast at 9:00 locally and the distant station also broadcasts "Dean Martin" at 9:00, then "Dean Martin" on the distant station must be blacked out. That's network exclusivity.

Now, there is a very complicated system of nonnetwork exclusivity, which is what the Commission calls "syndicated exclusivity". It breaks down programs into essentially five categories -- off-network series, first-run series, first-run nonseries, feature films and other programs which are really off-network specials. When I say off network special that means that a special has had exhibition on a network sometime in the past. Also, the time period is not simultaneous in these cases. It varies from one to two years in some cases. In some cases you can only broadcast on a distant station one day after it's broadcast on a local station, but no longer than one year from the first market purchase or nonnetwork broadcast in the local market -- a very complicated system of what the CATV operator has to do with respect to blacking out signals from distant stations. These are limitations on the use of the distant signals by the cable television operator.

All of these pose great problems for the CATV system operator. But, in addition, the FCC has moved out of this delivery of off-the-air signals into the new area of delivery of nonbroadcast signals -- the cable casting or narrow casting of channels that Mr. Hostetter mentioned earlier.

For new systems in a major market, and this is primarily of interest to those communities and interest groups that have not had the opportunity of having cable in their community, new systems must have a certain minimum channel capacity. And that channel capacity, as it breaks down into layman's language is 20 channels -- twenty 6 MH_z channels. A 6 MH_z channel is a television channel. It must also provide for equivalent band width so that if it receives off-the-air and delivers 12 signals which are received from its head-end antenna it must have a system capacity of 24 channels. So, for each off-the-air television channel delivered the system must also have the capacity of providing one other channel for nonbroadcast purposes.

Now, these channels are required to be 6 MH_z in width -- that is the non-broadcast, the equivalent band width, has to be 6 MH_z in width. The use of those channels is for the primary purpose of delivery of non-decoded, non-broadcast signals; or, for the use of nonbroadcast decoded signals; that is, pay TV by wire. So burglar alarms or fire alarms are not designated within this additional channel capacity.

Now, the new rules also provide that all new systems in the major markets must have two-way capacity for nonvoice return. I'm no engineer, but as I understand it, a voice return can be as small a band width as 4 KH_z, whereas a video band width has to take at least 2 MH_z, which I understand is a difference of night and day. What the CATV systems of the future must have is a two-way capacity for nonvoice return.

Then, the federal regulations provide that all the new CATV systems have to provide room for access channels. Access channels are divided into essentially four categories. One, there is a public access channel, which must be provided by these new systems. That means available for anyone to come in off the street and say his piece. That channel must be nondiscriminatory, it must be noncommercial, it may not make any charges at all except for live production costs of over five minutes in the studio. In addition, the CATV system is required to have the minimal equipment and facilities necessary so that the public can use this channel. Secondly, there is provision in the federal law for an educational television access channel, which must be provided by the CATV system free for the first five years after the completion of the system's trunk line cable. The purpose of a free five year period, according to the FCC's reports, is to encourage the innovative use of educational television on cable systems. There is also a requirement that new systems must have a government channel which also must be free for five years after the completion of the trunk line. Then there is the requirement that cable systems must have at least one leased channel available for any purpose at all on either an hourly basis or on a total channel leased basis. There is one other feature of this access channel proposal. The delivery of nonbroadcast signals, and that is the requirement imposed by the federal government for an expansion of that access channel capability, provided that on 80 percent of the weekdays (that is Monday through Friday) the channels are used for 80 percent of any 3 hour period in that time, for 6 weeks running. The CATV system has six months within which to provide an additional channel for these uses. So what we have, in effect, is the requirement of CATV systems to provide educators with a chance -- free for the first five years -- to encourage innovation. If that educator can supply the product to fill that channel he can then spill over into these other channels until 80 percent of the time in any 3 hour period for 80 percent of the weekdays is filled; then he is entitled to still another channel, and that will go on and on as the demand increases.

There are operating rules which the FCC has provided for these channels. For example, and I'll devote myself specifically to the ETV channel, on that channel there can be no commercial advertising, there can be no lottery information, there can be no indecent or obscene material, and records of the use of these educational channels must be kept by the cable system operator for at least 2 years. Now here is a key provision which you ought to be aware of. No other rules can be enforced, without a special permit from the FCC, other than these rules which we have discussed. So if you and your community are asking the city fathers to make rules different than this or if you are asking your state legislature to provide legislation different from this, it may not be imposed until you have a special per[illegible]rom the FCC.

There is one other area that I think might be of interest to you, and that is the francise standards adopted by the FCC in their concern about the proper relationship between the locals and the feds and the states. Every new franchise must weigh the applicants' qualifications, as to the legal area, their character, financial capability, and their technical capacity. This must be weighed in a full public proceeding. There must be significant construction of a CATV system within one year and the FCC says that they think about 20 percent per year is reasonable. There must be an equitable and reasonable extension of the trunk line in every succeeding year until every person in the community is capable of being served, and the CATV system must reach a substantial percentage of its franchise area. The FCC also provides

that all new franchises must be of reasonable duration, preferably 15 or 20 years. They must be of reasonable duration, and any renewal periods must be of reasonable duration. There must be approval by the city fathers of an initial subscriber rate. There must be approval for requests of changes in that rate, and these include the installation rate, the subscriber rates, and all of these considerations must be done in a public proceeding affording due process. There also must be in every new franchise a procedure for the investigation and resolution of complaints and there must be maintenance of a local business office by the CATV system in the community.

There is imposed a maximum limit on the franchise fees that can be charged cable television operators, and that range is 3 to 5 percent. If the franchise fee is over 3 percent then the city must go to the FCC and justify the fee as needful, because of the regulatory program being fostered by the local governing body.

Now, operating CATV systems are grandfathered, that is they do not have to comply with these regulations until March 31 of 1977, or until the end of their franchise period if it is earlier than that date.

I think it might be wise to kind of tie this into some of your local regulations. In the state of Michigan you have had two proposals, as I understand it, within the last year. One is H.B. 5811, which is a hybrid bill that puts CATV systems under public utility regulation, but reserves a good many favorable conditions for educational cable television operators or educational television authorities. Under traditional public utility regulation there can be no discrimination in the access or in the charges for the service provided by the utility, which means in most states which have adopted utility regulations of CATV, free channels for educational television are out the window. In addition, H.B. 5811 attempts to apply a monopoly economic theory but retain a competitive regulatory theory and the two are in conflict. This has been a problem in each of the states which have attempted to regulate CATV as a public utility. Let me just list those states for you: Nevada, Vermont, Rhode Island, and Connecticut by statutory authority imposed PUC regulation. There are other states which have imposed state regulation but not as a public utility, and they are: Hawaii, Massachusetts and New York. There are two states which have asserted jurisdiction over CATV as a public utility: Alaska and Illinois, and the state courts in Illinois have recently said that the Illinois Commerce Commission may not exercise such jurisdiction.

Getting back to H.B. 5811, there is one other feature when you get into all these problems about assigning channels and providing access and providing for terms of franchises. You'll note, by going through the federal franchise standards, that this kind of an approach to regulation conflicts with the federal regulations -- and that you may not do. If you are interested in state regulation what you must do is design that regulation so that it complements, rather than conflicts with the federal regulatory program.

We have one other feature here that I will just briefly comment on. That is House Concurrent Resolution 429, which was going to impose a one-year moratorium on the grant of franchises to the CATV industry. It seems to me that a moratorium is no more than evidence of regulatory sterility. Those who are concerned with it are unable to come up with something better and they wish to shut things off for a while to maintain the status quo. The Federal government has, now, taken the position that we must get on with the

wiring; that we have intellectualized too long on the subject of what cable TV will do. That every report, every pamphlet seems to come to the conclusion that what is necessary is another report, another pamphlet. It is time to stop this vicious circle. I would suggest to you that a moratorium would serve no useful purpose. If you are interested in combining some kind of a regulatory program for the state, the local, and the federal, that's one thing. But to freeze the industry serves very little purpose on the local level and may very well conflict with federal regulatory programs.

I think I've run over my time, but if we have any time left I'd be glad to take questions now.

Question and Answer

You said that these are minimum federal requirements, in that anything beyond that would require permission from the FCC. My question is, if the franchise applicants offer services beyond those required, but it is not required by the municipality, is that permissible without federal intervention?

That is permissible, so long as it is not required. However, you can rest assured that when it becomes a standard practice and it is a consideration of getting a franchise that it will be called to the attention of the FCC and I believe that it will be struck down as subverting the purpose of the federal regulation -- at least it runs a significant chance of that happening.

What are the federal communications regulations on the length of franchise and what is the percentage of franchise fees?

I won't read the whole section, I'll read two subparagraphs. If you are interested in looking this up you'll find it in volume 47 -- Title 47 -- of the Code of Federal Regulations:

> "76.31 With respect to the franchise period, it is subparagraph 3: The initial franchise period and any renewal franchise period shall be of reasonable duration."

Now in the language of the report it mentions 'somewhere in the neighborhood of 15 years." They have also announced on the podium that perhaps 20 years would be allowable. Now in subsection (b) of 76.31 it provides:

> "The franchise fee shall be reasonable, e.g., in the range of 3-5 percent of the franchisee's gross subscriber revenues per year from cable television operations in the community, including all forms of consideration, such as initial lump-sum payments. If the franchise fee exceeds 3 percent of such revenues, the cable television system shall not receive commission certification until the reasonableness of the fee is approved on the commission on showings by the franchisee that it will not interfere with the effectuation of federal regulatory goals in the field of cable television and by the franchising authority that it is appropriate in the light of the planned local regulatory program."

Dean Burch had commented that their present law is a stab in the dark. Could there be some revision in the future?

I have the worst record of prophecy of anyone that I've every known. It is impossible to try to forcast what federal regulation in the future will be. I think it will move in the direction of additional regulations for the delivery of the nonbroadcast signals and in the provision for nonentertainment type services -- burglar alarms, fire alarms, things of that nature; but it is impossible -- it has taken them six years to come from total freeze in the industry -- and hopefully they will allow cable television to enter the major markets. What they are going to do in the future no one knows.

What, if any, is the relationship between Mr. Whitehead's office of telecommunications policy and the FCC?

Theoretically the Federal Communications Commission is an independent agency; and I think in practice they are too. The Office of Telecommunications Policy is the President's advisor on telecommunications. It has a variety of functions unrelated to the public part of the broadcast spectrum, it has control over the government use of the government spectrum. It also has, if not the responsibility, the opportunity to suggest to the regulatory agencies, within whose purview it comes, certain regulatory policies. It also confers periodically with industries involved and I have some personal knowledge of how that happens, but I think it would be very injudicious of me to talk about that here, and also very unpleasant.

Regarding the number of CATV channels, what is the difference between FCC regulations and what the local franchise can be asked to do?

There are two features here that we talked about with respect to the access channels, which I think is what you are making reference to. There is a provision for one access channel, but as demand increases additional band width must be made available. Now, if you want to get 20 percent of all the channels on CATV system dedicated to educational television channels then you have to go to the FCC and give them a special showing as to why you need that. And before you can impose that on CATV systems you must get federal permission. Now the other areas, with exception of the franchise fee range of 3 to 5 percent, are not subject to this change by a special permit. All of the other franchise requirements -- the consideration of the qualifications, the reasonable duration of franchise, the complaint resolution procedure -- all of those may not be changed. The 3 to 5 percent range of franchise fee upon special showings can be changed in that range.

Would the FCC accept the possibility of higher fees if they were returned in terms of local programming?

Perhaps the members of the cable television bureau are better at second guessing the members of the Commission than I am. Anything is possible, I suppose. However, in recent statements the commissioners themselves had indicated that it's this 3 to 5 range they are looking at. That's about all I can tell you. I don't know what they'd do on a given circumstance. If you want to pursue that you run the risk of depriving cable television service for a substantial time while the commission processes an application for certification on that basis.

The question has to do with the responsibility of the CATV operator to education outside the CATV operator's studios.

I can very clearly and firmly tell you that I don't know. The Commission has not spoken to that. In the course of the discussions that led to these rules what they had in mind was a studio with the very minimal equipment -- inexpensive cameras, not necessarily color -- where people could come -- a central point so that the burden on the cable operator during this innovative period would not be substantial. They have said that after five years they are going to take another look at this and see if additional standards ought to be imposed on the cable operator or whether these standards are too stringent and have to be changed. That is as near as I can come to an answer.

DONN SHELTON

B.A. Michigan State University

Vice-President, Citizens Information, Metropolitan Fund, Inc., Detroit

Formerly:

Radio-TV Director, Reilly Bird Associates

Audience Promotion Manager, Storer and Westinghouse Stations

LOCAL FRANCHISING

Donn Shelton

In addition to the points that Richard Egli (Director of School Information Services, Adrian Public Schools) has made about my background, I have two other roles that I would like to share with you as a basis for some of the things I'll say. I'm a member of the Berkley Board of Education and have looked at cable as a Board member over the last two or three years in regard to what I think it might do someday for our school district and for a lot of other districts. Secondly, I was, for the last 14 months, a member of the cable study committee that the Detroit Common Council formed to examine the subject of cable television in the City of Detroit. It did take us 14 months of what Mr. Christensen described as intellectualizing and the Detroit Common Council thought that was too long, too. But it took us that long, as a lay committee, to wander through this incredible world of cable, which was brand new to many of the people there and, incidentally, Mr. Christensen, we did suggest a moratorium, and I'd be happy to defend that some other time.

I'd like to share a perspective with you that I don't think has been present up to now -- it was present throughout the deliberations of that Detroit cable study committee -- and that has to do with the whole point of why cable television exists or should exist. It was an overwhelming concern of the some 28 or 29 members of that committee. Cable television should exist in the City of Detroit as a fundamental people service -- as something that is there for people, to be used by people. A consideration of where it develops and how it develops should be grounded in terms of serving the people of a community; it should not be viewed simply as a fund-raiser for a city; it should not be viewed simply as a mercantile system by which one or more private entrepreneurs might make their way through the world. To that end the Detroit group recommended to the council that a cable system in the City of Detroit be publicly owned. The committee clearly did not want the system to be publicly operated, and that's an important distinction. We agree with Mr. Hostetter, that it is unlikely that private enterprise could own and produce a system like that designed by the committee in Detroit, which called for, in the view of many people who have seen the report, an incredible number of public service channels of a wide variety. We didn't believe private enterprise could start that ball rolling. But I would very quickly point out that, categorically, private enterprise would be needed to keep it rolling once public ownership started it. We recommended a public authority with bonding capacity to come up with that capital, which Mr. Hostetter has pointed out is very hard to come by early in this game of cable television. Then, immediately upon formation of a public authority to own the system, private enterprise should be employed totally for the purpose of building, operating, maintaining, and using the system in its totality, with an adequate provision for community input in terms of both access to the signal and access to producing signals, that is, programming.

We saw cable television as simply a communications system within the community. It had to rise generally far above where it has been up to now, and particularly in terms of the way cities have used it -- which has been as a fund raiser. That falls far short of the potential of cable television. All of you here, by showing up, have read the literature, at least minimally, and you understand all of the dream worlds of shopping by cable. Those things are out there, and are probably very good.

There are some fundamental needs for communication in our society that cable could accomplish. It was toward those ends that the Detroit committee directed its attention, and that I would urge you to direct your attention. We believe that cable television should be primarily a basic system of information transfer, taking all the information that there is and transferring it to the people who need it. And in all communities, particularly the large central cities, the need for that transfer of information is tremendous.

Speaking particularly of education, there is also great potential in cable for helping education do the job it wants to do from the early years of a child's life through the completion of the educational process. We find it interesting that you can find out how good the orange juice tastes on the moon with the sophisticated kind of electronic communication that we have between here and there. But if there is a hell of a blizzard in your school district and a mother wants to know whether or not her child should be gotten out of bed and sent into the blizzard to school, the way it happens in Detroit is something like this: The superintendent goes out and sees that it is snowing hard; he calls two or three radio stations stipulated in our contract -- that's so the teachers know (there is nothing in the contract about making sure the people know, just the teachers); he then calls two or three appropriate radio stations hoping that the secretary there will copy down the information correctly, hoping that she will transmit it correctly to the disc jockey, and hoping that he will put it on the air at a time when a majority of the people who have kids in the system are listening. That's an incredible and ludicrous system of communications, given the fact that if we want to we can find out what the temperature is on the moon.

That kind of gap between what could be communicated, educationally, and what is being communicated is tremendous. Cable fills that gap. It has that potential. We believed in the Detroit system, and I believe as a board member and lay educator, that cable has that potential and must fill that gap. What cable can do is provide an abundance of information, at the users leisure, rather than a scarcity of information by the provider's rules. Right now the school system is open to educational purposes from the time the teacher walks into the building to the time she or he leaves. That's the way that you communicate with the school system. It doesn't have to be that way. The kid who has a question later, if we had the kind of cable system that is technologically possible, could extend his opportunity to communicate with the system, as well as his parents' opportunity to communicate with the system, 24 hours a day.

Education is a vital part of that logic of information transfer. If a cable system is designed and exists in a city or community as a communications system, then education and all that it wants to do will be welcomed, because it will be an important part of that system. If it is viewed simply as a fund

raiser, you'll have to fight your way in, because everything that you get will come out of somebody's hide in terms of the money it will raise. That, again, was a fundamental consideration of the Detroit group, in denying, as best we could in our recommendations, the role of cable as simply another source of revenue.

I'd like to pay particular note to the growing concern in educational circles for the whole concept of community schools -- the community school movement that started up in Flint and has spread across the country, and moreso across the state. Think of all the things you've heard as educators about the community school process and then think of how you could accomplish those things if you had a two-way cable system of the sophistication that is possible today.

Outreach into the community is a key word -- a buzz word if you get one of the guys from one of the universities to come talk to you about community schools -- how you reach out to those people. Obviously with a cable system in every home you could reach out to them a lot better than you can reach out to them now. Our school district covers three cities and a township. We have no single means of communication. You wouldn't believe the perspective people have in that district of what we are doing. Because I'm on the Board, I've talked to people about things that we've done and the story that we get back from them has so little relationship to reality that I simply can't believe it. Those kinds of problems slow the process of educational progress. At least I see it that way. The things we want to do are harder to do because it is hard to communicate with our people. If we had a system of communications, like a sophisticated two-way cable system, we could communicate with them and they could communicate with us -- that's very important.

It would seem to me that one of the fundamental problems you face as educators in utilizing cable television is that you must work very closely with the people who are ultimately going to grant the franchise to you. The franchise will be granted by elected officials, just like school board members, but they'll be elected city, township, or county officials, depending on the franchise area. One of the reasons the State Board urged you bring teams of city and school board people to this meeting was because of that very point. There will have to be communication between you, the educator, and the city people, in order for the franchise considerations to take into account what you perceive to be your needs for cable television. You'll have to design those needs. You'll have to look way into the future and see what you think those needs are going to be when the cable is realized. You can't talk about today's needs, because we don't have cable and you're not going to have it tomorrow. You have to look into the future.

You have to work cooperatively -- not just with the city, in a sort of horizontal way, but vertically within the educational community. It is absurd to suggest as educators that the city franchise designers must work with the public school people, the private school people, the higher education people, the adult education people, the intermediate school district, the community college -- at that point the guy writing the franchise throws his hands up and says, "Go away! I don't want to work with all you people individually." It is up to you people, as educators, wherever you fall in the continuum, to get together and to do it now. I think this conference starts such a process and I understand in a couple cases it continues the process, because some of that is being done by you now.

Educators should get together and begin designing a total educational needs package for cable television, starting with the whole pre-school concept. Do you leave pre-school education to "Sesame Street" or do you deal with it as professional educators, taking it all the way through the concept of adult education and what potential cable has for spreading that process. You need a cooperative needs design that everyone will agree upon for cable television service in the future. Then of course, you need to communicate those needs to people who will be drawing up those franchises. Those needs are likely to include some of the things that were pointed out by the previous speaker -- things like the drops at school units, making sure that every school has access in terms of receiving signal, production capability, as the gentleman explained earlier.

What does production capability mean? Does that mean that the cable system operator, whoever it is, puts up one camera in a room and says, "There you are, go!" or does it mean that he puts in a system that allows you to originate everyplace you receive, for example in every one of your school buildings. Reston, Virginia, is being wired by a private operator who is proceeding along that way. All of the schools there now receive cable. Six months ago they were ready to wire the schools to produce, so that every school in their cable area would be able to put programming into the channel from the school whenever they wanted. Examine that production capability. Do you need one production unit for those several levels of education -- public schools, private schools, intermediate school districts, community college, higher education? Do you need one production facility? Do you need one facility with terminals in several places?

There are great connections between cable television and the whole computer process. You can look at an intermediate school district, like Oakland, and the way it serves many districts with computer links. That same kind of cable linkage and cable system may be needed in order for the educational system to adequately address the entire cable problem. It won't make a lot of sense to take tax dollars, and all educational dollars end up being tax dollars, to build five or six or seven very sophisticated production facilities, duplicating and triplicating those facilities, when perhaps one really sophisticated facility in an area, county or collection of districts, will be sufficient. Another concern that you certainly want to deal with the franchise people about is the access that you will have to viewers; channel capacity for one, channel timing for another. Both of the previous gentlemen pointed out that the educational mandate is there from the FCC. There is great potential for going beyond that, but you have to justify that potential. It's not going to happen just because you say, "Hey, I've got to have this." If I understood Mr. Christensen accurately, if you justify it in an application to the FCC there is great potential for more capacity than the one channel.

The last point that the Detroit committee hit hard on, and that I urge you as educators to hit hard on in your dealing with a local franchise design group, is demanding and guaranteeing the highest level of technology -- particularly two-way cable television and large channel capacity. You need to design your needs and look at your needs in light of that two-way capability. You should be able to talk to the kids and the parents as educators and they should be able to talk to you, be it to retrieve information because a kid didn't get his assignment clear when he got his homework and he wants to find out via cable,

or whether it's a mother who wants to find out if that kid is supposed to go to school in the morning. There must be a way for them to communicate both ways if we are going to move to the potential of cable television.

I would stress again the totality of the educational process -- from pre-school for as long as people want to study -- the totality that we have in terms of education and the kinds of things we've begun to do to cooperate. Programs such as the way school districts now cooperate, sometimes on a county level sometimes on an intermediate district level, in special education and vocational education have tremendous transfer to the whole cable process. Just as it doesn't make sense for every district to have a school for the deaf, it also may not make sense for every school district to originate highly sophisticated programming. You may want to divide that up among several districts, particularly when you are talking about a single franchise. You want to examine very closely the whole interconnectibility problem. Because of what I call the inane pattern of school district boundaries, as a school district you may be dealing with several franchises, or you may be dealing with only one franchise along with several other school districts. That problem of interconnectibility is critical. What we can do in one city we may not be able to do in another, and that's a problem of communication we have with the cities in our school district. In the future that becomes tougher.

Cable television has the potential, and should reach the potential, of bridging boundary lines rather than of enforcing them. One of the very strong concerns in the Detroit study was that the interconnectibility out into the metropolitan area be guaranteed in the language of the franchise, so the Detroit city limit no longer will be a barrier as it is now in many ways, so the cable television message and the communication which could occur would flow across that boundary line and not stop abruptly, as other things now stop at that line and other boundary lines.

I would urge you to approach cable television as that Detroit committee did; dream about the potentials of the system of cable and then design ways to get there. We ran constantly into the realist and pragmatist who said you can't do it so therefore don't ever think about it. Everything I've ever heard and read about the cable and about technology, and particularly about this nation's ability to use technology, says you can do it. President Kennedy said we'd be on the moon and we got there. Somebody said we want color pictures of the moon and we got them. Technology will do what we want it to do. Cable television is one of the last frontiers of technology that is people-oriented, and should be people-oriented and has great potential for people. It will do what we, the citizens, want it to do. It will do what you, the educator, want it to do in an educational way, but only if you want it to and only if you force the issue, and only if you push for it. I would urge you to dream and see where you want it to be ten, twenty years from now and work toward that. Don't accept cable as some sort of incremental process where this year you tinker a little bit and next year you add an hour and the year after that you work out some sort of arrangement where you are going to share something with somebody and every year you get a little better and a little better. It'll take forever and you'll never get to where you want it to be. Look far ahead now. Do the kind of dreaming that you can do now, before cable hits with the impact it's going to, so that you're ready when it gets here.

Cable television today has about the same relationship to ultimate cable technology as the crystal set had to present day television. Cable television is at the very beginning. You have a chance to use it instead of being used by it, and I would urge you to do that.

Let me make a strong point. Because the Detroit report was misunderstood I think deliberately by some people, what I'm describing is not mutually exclusive with the people that are here representing cable television as a private enterprise. They are the realists and they will accomplish the task. They will do all the operating. They will keep the ball rolling. They have brought this system, this concept, this technology, to where it is and they will continue to do that, and they'll do it, I'm sure, very well. They are the realists, and they will provide a parameter of reality for you. What I urge you to do is provide the parameter of dreams for them, so that you challenge them to reach all the potential that cable has for serving people. Challenge them to do a little bit more than they think they can do, in order to reach that potential.

Constantly through the 14 months that we worked on the Detroit study, people kept coming back to us and saying, "No, it can't happen -- we won't do this -- we won't do that." I believe there is only one certainty, and that is you won't get it if you don't try. I also agree that you may not get all of the things that you want, but far better that you fail to get them for having tried to get them than that you accept somebody shrugging their shoulders and saying, "Hey, I don't think I can handle that." You should force that individual to handle it -- force him to produce a system that will do all the things that you want to do for the people that you serve as educators. That has to be the parameter. The two speakers up until now were both realists in my earlier parallel and they know where the realities are and they are working with those things. Mr. Hostetter pointed out that we are on the verge of a scramble to take up turf against the future, because nobody is quite sure what the future is going to be. The future is going to be what you shape it to be. The future is going to be what you design it to be. And only by dangling the dreams way out there will you really design toward that potential. Challenge those people to do what they can for you, because you are challenged constantly to serve the people in your educational systems, be they public systems or higher educational systems.

You are there to serve the people, and let this cable system be something that helps you serve people and doesn't become an end unto itself. Thank you.

Question & Answer

Would you explain two-way communication?

I talk to you and you talk to me. Two-way communication is a cable system which allows the flow of information both ways. It allows you to receive a signal and it also allows you as an individual to send a signal. It may be either an electronic or a non-video signal, i.e., some kind of impulse like a computer or telephone signal; or it might be a video signal, like in the Picturephone. Two-way communication is simply a system that provides for information transfer both ways, and that is a technological possibility and reality. You'll see a demonstration of it at the end of the day today.

One of the New York systems is experimenting with two-way. The Akron system is building two-way capability.

The Detroit Study is available from the Detroit City Clerk's office, in total or in summary. You can contact George Edward's office, the City Clerk, for copies of it.

In the 14-month study did the group go into the ways this could be done, and is there provision made for 90 to 100 percent utilization of the system?

We studied, as best a lay group could, the financing of cable television, particularly on a scale of the City of Detroit. What we found (again with due respect to Mr. Christensen and his dislike of moratorium and intellectualizing) is that is not possible to assemble 27 or 28 lay people and expect them to produce the kind of sophisticated financial projects that would be required in the City of Detroit. What we determined is that it would cost a hell of a lot of money and that we don't know how much. And again I have to stress, we designed a system that we think would serve the City of Detroit, and we said to the Common Council, here is a system. We believe from our study that it will have to require some public ownership or some public subsidy of one kind or another in order to accomplish this. In terms of financial feasibility, someone with a lot more expertise than us is going to have to determine that. We narrowed it down to somewhere between 30 and 100 million dollars, give or take 20 million on either end!

Part of our concern in recommending a public ownership mode had to do with the whole rate structure. A public authority can borrow the needed capital at a far less expensive rate than a private entrepreneur could and it would appear to us that that would help to reduce the subscriber cost. Secondly, by having public ownership, all of the operation and maintenance is done on a contractual basis. Those incomes which people project in all kinds of extreme ways as coming into the system (and apparently it is and will be a lucrative system when done right), those incomes would be piled back into the system and would utlimately provide better programming and eventually lower subscription rates. We do not see that wiring the City of Detroit will necessarily produce higher individual subscriber fees, as you seem to indicate you believe it would. The City of Detroit, compared to a rural area, has a density which makes wiring a good thing. We believed and argued that one of the reasons for single public ownership was to guarantee that the development occur logically throughout the city, so that 100 percent penetration could be achieved in terms of ability to tie in.

Whether the person decided to tie in or not, our concern was that the person had the opportunity to tie in. We could see that if you fragmented into a number of different franchises, or if you left it to a franchise holder to wire the city, obviously the people who are most able to afford it will be wired first and the people who need the information the most might be wired last. So part of the concern about single public ownership was that the potential for tieing in 100 percent could be achieved logically, compared to what might happen if you just spread it out into a number of franchises and let it go.

What percent of utilization of a CATV system would be necessary to do some of the things Mr. Shelton suggested?

Obviously, as I believe Mr. Hostetter pointed out, he would argue that the two-way system would be about double the cost of a one-way system; and I don't disagree with that, nor did the committee. All we are suggesting is that if you design a system that provides an abundance of information to people who need that information, then you increase the likelihood that they will tie into your system. If you provide a system that does little more than duplicate the entertainment potential that they already have, it's going to be a tough sell. We believe that cable television, particularly in the City of Detroit given some of its real problems, provides an opportunity for communication not now present; and that that opportunity once available will, in fact, persuade people to tie into the system to gain the kinds of information they need. The interaction with government services, health services particularly, the potential for that is tremendous. The ability to transmit all the health information in the City of Detroit to the people who desperately need it is minimal at the moment. The person who needs it must call, between 8:30 and 4:30 on weekdays only, the Public Health people and ask them, for instance. That's not a good way to communicate health needs information, particularly if you have that need on a weekend or at night. If you provide a full range of those kinds of services I believe you would maximize the number of people tieing into the system.

What units of government can, in fact, issue franchises?

I was just about to ask Mr. Christensen for some support, and he left! My understanding is that franchises traditionally have been made by the city or the municipality or by the lowest denominator of local government, because, in fact, you are crossing their streets and using their thoroughfares and in some cases using public utility poles and so on.

I'm told by others who raised that question during the study that because of the home-rule provisions in the state of Michigan that the lowest level of home-rule option is who issues currently. If, for instance, there has been a discussion of county-home rule legislation which would grant certain home-rule powers to counties, it is entirely possible that that ought to be a consideration of county-home rule power. In Oakland County, for instance, you have a couple of large cities, Royal Oak and Pontiac, the rest of the cities in Oakland County probably cannot individually sustain a cable television system, and it's going to make a lot more sense to wire the county of Oakland than it is to start building a series of small little systems and then later try to wire them together. Right now the home-rule option in the state of Michigan means the lowest level of home-rule government can grant franchises that could only be changed by the state legislature if it wanted to bend the home-rule operation that now exist.

What were the basic parameters recommended by the committee in the study done in Detroit, particularly with the number of channels?

The committee recommended that the city write a franchise with a minimum 36 channels and with a minimum of 7 channels dedicated to educational use. Those seven were to be divided up among the various units of educational government affecting the City of Detroit. As has been pointed out, that would require some exceptions from the FCC, but, again, that is what we thought was right and if it takes an exception, then, fine, we'll apply for the exception.

Does the figure "7" come from 20 percent of the total number of channels?

No. It came from a long process of negotiations among the various interests on the committee, some of whom said let the educators do their own thing and others who said let's make the whole thing educational, and we arrived at 7. We arrived at it in the same way we arrived at the 30 to 120 million dollars which is lay people negotiating their interests and their concerns and their knowledge.

In the study in Detroit, were cooperating systems considered and what was the reaction if they were?

There are two or three answers to that. One, we looked the whole subject of regionalization and interconnectibility over. Several of us went down to the Dayton conference on the regional system that Rand recommended for the Dayton-Miami Valley area. The committee rejected the idea of a regional system in its recommendations, not unanimously, but it rejected it. It did unanimously support a specific recommendation that the system be guaranteed interconnectibility to any systems existing in the region in order that information could flow into and out of both Detroit and those smaller communities.

The Southeast Michigan Council of Governments, which is the regional agency for Southeast Michigan, has a task force on urban communications, of which I'm the chairman. We are looking into, as a regional agency, that whole question of the regional implications of cable television, be it construction or program interconnection. There are a number of active grants -- there are three existing franchises, Ann Arbor and Ypsilanti have granted franchises that are not yet operating and the cities of Dearborn, Highland Park, St. Clair Shores, Grosse Pointe, are all in the process of studying cable because of very specific requests for a franchise which have been received by those cities. There is a scattered pattern in Southeast Michigan and something needs to be done to tie it together, we think, and we're trying to find a way.

ETHEL BOOTH

M.A. Teachers' College, Columbia University

Educational Media Consultant
Currently on leave from her position as materials specialist with the Beverly Hills (California) School District to pursue a broader variety of media interests, notably CATV.

Other Activities:

Coordinator of Special Projects for American Film Institute

Moderator of weekly discussion program aired by Theta Cable in Los Angeles

Trustee of National Academy of Television Arts and Sciences, and First Vice-President of Hollywood Chapter

Just completed for National Cable Television Assn. a brochure concerning the cooperative ventures between schools and cable companies

Serves as educational consultant for cable companies

Has written articles for several national publications; "CATV/School Collaboration," appearing in the May, 1972 issue of Educational and Industrial Television, most current.

UTILIZATION OF THE CABLE BY EDUCATORS

Ethel Booth

I'm delighted and honored to be here today. Along with my pleasure at being in such thoughtful company, both on the platform and in the audience, I feel a great sense of responsibility. It was for that reason that I have written and rewritten what I wanted to say to you today.

I know you'd like specific examples of what has been happening elsewhere. Because my experience and training has been in the field of communications, in education, as well as in local radio and television, I feel an urgency to communicate what I have learned about cable in the past two years, and what I'm still learning every day. You, in this audience, are the very people who can take information and opinion and translate them into meaningful terms for your own community. You really can make things happen. We can all be involved in influencing the shape of things to come. If I didn't believe that, I wouldn't be here today.

All of us who have been involved in media in education know for how long we have urged greater and better use of television in the schools, and how hard we have tried to persuade administrators that both television and movies were respectable enough to include in school curricula. We have made encouraging headway with teachers, who were at first alarmed that television would replace them. We've applauded "Sesame Street" and "The Electric Company" even while being frustrated that it has taken so long to get just two programs like those on the air. We've all been saddened by the budget cuts in the schools which always seem to hit innovative programs like closed-circuit television facilities first.

That's the educational background that I share with many of you. But I am prejudiced, and it is only fair that you should know this in advance. I am prejudiced in favor of cable television, because I see it as the natural extension of so much that we've wanted to do for so long. I'm also impatient; impatient of those among my colleagues who find it more stimulating to argue about channel allocations than to get down to the much harder, but more rewarding activity, of developing programs that the cable can, and often will, implement right now. I know how important access to the channels is, but I also know that educators have almost as low a credibility quotient among cable operators as some operators have among some educators.

School people, in all too many instances, have not come through with programs when access was offered them on existing systems. My primary concern is to urge all those with leadership roles in education and public service to start immediately to think about cable in terms of a two-pronged approach.

Deal with the practical politics, as indeed you must, but at the same time, start thinking about, and start planning for, actual programming efforts. I am concerned that educators and others are in many instances being maneuvered or maneuvering themselves into an adversary position when this is not at all inevitable. In some communities, and yours may be one of them, cable operators have perhaps been less than cooperative in their attitude toward schools, or for that matter toward any public service agency. But for every negative experience there really is a positive one, somewhere. Regrettably, just as with bad news on television and in the press, the bad seems to get wider publicity than the good. There are signs that the situation may be changing.

Last fall the National Cable Television Association asked me to take on what turned into a rather formidable task. From time to time the Washington office had been acquiring information from systems about cooperative efforts with schools within their own area. The materials that came in were not always very informative. Some were frankly promotional, and closer to publicity releases than realistic accounts of what was happening. There were masses of paper accumulating, along with reprints of articles from local newspapers and magazines. A staff member came up with the idea of asking an outside educational consultant, with some knowledge and experience of cable, to read the material, authenticate it wherever it seemed necessary and then pull it together into some publishable shape. I consider myself lucky to have been given the assignment. As I read, I realized that some of the success stories might have real value for others.

Since CATV has existed longest in widely scattered, often very small, communities, there was little information being circulated about what was really going on. No one took a particular interest in looking for patterns or sharing information about successful partnerships. Everybody thought that his situation was unique and without relevance to other areas. But they did have relevance, it soon became clear.

I was well aware that NCTA was interested in projecting a better public image in citing instances of social concern; but I, too, wanted to let people know good things could come of cooperation between cable and the schools. My primary interest was, and is, to encourage educators everywhere to adapt the good ideas to their own situations, and to motivate them to come up with new ones for their own communities. Equally important, I felt, was spreading the word among cable operators that there were numerous systems already working actively and harmoniously, even profitably, with educators. I hoped they would be encouraged to go and do likewise.

I must tell you what one cable operator wrote about his own experience in a college town: in the four months after the college was given a channel, his system gained 593 subscribers. He goes on, in his own words, "These can be substantially credited to the new relationship the cable company has developed by its recognition of the University's interests, which are a permanent concern to a campus-oriented city. From the standpoint of the cable company, there can be no doubt that the dedication of the cable channel to the University has been a successful business investment. However, this should not obscure the fact that the primary use of the channel is educational, and that the public interest is being greatly served by the educational and cultural programs originating on campus." The system, by the way, continues to prosper, and

the college professor in charge of the program told me very recently that 3,500 of the 8,500 enrolled students are now viewing their courses off campus on cable, thereby relieving a serious classroom shortage, among other things.

Since the NCTA booklet is not out yet, I think I should cite a few excerpts for you to consider, in terms of your own hopes for the future. Incidentally, it includes no bad examples, no failures -- only successes -- positive thinking to the nth degree! A condensation, by the way, is in the May issue of "Educational and Industrial Television Magazine." Let me give you, very briefly, examples of the kinds of cooperative programs it documents:

Liberal, Kansas, shows the general public taped segments of what goes on in the course of a single school day in a school.

Willingboro, New Jersey, has students interview political figures on the air. A pre-school program in reading readiness is done in conjunction with the public library.

St. Cloud, Minnesota, programs community education with quality educational films from the schools in the evening.

Marion, Indiana, uses a collegiate level show-and-tell series, prepared by different academic departments each week.

Abilene, Texas, has seven hours a day of programming put on by the public schools. One is directed to the Mexican-American children.

Grand Junction, Colorado, does an inservice program for teachers on the air.

Moab, Utah, uses video tape delay programs from the state ETV station which do not fit local class schedules.

Oregon State University gives credit courses that may be viewed off campus as well as on, by regularly enrolled students and others.

Casper, Wyoming, is in the second stage of a very innovative library video reference service.

In Bakersfield, California, the system buys a weekly program from the Regional Occupational Center.

Others, described at some length, are the much publicized two-way experiment in Overland, Kansas, with homebound children. The less-well publicized activities of the Alternate Media Center, operating out of New York University, with half-inch video tape are also discussed. A high school equivalency course, publicly funded in part, and available to many cable systems and a new student-generated project at the University of Massachusetts Media Center are briefly outlined.

Perhaps even more useful as models for new franchise provisions are the patterns that emerged from the input from 90 systems of how cable companies

and schools have dealt with studio usage and connections to the cable. It was a surprise to me, and I found it to be of great interest to many cable operators, to discover how great the differences were from place to place. Where a school already had a studio, the cable company might negotiate for shared usage. Where the cable company built one, often students were given training and employment. Sometimes equipment was shared. Often costs were divided on some reasonable basis. The most generally accepted form of cooperation between cable companies and schools seems to have been the extension of the cable itself to the schools at no charge. When a school wished to have the coaxial cable within school buildings as well, there were variations. These ranged from the companies providing labor and materials at cost, to no involvement at all. On the other hand, in one or two systems, a very large number of rooms were wired at no cost to the school, in return for which the school paid part of a technician's salary for maintenance, and provided a substantial part of all the cable system's programming.

The study brings together for the first time a body of information that gives precedent for action. But the record clearly indicates that cable owners and educators have been able in many cases to come to terms agreeable to both, without knowing about other arrangements. So much for the report and what is past. I hope the NCTA will distribute the study widely not because it is definitive research, which it is not, but because it marks a beginning that is very important. It underlines the fact that the cable industry is entering a new phase in its extraordinarily rapid growth. It puts everybody on notice that education will play an increasingly significant role in new cable systems. I hope the first brochure will only be the beginning of an ongoing service by NCTA which will make additions to the initial survey available at regular intervals. The original manuscript was delivered in January. It is being updated in Washington right now, and it is promised soon.

I said at the beginning of these remarks that I was more interested in how cable is utilized than I am in strategy for gaining access by political fiat or municipal ordinance. I should like to make clear that this is not to be interpreted as indifference to the idea of two, three, four, or a dozen channels devoted to the public interest, but I'm more concerned with what you will do with the channels when you have them. The FCC did, of course, set aside one channel only for education, public access and municipal use, but I believe that that was meant as an assurance and not a limitation. With technology moving ahead so rapidly, the 20 channels are now the rule, not the exception, with bi-directional capability assured, and expansion to 60 channels possible already. I'm confident that channel access is not the issue of the 70's. It is only one, and not so crucial as some, I think. I'm convinced that with new markets opening up, companies will be casting about for ways in which to differentiate themselves from each other when they vie for franchises. Obviously the available technology is known to all of them. I think it likely that progressive companies may begin to recognize, if they haven't already, that one very good way to establish their special identity is to offer positive advantages to the educational community, if only in the attitude they display. Schools should study franchise proposals and should make their opinions known to city councils. But there is a lot of homework to be done in advance. Don't ask for the moon, but find out how to get there, just in case someone should offer it to you.

There is little question that schools, as we know them, are undergoing almost revolutionary changes. It is not only the students who are rebelling, but also the public. A large segment of the public is blaming the schools, not altogether fairly, for all the social ills that beset this generation. I don't have to tell you that there are crises throughout the nation, on school financing, busing, and accountability, to name a few. There is urgent need to inform the public and to regain its confidence. At last there is a way to do it. Your community hears about national problems on network television and on the front page. But where can it hear you, the mayor, the school superintendent, on a continuing, even a repeated basis? I urge you, even before there is cable in your town, to evaluate not only specific needs, but also your specific resources -- human as well as technical. Be prepared to talk to cable operators when they approach you, as they will, about what you can give as well as what you can get. If it is only feasible for you to program cable for three hours a week, that's all you should promise or ask for. Perhaps your first programs will be carried on the local origination channel rather than on the educational one. In any case, you must resolve to deliver what you promise. Too often there is initial enthusiasm, but not enough commitment. Once the cable operator has given you access, you really can't count on him for too much more; in the early stages he will have his hands full just setting up a workable system.

If I were to develop a primer for the guidance of educators and cable operators alike, I would remind both that the word "education" today is an umbrella term, and that it encompasses more than the regularly structured institutions known as schools or colleges.

A year ago in Washington at a cable conference, I chaired a workshop on education where some young people demanded in no uncertain terms the same consideration for what they were doing with half-inch Porta-Pak equipment, as school systems were asking in the name of the educational establishment. This is a significant development that can still serve the cause of education as most of us still define it, but only if properly respected and recognized as a means of involving an often extremely and increasingly uninvolved group -- the disillusioned young.

Government agencies, civic groups, individuals with all kinds of special concerns must be respected for their special point of view. They educate too. It becomes possible through them to break down the walls that have traditionally surrounded activities labeled "educational." They don't have to be programmed on the school channel to be educational.

It may be a good thing to have your community eavesdrop on a city-wide teachers' meeting, a city council meeting, or classroom discussion of drug abuse. They may wind up supporting the next bond issue, or reelecting a candidate because of a new awareness of what's going on. There is nothing unworthy in being conscious of the public image you project, and it is very worthwhile to use cable to put your best foot forward. How you do it will depend on you, your goals, and your own community. For the first time you need only consider your specific needs without regard for capturing or, indeed, captivating a massive audience, which is what television, with its scarcity of channels, has always required.

Involvement is a key word. Students can be involved in putting on cable programs, as well as in instruction via the cable. Adult education programs can utilize a combination of televised lessons and periodic sessions in a classroom or on campus. Teachers may be given inservice training in the home in the evening, instead of having to travel to a central location at the end of a school day. Vocational training programs can be repeated to accommodate different schedules and relate to actual tasks being performed in many locations, at the direction of the televised teacher, but under the supervision of a classroom instructor. Wouldn't libraries and museums make wonderfully interesting new sources of visual materials? Portable equipment should make them far more accessible than they have been, and far more useful to greater numbers. Tapes can be played and replayed, in and out of the classroom, on the cable, and off the cable. Cable can give the community leadership a chance to reach more of its constituency more easily and more often. It can extend the benefits of education to groups whose needs were never adequately served before. It can do this by virtue of its many channels and the company's willingness to help non-professionals make the best use of them.

I urge you not to believe the pessimists who say cable costs the schools too much money, amateurs can't use it or, who needs it? It not only does not cost the schools more money, it saves them money by making the best teaching available to more people. It does not take special expertise to use the equipment -- sixth graders are using it in many parts of the country, so are college students, so are women teachers. Many new possibilities are opening up for increasing the effectiveness of police and fire departments and health service agencies as well. You are limited only by your own resourcefulness. As you begin to explore uses of cable you will inevitably discover new ones, unique to your own community.

I'm sold on cable. It can help solve so many of our most urgent problems. When you give people the opportunity to find out what's going on among groups, and in activities that would not ordinarily be available to them, you open up new avenues for understanding. Let parents see what their children are learning. They'll support their schools more when they do. Let children listen in on adult discussions. They'll begin to recognize their parents' real concern for them. Let the old and the homebound regain an interest in developing new skills and new understanding. In short, let's really begin to use the media as cable now makes practical and possible.

Why shouldn't minorities have access to the cable to address not only their own constituency, but to let others hear how things really seem to another part of society? Television can't afford to give time to splinter groups -- cable can. Education is many things. It's school-to-home, as well as to the classroom. With bidirectional cable it may soon be home-to-school. I understand the frustration of educators who know that to use television for instruction requires more than one channel. But I'm suggesting that we can all profit from a period of adjusting to new conditions, and that some access and some programming might well be important in developing mutual understanding of strengths and weaknesses, and an awareness of how each can help the other. Domestic satellites may be one important answer to instruction on a continuous basis over cable, and much sooner than any of us suspect.

The National Association of Educational Broadcasters has come out strongly for what it calls Telecommunications Centers throughout the United States. Commissioner Nicholas Johnson has recently added his approval of the concept. Surely this is something to which educators can lend their wholehearted support. Cable and public television must work together to enhance each other's greater usefulness, perhaps in this kind of telecommunication center. Whatever you can do to bring about a closer partnership can only be for the common good.

The National Center for Educational Statistics reports that three out of four public schools now have television receivers. One in four have video tape recorders. Seventy-seven percent of the public elementary schools have television sets and sixty-six percent of the secondary schools. So we seem reasonably ready for cable.

It has been said that power corrupts. I'm not sure that is necessarily so. Sometimes I think it is the struggle for power that corrupts. So I hope there will be less of that in the future in this field. There is little question that CATV is here to stay, despite efforts to hold back its progress. How it will develop will be determined in large measure not only by how we view its potential for tomorrow, but how willing we are to deal with where it is today. It's far too late to ask ourselves whether we are ready for cable television. The simple fact is that cable television is ready for us, and unless we accept this and make it the basis for establishing a working partnership now, too much energy will be dissipated in fruitless antagonism.

Here are nine personal guidelines that may be helpful:

1. Read all the books and reports about CATV that you can, as a start.

2. Attend all the conferences about it that you can; but be selective as to what applies to you and your community.

3. Keep inventory of your own technical facilities and know how they might be helpful in implementing cable.

4. Find one enthusiast on your staff, and give him full support. When he succeeds, and he will, if you are an enthusiast too others will come knocking at your door to get on the bandwagon.

5. Find student enthusiasts. Give them an active role in all parts of the program effort, and watch how rapidly they learn by doing. You'll learn together.

6. Let the public know your objectives. Encourage feedback, and when you get it respond vividly and quickly.

7. Let the cable operator know your objectives. Maybe he can help in ways neither of you expected in the beginning.

8. Initiate projects requiring Federal or Foundation grants, in partnership with the cable system, and be prepared to make it a working partnership.

9 Finally, involve everyone you can, and then keep looking for more people to involve.

Encouraging local self-expression is what it's all about, to give whatever is vital in the local culture a voice. I don't think this is what the cable industry had in mind in the beginning, nor that this kind of goal has a high priority, even now. But make no mistake, cable can improve the quality of life by revitalizing human relationships and the sense of community so lacking today. The only question is, will it? I think it will if we improve the quality of our concern for each other as people, and as professionals, each in his own special field. Above all, we must realize that we are participants, however reluctant, in a very real revolution. There are still choices to be made. Do we, or don't we seize the chance to make a decisive contribution for changing American society for the better? I hope your answer is yes, because if it is I know the outcome is assured. Thank you.

Question & Answer

If you use a master teacher, and a master teacher is re-used, how do you compensate that teacher?

At the moment there are no Federal standards. In various school districts that are using teachers over open broadcast television today, they are setting their own standards. Only in a few universities where they are doing extensive instructional television have any kinds of salary schedules been set. The answer to your question is that everybody is still improvising and figuring it out. I guess I'm guilty, in effect, of saying don't worry about that, find somebody who wants to do it and do it. That really means, of course, that you are exploiting people. On the other hand, it's in a good cause and I think you'll find people like me, and some other teachers who'll do it anyway. Don't wait for models elsewhere -- create your own.

Could there be some compensation to the cable companies for multi-channel use by the educational establishment?

That's a two-faced question. The answer is yes. Usually it isn't in money. It is in some kind of services. There aren't enough examples in, as yet, as to what happens, but I would say it is on a negotiable basis, yes -- programming, studio help, man-hours, and the like.

What's the prognosis for 2500 MH_z. We've been talking cable all morning. Is 2500 MH_z the ITFS system a passe system at this point?

My views are not necessarily the views of any established group, but in my observations I think there are still people who are hung up on the 2500 MH_z as opposed to cable. I think that where you want a closed loop kind of situation, and where you have 2500 MH_z, a lot of people will still use it and want it. There is an effort being made by educational technology groups to try to reconcile the two. I've had one experience where a school district wanted the cable operator to get involved in providing the special equipment necessary -- all kinds of things that I don't understand -- where the ITFS system was involved. It didn't work; and the cable operator in this case simply went away from the schools and did what he wanted to do elsewhere. My feeling is that cable has superseded the 2500 MH_z.

I would say that if you had it of course you are going to find uses for it; but I would question the wisdom of going into it at this point, where cable can do more easily what people are trying to accomplish with television today. You can have private channels on cable too. It depends on how you negotiate with the system and what you feel you need most.

Which is least expensive?

I would say cable is, because the cable operator is spending the basic money and you're going to be involved with him. My feeling is that there is no advantage to a school district's going into ITFS at this point. But I am no engineer.

Fifteen years ago we were being told at conferences that television was going to be the cure for educational ills, and today we seem to be saying that cable is going to be the cure for educational ills.

I don't think that is contradictory at all. Fifteen years ago television was all that was available -- educational television. I've been very interested in debates where people say that educational television has strayed from the way in which the Carnegie Commission had foreseen it being used. I think that happened because the technology kept changing. I think it very unrealistic to expect the educational broadcasting people to go back to that original and rather confining instructional television concept. I think cable has now come along, and that cable is, in effect, going to do better than what we expected educational television to do fifteen years ago. An ETV station only has one channel -- remember that. A lot of teachers don't use the educational television stations because they are required to deal with a subject at a specific time to take advantage of a program. You noted I mentioned that one city uses the cable to take off the air the educational television's instructional programs, and then plays them back at a more convenient time. That's the way cable is going to undergird educational television.

What is done in Beverly Hills with cable TV and how does that role facilitate the cable effort?

The Beverly Hills School District has come under the same knife that everyone else has, and the dial-access information retrieval system, which depended on telephone company bills being paid every month for the five schools that were interconnected, has just been sliced. The knife has fallen, and the high school is the only school that will be receiving and using school-originated programs over the closed circuit facility in the coming year. There has been no cable system in the past. Theta Cable, which is the company mentioned before, does have the franchise for that area, and is going to connect with the schools, but it may take a year or almost a year and a half to make it actually viable. What will happen then, I fully expect, is that the Beverly Hills School District will again be in operation with its five-school system for a much lesser cost than what it had before. I would hope the student and faculty expertise developed these past years would be put to good use.

DAVID H. FOSTER

J.D. University of Iowa

President, National Cable Television Association, Washington, D.C.

Formerly:

Executive Vice-President, Data Transmission Company

Vice-President, Secretary, Board of Directors, Collins Radio Company

Head of Contracts, Stromberg-Carlson

Assistart to the President, H.B. Wagner Company

Attorney at Law, Lynch, Dallas, Smith, Harman, Cedar Rapids, Iowa

PROMISE AND REALITIES OF CATV

David H. Foster

Let's be clear about what I am. I am the epitomy of duplicity and greed and avarice -- namely, a Washington lobbyist. My function is to represent the interests of cable television operators, and therefore anything that I say today should be viewed exactly in that context. I am an advocate.

Something fairly drastic has been happening to our society in the last twenty years; and it really doesn't have anything to do with sexual permissiveness, or hallucinogenic drugs, or international communism, or astrology, or the current vogue of transcendental mysticism. Rather, it has to do with a basic change in our industrial society.

For the past 100 years I think it is fair to say that the basic resources -- the basic stuff - of our industrial society have been things -- raw materials, factories, foundaries, warehouses, company towns and railroad lines -- and all these things were brought together to produce goods. Now suddenly we discover that there has been a change, that the basic resource of our industrial society is turning out to be information. How did this change take place? I suppose it took place laregly because of the influence of the digital computer and its various peripheral devices and because of the influence of television. But the change is there, nevertheless, and I think we need to think a little bit about what this change means. The basic stuff of our society before, if I am right, was things -- things have situs, things have a place, a fixed location in time and space. But now, I think, with this new basic resource called information, we have to recognize that information doesn't have a situs, it doesn't have a place. Information flows. It's dynamic, it's not static. Once its locked into place it becomes totally unusable. It has to be freed up. Information must be communicated.

This has created a problem for us. The problem is that the basic communication resources of this country have simply failed to respond to this new reality -- the new reality of an information society. The basic communication resources of this country of course have been dominated by the communication common carriers epitomized by Mother Bell and the Bell System Companies, Western Union and the so-called independent telephone companies, and by the broadcasters -- the networks, radio and television broadcasters. I would like to suggest to you that part of the reason, or part of the cause of failure of response of the classical communications establishments in this country, is that their communications philosophy was based upon our former lifestyle of things. Things fixed into a location. The telephone company is

basically designed for one person at one fixed place to phone someone else and talk to him -- to create some kind of living warmth between two fixed locations. The flow of information is minimal. The warmth may be there, but the information isn't flowing.

How do we get out of this problem of the failure of communications establishment to respond to an information society? I think we see some very hopeful signs around us in that there are new entrants in the field. There are the new, specialized common carriers, one of whom I was formerly affiliated with, that are taking on the awesome responsibility of competing in an open market with the communications common carriers. Hopefully they will bring a new technology, a new spirit of competition into that market that will liven up the scene a little bit and make the communication common carriers more responsive to the needs of this society.

We also have, emerging on the horizon, the possibility of a domestic satellite system. I think with the encouragement of the Federal Communications Commission that, too, will become a reality.

Finally, and, of course, this is the one I want to talk about, we have the emergence of cable television as a new entrant that will possibly be more responsive to this new information society, to the requirements of that society. Now, I don't want to rehearse for you today all of the possibilities that the cable can bring to us. That has been done so many times, and I know that all of you are familiar with it; the vast new quantitative capabilities of cable, in terms of the number of channels, information, entertainment, of every possible manner of programming that can be brought to you, the two-way capability, the interactive potentiality of the cable, as opposed to traditional broadcasting techniques. Let me assume that this is given; that we all understand what the cable can do for us. You are going to see a very interesting demonstration this afternoon of the very real present two-way capabilities of the cable. Let's take it as given that the potentiality is there, that the promise is there; that here we have the possibility of a technology that can do things for us that haven't been done before.

Let's talk, instead, about some of the problems that we Americans have in dealing with new technologies. I would like to see these problems, basically, as two. They are a little bit opposing.

First of all, we are terribly enthusiastic about new technology. The history of our nation seems to move from one enthusiasm to another on some new technological wonder, whether it was steam engine, the gasoline engine, to flight, to atomic power, to micro-electronics, to television itself, and now to cable television. We like to put all of our hopes, all of our aspirations, all of our pent-up needs for the solution of social and economic and political problems on whatever new technology presents itself. This is fine. I think it is part of the strength and progress of our country. I've been involved in high technology industry for many years and I have faith in it. I certainly am not one of those who wants to turn the technological clock backwards, if that can be done at all. But at the same time I'm wary. I'm suspicious of this enthusiasm, this naive willingness to place in the vessel of any new technology whatever we feel is wrong, whatever needs to be done in our society.

It seems to me we have a tendency to overlook, in our technological devotion, the economic realities, the regulatory realities, indeed the technological realities that surround these new possibilities. At the same time we are doing that, and this is the other side of the problem, at the same time that we are putting all of our hopes on this new technology, we debate the life out of it. We talk about it forever. We like to cherish these new possibilities and look at them and study them and confer about them and have long seminars about them, because we are worried that we won't use them exactly right. We are worried that some new technological wonder might be coming just a few months or years behind this one and so we shouldn't put all our hopes in this one, but maybe wait for one that is just a little bit behind it. Between these two things it seems that we have our problem today; the problem of too many hopes and expectations being placed on a new technology, to the point that we build up expectations to the point where they can never be fulfilled. I think we have all had the horrible experience of unfulfilled expectations in our society. At the same time that we are doing that, building up all these hopes and expectations, we are frustrating the real development of this technology by studying the life out of it. How can we find a middle path somehow? That's what I want to talk about today.

It seems to me that all of us -- educators, government officials, cable operators and others -- all of us should move ahead with the real fact. Find a means for getting on with it. Let's stop talking for awhile about all the wonderful things that this new technology can do for us, and concentrate on putting that new technology in place by building it and by seeing what it can do for us once it's in place, once it's a reality. What I'm saying is this: We can't devise the perfect cable system for education until we have built a lot of cable systems -- a lot more than we have in place right now. We will never learn so much about what a cable system can do for education as by watching it in action. We can never devise the perfect franchise arrangement until we have let some franchises and let some operators work in those franchises and see how it turns out. I'm arguing for getting on with wiring this nation. Let's take this technology where it is now and let's put it in place; and then, using that experience, let's see what can go on beyond that point.

This industry -- the cable industry -- has been through a long, a painful freeze. The freeze at the FCC is over now. We have some rules to go on. But there are a lot of other paralyzing freezes that seem to be whipping around our edges. The freezes of those who want to wait for a real understanding of how we are going to use this new technology in education. Those freezes, my friends, are just as paralyzing as the freeze that we went through with the FCC. Now I would argue for you today, let's not let those freezes happen. Let's get on with it; let's wire the nation; let's see what we can do with it.

MICHAEL NEBEN

B.F.A. Ohio University
Graduate Study, Boston University, Northwestern University and Salem State

Acting Chief, Technology Systems Unit, National Center for Educational Technology, United States Office of Education

Formerly:

Education Program Specialist, Office of the Associate Commissioner for Educational Personnel Development

Executive Producer, WHDH-TV, CBS, Boston

Director of Radio and Television, Northwestern University

FEDERAL FUNDING OF EDUCATIONAL INVOLVEMENT

Michael D. Neben

It is a pleasure to be in Lansing today for this conference. The previous five speakers have provided a rather formidable act to follow. My major encouragement is that in laying out the program there was a grand design of putting the stick before the carrot and saving the carrot of federal funding for the end. I think I'll follow that same strategy and take the liberty of making a few other remarks first and keep you on tenterhooks until we get to the question of what funds are available.

A couple of weeks ago I walked into one of my colleague's offices while he was on the telephone. He was talking to someone who had submitted a proposal for funds and I overheard him say, "I'm sorry but we cannot fund your proposal at this time." After he hung up I gave him a little lecture on the power of positive thinking and projecting a good image. "Be positive!" I told him. A couple of days later I walked in on a similar situation. He was on the phone talking to another person who had submitted a proposal and I heard him say, "I'm sorry, but we positively cannot fund your proposal." In light of that, I hope you'll pardon me if I'm not positive today!

Ethel Booth indicated in the course of her talk, that she is primarily interested in the utilization of cable television in education. Now, we in the Office of Education are interested in that aspect but we are also very interested in the protocols of providing a healthy climate for that utilization. With that in mind, Dr. Ruffing asked me to say a few words about establishing relationships between the school people and the cable people. I have jotted down several pages of notes on what I consider to be generally reasonable considerations. Some of these have been covered already in the morning session, but I think they bear repeating.

Above and beyond everything else, be reasonable. There is much talk from a lot of quarters and there have been many people approaching the FCC during the hearings leading up to the cable television regulations claiming and demanding that the FCC should "reserve 20 percent of channel capacity," or "50 percent of channel capacity," or "15 percent." I think that there is a more reasonable outlook on it and that is, as educators, do not seek more capacity than you can justifiably use and use effectively. I think we should also not consider trying to reserve channels for future use, unless we can show good, solid long-range plans for how they are going to be used. Let's not be wishful in our thinking.

It's not to say we shouldn't look to the future and we shouldn't be looking to have a large number of channels, as many as we can effectively use; but let's make sure that what we ask for is what we can use. I think there is ample precedent in the reservation of FM frequencies for education, in the reservation of the 2500 to 2690 MH_Z spectrum (ITFS) for education and in the reservation of UHF and VHF television channels for education, in which our cries for what we needed have far, far overshot what we actually used.

Another consideration is to avoid technological overskill. CATV channels can be used to provide a great many, very diverse, capabilities for the schools. Many of them Ethel Booth covered, many more she didn't, but she's got them all down in her little book. Using CATV channels as an intercom system with smiling faces is a sure way to raise questioning eyebrows on the faces of CATV system operators. I think we need to remember that cable TV system operators are accountable to their stockholders, and we should no more expect free wiring of school buildings or free studio facilities or free production and technical personnel than we should expect to receive free telephone service, office furniture, or instructional personnel. Conversely, I think that we can and should arrange for cooperative services with the CATV operator. Many operators would only be too happy to work with you, training students in production techniques and studio operations as part of an on-the-job training program. Others would be pleased to share your studio facilities in the school in exchange for providing extra capacity and services.

I could go on, endlessly, with the kinds of things that can be done in cooperative relationships. I think it is more important, however, to suggest how to establish those relationships. As educators, you should make contact with the system operator as soon as possible -- not to negotiate, not to demand his cooperation -- but to mutually explore the potential cooperative relationships that could exist. Invite your cable system operator to the schools in your system. Let them "case the joint." Let them see what you're all about. At the same time, get them to invite you to their facilities, and have them explain to you what they are all about. Begin a dialogue. If you can't speak their language get someone from your school system who can. Cable TV is highly technical. I don't think you do your cause one bit of good by trying to bluff your way through.

Remember that the reason CATV operators are in business is to reach homes, not schools. Take a good look at your program -- those things that your schools are doing, and pick some things that will send your school into their subscribers' homes. Look at your adult basic education programs; your services to homebound students; your early childhood program; all the rest of the programs in the school. Consider how you can use the penetration power of cable into business and industrial locations to expand your vocational and technical education programs. As you make the educational programs attractive to people in their homes, their offices and their factories, you help the cable operator to get more subscribers. I can't think of a nicer quid pro quo to stimulate a long-term cooperative relationship.

Several elementary principles spring readily to mind: first, establish your educational objectives; then, see how CATV can support their achievement. Second, don't shotgun your efforts. Select very carefully those few important

objectives for which CATV provides a maximum opportunity; then put all you've got into them. Third, use the availability of this new medium as a full partner with a serious role to play in the educational enterprise; not simply as some extra measure to enrich the present process. Fourth, use this new medium in a context of change to help you do new and vital things that simply cannot be done by more traditional means. Finally, do not expect CATV to serve as a miracle drug for your ailing education system -- use it for what it is; a favorable and potentially valuable new delivery system for the best you have to offer. Learn to use the new medium appropriately, imaginatively, effectively and efficiently, and I think it will help you do more, do it better and do it for more people. With that litany of triumph, how could any cable system operator deny you access to his system.

Mr. Foster indicated in his remarks a few minutes ago that we shouldn't spend time agonizing over the question of what constitutes a perfect educational use of cable. I agree with that, and I would add the footnote that until we have a perfect system of education the question that Mr. Foster raises will remain unresolved. So I'm saying, put your own house in order first; among other things decide on the criteria and the procedures for access to the educational channels that are going to be assigned to you; decide whether education is the sole province of the local school district or whether it should be expanded to include the local higher education institutions, free schools, proprietary schools, and so forth. Once you have established these policies, let the system operator know the one person who will be his liaison. If the operator is bombarded by conflicting or unclear requests or by multiple contacts with duplication of effort he is very likely to be less cooperative than if he knows that the education community speaks through a single voice.

If all of those things make any sense, and I think they do, then it seems to me that they open up a whole different perspective on the question of funding, because once we are talking in terms of improving the quality of education and improving and expanding the equality of access to education, then we are no longer restricted to specific kinds of legislation, specific kinds of funding arrangements.

That leads me to the carrot. There are large-scale funds available for cable television, but they are where you will least expect to find them. Let me give you a few examples.

In the Department of Housing and Urban Development the New Cities legislation considers home communication centers a part of the physical structure, and therefore, makes the installation of such equipment eligible for FHA funds (FHA guaranteed loan).

In the Department of Justice, the Community Relations Services are very interested in providing for community access to cable.

The Law Enforcement Assistance Act (Department of Justice) is very concerned with cable and all types of communication as a means for providing increased effectiveness in law enforcement. In the Department of Health, Education, and Welfare we see education as a cradle to grave operation, and as such there are funds from a variety of different places that could be applied in the field of cable. On the Health side of our house, we are interested in integrated health services and medical education. Over on the

social welfare side we are interested in counseling and diagnosis of social needs, community information and community education.

Over in the Department of Commerce, the Small Business Administration is interested in cable for a variety of reasons. There are small businesses springing up to produce materials for cable, to become maintenance and repair organizations for cable, to become cable operators themselves.

I would suggest to you that rather than my standing up here and trying to explore with you, and for you, all of the varied sources of funds that the federal government has to offer, that the best single reference which any of you can get is called the "Catalog of Federal Domestic Assistance" (available from the Superintendent of Documents, Government Printing Office). This is an annual compilation of every single statutory program the federal government has that offers funds, and it tells you what those funds are to be used for, who administers them, what the procedural guidelines are, how much is available, what the average grants are, what the restrictions are, and who to contact with names and phone numbers. I would offer that as the place to turn first. As you leaf through the pages of the "Catalog of Federal Domestic Assistance," leaf through them with an open mind and with the idea that what you want to do in the way of your objectives can be very creative and can fit into a wide variety of categories within those programs and that you don't have to keep coming to the U.S. Office of Education for funds for education. You can go to any number of places.

A second bit of counsel with regard to funding is that you have here, in Michigan, a very capable and active State Department of Education staff, concerned with this very question. I would turn to them for assistance. I'm sure they can help you, and what they can't help you with they can communicate with us and we will try to help them, to try to save you the bother of scouting 55 different offices in Washington.

In addition to those sources of information there is a table specifically for education that Dr. Ruffing has indicated will be made available to you with the proceedings of the conference. This table was prepared in our office, and it is what we call a legislative opportunities table -- information about legislation and programs of the U.S. Office of Education. It gives details on every single program that is administered in the office and what it can do with regard to telecommunications activities. It was prepared in our office by Dr. Lawrence Grayson and is up to date and the best work that has yet come out in that area.

Now there is something that I think you ought to know about the way we're thinking in terms of funding. The Office of Education is putting its primary emphasis on demonstrations of the cost effectiveness of using new technology to improve the quality of education and to expand the equality of access to education; on recognition of the internal budgetary tradeoffs that are possible within the budget of a local school district or institution of higher education; on the elevation of knowledge of the synergistic relationship that exists between education and technology; on specific categorical support for the services which the delivery system can provide, such as teacher inservice training, off-campus education at all levels, career education, reading readiness. We don't envision large-scale support for cable system installation, operation, maintenance or reception equipment. In other words, we don't expect to be in the cable operation business.

Because we recognize that there are some major short-falls within the existing legislative framework, we have been working for the past year and a half on developing a new comprehensive piece of legislation which will give us a major new thrust in the field of educational technology and educational telecommunications. I would like to go over several of the components briefly to give you an idea of where we are and what we are thinking.

The new legislation is being proposed and we hope that it will be introduced into the next session of Congress. It will provide funds for programming -- that is, software development and utilization -- on a national or regional level. Programming of the nature of "Sesame Street," the "Electric Company" and some of the other programs of an ethnic nature that cross territorial lines, geographic lines, that are applicable in various parts of the nation. Training of technology personnel; we currently have the authority to train teachers in elementary-secondary institutions, we have the authority to train instructors in higher education institutions; but nowhere do we have the authority to train technology personnel. We will have this authority when this legislation is enacted. The example that comes most immediately to mind to support the development of hybrid technology systems, is something that was used directly in the justification for this program. I think it is indicative of some of the questions that were raised this morning.

Recently a proposal was submitted requesting $5,500 for a local school district. That's the kind of paltry amount of money that we wish we could write a check out of the bottom drawer and give it out; particularly, because what they want to do is so straightforward and of such major potential significance. This is a school district that has about 20 schools. Every school has a master antenna system. Every school has television sets. Most of the schools have half-inch video tape recorders. In the high school they have a fully equipped, and very heavily used, color capable, closed-circuit TV system, with studio facilities. Up until now they've been recording tapes in the high school studio and bicycling them around to the schools, or they've rented Telco lines in order to get them among the schools, both of which, I think you can recognize are either very time consuming or prohibitively expensive. The local cable operator had come to them and said, "We will give you a couple of channels to use for educational purposes." They want $5,500 to buy a micro-wave link from the high school studio to the cable headend so they can deliver the products from the high school studio that are recorded off air or produced locally, through the cable headend to all of the schools that are on the system in dial access retrieval fashion. Now that is, in my way of thinking, a hybrid technology system, and it doesn't cost much money in many instances to be able to do it.

Finally, the new legislation will provide support for planning of comprehensive technological innovations in education -- such things as planning and first-stage prototype modeling of satellite use and ground terminal use. In addition to this new piece of legislation, there are many new ideas kicking around as to types of funding arrangements. One of them was brought to the floor of the House of Representatives late last year by Representative Quie of Minnesota, and it was called a guaranteed loan for telecommunication system development. Unfortunately, it was challenged on the floor of the House on

a point of order as having been in the jurisdiction of the wrong committee, and it was eliminated from the legislation. But the idea behind it was very simple. Where there is a potential for recovering revenue, such as in a higher education operation, the federal government would underwrite a guarantee on a loan to that institution to enable it to get into the business of telecommunications, very much the same as the government underwrites your housing mortgage and mine through the Federal Housing Administration. So we are not without ideas -- we are trying to sound the field, find out what it is you need and devise ways of providing for it. Much of this is in the future. I would encourage you to try very hard; we'll try with you.

Several people have looked quizzically at the little button on my lapel. It represents what I think is the keystone behind the whole cable movement. It says "Plant a flower in the vast wasteland," and it was the NCTA slogan last year. I believe as educators you have the seeds, and you need to sow them wisely and liberally. Thank you.

HAROLD W. KATZ

Ph.D. University of Illinois

Vice-President, Vicom Manufacturing Company

Formerly:

Co-founder, KMS Industries, Ann Arbor

Director of Research, KMS Industries

Director of Research, Tecumseh Products Company

Section Manager, Solid State Division, General Electric Electronics Laboratory

Instructor, Electrical Engineering, University of Illinois

DEMO: DUPLEX-TV AND VIDEO-CASSETTE

Harold W. Katz

Although this conference is in part dedicated to the educational benefits to be derived from new technology, there are times when the interaction between people and machines produces unexpected results. Inadvertently, the tape recorder, which was to record our presentation and demonstration on two-way interactive terminals, was not turned on. Hence, we were asked to prepare another version of the talk for inclusion in the conference proceedings. However, this has provided an opportunity to review the remarks of the previous speakers and enable us to relate more closely the general discussion of the potential of two-way cable to the actual hardware which already exists. Also, without pictorial content it is difficult to recreate the atmosphere of a live demonstration.

There are several recurrent themes in the previous talks which relate to CATV technology and education. One is the educator's request for access to some fraction of the available channel capacity versus their ability to provide cost effective programming to fill these channels. The second is the hope that this extended information handling system will provide the means for creating a new dialogue within the community and improve the quality of life through these new relationships. The ability to achieve the latter objective as well as cost effective programming, depends to a great extent on how one perceives the nature of cable programs as governed by cable technology. Cable is viewed many times as simply a linear extension of off-the-air television with a greater number of channels; i.e., someone produces a program from a studio or via a pre-recorded tape and depends upon an unknown viewing audience tuning in. This may explain why on the average, these types of programs have had very uneven results in the field of education as reported by the previous speakers. The difficulty with this viewpoint of cable television is that it neglects one of the principal characteristics of the conventional television medium which is independent of the number of channels available. The relationship of the viewer to the TV set is relatively passive, with no real sense of involvement. Therefore, educational programs must compete with entertainment programs for the visual attention of the viewer which leads to high cost programming in terms of facilities and personnel.

The key to the success of cable for education purposes in its broadest context lies not so much in the number of channels but rather in its interactive capability which removes viewer passivity and introduces a mechanism for achieving an "improved quality of life". Interaction utilizes the

two-way transmission characteristic of cable and modern amplifiers. This means that information can be originated and received from every subscriber location. With the proper terminal hardware, each subscriber is able to participate in a program in an audio, video, and digital mode. The "studio" is thus located anywhere in the community, and the "members" of the class are likewise distributed throughout the system. In other words, a true "school without walls" can be created on cable. The demonstration at the conference showed the use of the home terminal and head-end computer system to illustrate the basic functions that are available with the Vicom terminal.

Each subscriber would have a basic terminal which connects the TV set to the cable. Various peripheral devices can be attached to the terminal as required. The first interactive unit is the handheld keyboard which also contains a microphone. A second unit is a TV camera which can also be plugged into the terminal. The system is completed with a converter which permits the subscriber to obtain more than the standard number of channels.

A "class" is established in the following manner: the individual assigned as the "teacher" would have a TV camera and a peripheral TV display brought to his location which may be a school room, his home, or office. The computer at the head-end would turn over control of a TV channel to his terminal for the duration of the program. In addition, the pre-programmed computer would also accept information only from the terminals of those who were permitted to participate in the "class" which may number in the vicinity of twenty. In order to take the attendance, each participant types in his name via his own keyboard. The computer displays this list of names on the TV display associated with the "teacher"location. Whenever a student wishes to interrupt with a question he strikes the letter T on his keyboard. The T appears immediately next to his name on the display, together with a code. The "teacher" inserts the code via his own keyboard. This action turns on the student's microphone and a dialogue takes place between student and teacher which is heard by all those watching the program. In fact, several requests to talk can be held simultaneously, thus generating a group conference and the "teacher" retains the ability to turn off the microphone of any individual at any time.

A similar procedure is undertaken if one of the participants also has a TV camera and wishes to demonstrate an activity at his location. The use of the letter C as a request for cablecast would permit the "teacher" to insert a code which would automatically turn off his camera and turn on the requested TV camera. A further variation of the technique permits the "teacher" to control a remote video cassette system to call upon additional recorded material to supplement the live discussion. In this manner a channel has been assigned to any small group who can create programs of their own involvement for a specified period of time. The new dynamics of participatory television opens new vistas for community education.

The Vicom system is currently being utilized in Overland Park, Kansas on an experimental basis to teach homebound handicapped children who normally are visited on a one-to-one basis but now can participate with their peers. Extended applications include:

1. Adult Education
2. Pre-school Instruction with Parents
3. Remedial Education
4. School-to-School Classes
5. Community Issues
6. Inservice Teacher Training
7. Youth Groups.

A derivative benefit of interaction television is the ability to utilize a broader spectrum of resource personnel to conduct "classes" since neither the "teacher" or "student" need congregate within a standard classroom environment.

In addition to the purely audio/video modes, the Vicom system includes extensive digital data entry and retrieval capability. This provides access to various data banks and computer assisted instruction programs as the software becomes available. Messages can also be sent from each location to a program source for opinion surveys and answers to questions, or to a data bank for storage; e.g., for handling the administrative data arising from a number of schools within the district.

This brief review of the potential of Vicom's Interactive Television System was supplemented by an actual demonstration of the various features described above. The ability to incorporate this technology effectively in a new system depends upon the number of reverse video channels that are incorporated into the two-way cable configuration, and the degree of cable segmentation to produce large numbers of locally interactive communities.

PANEL DISCUSSION

Is there an exemplary CATV system in Michigan or elsewhere that one might visit?

Ethel Booth: I don't think so. I think that what you could find would be places where a lot of things are ongoing. For example, in Reston, Virginia, there are some very interesting uses of computerized materials going over the cable. I think that computer-assisted instruction is something that should be investigated, and I think that Reston would serve as an example. In Overland, Kansas, a bi-directional system has been used, but on such a limited basis that it is questionable whether it would mean very much to you. On the other hand, they are dealing with two very severely handicapped children who are actually being dealt with as students by a teacher in a studio -- a very interesting use of CATV.

You will also find very soon that there will be another project on a larger scale that will be funded by the Federal government which, perhaps, will be designed specifically as an exemplary project. I know in New York State, somewhere up around Kingston, there are several cable companies cooperating to give credit courses through the college there. That has been fairly successful. The outstanding example that I mentioned this morning was Oregon State, Corvallis, where cable is really doing a lot of work with the University and the community. So far as a public school system is concerned, I would have to say no.

Pat Conley: I have not been in the systems that I will mention, but there has been an interface between CATV and the educator in Michigan. One example is the cable system in Alpena, Michigan, in which I believe the university is providing something like 30 hours of programming per week. There are systems in the Upper Peninsula which are also carrying courses that I think are coming out of Northern Michigan University and there are a number of cable systems up there carrying them. There is also a system in Kalamazoo Valley College utilizing cable system capacity.

In Iron River we receive two educational channels in addition to a local origination channel. Is this generally the case with other cable systems?

Pat Conley: Most of the cable systems that operate in the state are carrying off-air television signals in addition to the locally-originated signal that I made reference to earlier. As an example, our system in Jackson is carrying two educational television stations, WTVS, out of Detroit, and also WMSB, out of East Lansing.

Mike Neben: The Catalog of Federal Domestic Assistance is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. The last price that I recall was somewhere around $6.

How should major universities fit into cable television?

Bud Hostetter: I was conspicuous by not raising my hand for that one! Ethel mentioned the University of Oregon, at Corvallis. There is an interesting analysis that has been done by Rand Corporation on two universities' experiences with cable in the northwest, one of which was the University of Oregon. I think that paper, as background information, gives you quite a spectrum of what has been done and the experiences vary from extremely good and satisfactory to near bust in some areas. I think it is really a function of the people involved and their ability to cooperate in conceptualizing and implementing constructive uses of the facilities. I think I can say without fear of contradiction, that I don't know of anyplace in Michigan or nationally where a truly motivated educator with some positive program ideas has gone into a cable office and been refused access. To the extent that there have been any such cases, I, for one, would be happy to join you in twisting some arms.

Ethel Booth: There is one other thing to consider here. Something has come up in my discussions with individuals in this audience, and other audiences, and it points up a very simple step that not very many people have taken. I mentioned it this morning too. I think you as educators have to start becoming aware of what you have already in the way of studios, equipment, VTR's and the rest (I venture to state that all the universities whose names you've mentioned have some very valuable kinds of equipment and expertise) and then I think you have to make this known to the cable operator. One young man I talked to said he was anxious for cable to come into his community, but couldn't attract anyone. Well, I think maybe educators are going to have to reverse the process in cases like that and make known the fact that they are interested in attracting private industry, in the form of cable, and saying what it is they have to offer.

I want to underline what Bud said. I was very surprised at the Rand Study, because after all the rather technical and ponderous tests of what went on and how it happened, the report indicates it really all boils down to the fact that one university did very well, and the other did poorly. Perhaps it's because in one university there was at least one very highly motivated professor who literally did what had to be done, and in the other university nobody cared.

Mike Neben: By way of analogy, I think the degree of unevenness in utilization is probably tantamount to the degree of unevenness in utilization of audio visual techniques within particular school systems. If you've got an audio visual arts director who is really turned on by CATV and has some sensitivity to what you can get the kids to do on their own and what applications can be made of this, that kind of guy is going to be an effective liason with the cable system. If the guy is the assistant football coach who sits around and diagrams plays on the blackboard and dusts his audio visual equipment once a month, then that is the kind of liason that the school is going to have with its cable system.

What should the universities be doing now, and how might they be most useful?

Ethel Booth: They should get together. Several people said that. You've got to have one liason between you and the cable man; he cannot solve your inter-familial disputes.

Mike Neben: I think there is another part to the answer. The institutions themselves have got to take a much closer look at the specific needs of the people they are going to serve. For example, many institutions in the country have a very large commuter population, people who work all day and come in at night to the institution for continuing education purposes or for degree courses that lead toward increased certification. These kinds of situations, particularly in a place like Michigan where I'm sure during the winter there are frequent cancellations of university classes because of weather conditions, lend themselves very nicely to serving the population outside the university in homes and offices. You might also want to take a look at the work that is being done down at the Tager System in Texas, which is using 2500 MH_Z ITFS rather than cable, but is providing off-campus industrial location graduate engineering courses for engineers right in their business establishments. The engineers are given free time during the day to go to school. To allow an hour a day for employees to upgrade their skills is to the benefit of the employer.

All of these kinds of off-campus delivery systems are an extension of the role of the university as it now exists. I think that is kind of a needs assessment -- it's the first step that needs to be taken by the university.

Are there any current and established uses of CATV or data processing transmission? If so, who, what, when, where, and how?

Ethel Booth: It depends on your definition of data processing. If the question is addressed to digital information I'd say no. To my knowledge that is still a laboratory approach. Sanders, which I mentioned this morning, an information and display company, is now testing digital transmission, frame grabbing approaches and things of that nature on our system in Portsmouth, New Hampshire. In a system we have in Fostoria, Ohio, we have put in a tie-line between police station and fire station and city hall, displacing the previous telephone service for audio circuits. All this technology is there; what the industry lacks and what the educators as an interest group can contribute, is concrete ideas for utilization. We can sit at this kind of conference and talk forever about what can be done, but we have to start doing some of it and seeing what some of the real cost benefit tradeoffs are.

Is this a better way to move information? I was talking with a gentleman at noon about the educational film library which is moved around Michigan by truck. My guess is that when you get right down to the costs, he's going to be better off running around by truck than he is distributing by microwave and cable system. But we are never going to know unless we closely study it.

Is there any way to estimate the cost per reel to clear a school district's 16 mm film collection for use over a cable system?

Ethel Booth: I have some information indicating that it has been done, but I don't know how they did it. I believe that in Abilene, Texas, what they did was to have the films that the school owned or rented sent to the studio or headend. The films were then sent out over the system, not only during the day for school use, but they allowed the cable system to use them after 5:30. They did a very ingenious thing -- they started at 5:30 with films that were suitable for the lower grades and then moved on up, so that about 7:00 in the evening the films were on an adult level that was suitable for the senior high schools. If this is being done on such a large scale there, somebody has already worked out some kind of formula. I don't know what it is, and I imagine that the film companies are probably just as unclear as to what the rights are worth, so that's possibly negotiable.

Mike Neben: There is a trade association that deals in educational films and I would think that this question might very well be addressed to that council for some sort of a policy statement. I would recommend that you write to the Educational Materials Producers Council of the National Audio Visual Association. You might also try the Michigan Audio Visual Association and ask them the same question.

The answer was too general. I'm bothered by this discussion. On the one hand we're being encouraged to go out and try new uses of cable and on the other we're being told by the panel that they don't know what our liability may be or what other problems and costs are. Could you please extend your idea?

Bud Hostetter: I think I'm the one who is being accused of a sloppy answer. My point is that we are more likely to identify the problems related to copyright and what the relative cost tradeoffs between truck and microwave and cable distribution of those programs are, by getting a specific case to work on. What we need are people with applications, ideas, and the follow through to start identifying the specific problems. This is the only way we'll crack the nut of what the cost tradeoffs are, what the copyright problems are. I think we can sit around in this group and basically exchange ignorance on into the night. What we need is the one-to-one relationships of people with a useful product to be distributed and cable operators.

Ethel Booth: There are two things I want to add. First of all, I would highly recommend that you have a businesslike arrangement. There are certain kinds of considerations that people should pay attention to, and since there are many people more competent than I to deal with these considerations on an administrative level, what I'm trying to say is that you need to involve those individuals and receive the benefit of their input.

If my answer was too general, it wasn't meant to be. I tried to be very specific by naming the areas that were using their own mm film on a cable system. Maybe the films were aired illegally, I don't know. When I was with the Beverly Hills School District occasionally we did some of the things that you all know, if you are media educators, there is no legal justification for doing. When you have the capability, coupled with technology, of taking programs off the air, often times you do it. In one case the events weren't really very amusing. We were caught by a newspaper photograph. The reporter

had come in to write something about our fabulous closed-circuit system, and the photograph he took was so good that it showed a close-up of the television screen, from which you could immediately identify the program that was being played in that classroom! So things do happen.

Film companies argue that maybe you'll only buy one print instead of several, if you can show it on television. In view of that fear, I would like to add something you know as well as I -- film viewed on a large screen, in living color, may suit some of your purposes much better than seeing that same film in black and white over television. So nothing here is being said to indicate that cable is the only way. I have merely given examples of ways in which a number of places are dealing with various situations.

What would be the minimum size of a city or the minimum number of subscribers to support a CATV system?

Dave Foster: Most of the current studies indicate that if you are going to have program origination, if you are going to build in two-way capability, if you have fairly large metropolitan construction costs, then you have to be thinking about a potential market of 20,000 subscribers.

Do you mean 20,000 households or 20,000 subscribers?

Dave Foster: A potential market of 20,000 subscribers.

Is there in existence a community system that is publicly owned by the community?

Gary Christensen: There are such instances. There are about 50 systems in this country that are either municipally owned or cooperatively owned. I think probably the closest one to Lansing would be Frankfort, Kentucky. The experience in terms of a lower rate to subscribers or revenues to the city varies all over the lot, just as it does with a privately operated cable system.

Pat Conley: To the best of my knowledge there are two systems in the state of Michigan which are owned by cities: Norway, and Crystal Falls. I can't speak to the financial aspects of it, except by hearsay. Their rate structure is somewhat lower than the average cable system in the state -- the average being $4.95 a month. I think that both of those systems are either $3.50 or $4.00 a month. I have heard, and it is only hearsay, that both of those cities have municipally owned power companies and it is the revenues generated from the power that is also helping to support the cable system.

Gary Christensen: You want to get a variety of opinions on the relative merits of municipal ownership. I would suggest that you check with Frankfort, Kentucky, which has both a commercial and government-owned system in operation. There the government-owned system also is used in conjunction with a municipally-owned power system and so you can make some comparisons there. The other community I would urge you to look into is San Bruno, California, where the municipality undertook to construct a cable system several years ago, and I think it would be interesting for you to go through their decisions.

Mike Neben: I just want to add a footnote. This is way out of my field, but it is something that we looked into on the commission that I chaired. You can't just look at whether cable is a municipally-owned system or privately-owned system, whether it is profitable or unprofitable, or whether it has a low subscriber fee or a high subscriber fee. You've got to look further at what kind of services are being delivered and in what magnitude. In other words, you've really got to look at the total system in terms of the number of channels, how they are being used, what it is costing to use them and who's providing what kinds of subsidies. If you don't you are going to get a very false view of whether municipal ownership or private ownership or multiple system ownership is the appropriate way to approach this.

Bud Hostetter: There are several areas besides Detroit that have seriously considered municipal ownership. One is Sacramento, California, the other is Jacksonville, Florida. Jacksonville retains the services of the Cable Television Information Bureau in Washington, D.C., which is a nonprofit, foundation-supported, organization set up from funds supplied by the Ford Foundation and the Markle Foundation. As I understand it their report is completed, or will be completed, within the next few weeks. Presumably, they have taken a hard look at the pros and cons of municipal and private ownership, and I suspect, given their credentials, that that piece will become a definitive work on the subject.

How do the complexities of copyright relate to the use of a product on cable TV?

Gary Christensen: Quite frankly, when you fold copyright concepts into the federal regulatory picture, the problem is extremely complex. In my experience with private copyright owners, they want to get as much money out of it as possible. The federal regulations simply apply concepts which, heretofore, were copyright marketing practices. The possibility of getting copyrighted material is simply one of negotiation -- you have to find out who the copyright owner is and then you have to negotiate fees. There is no simple answer other than that.

I am beginning a production to be utilized on cable. What do I do to make it available to other educators on a nonroyalty basis and how can I get your input on the production?

Mike Neben: Once you decide what it is you want to do, who you are going to do it for, what need exists for it, how much it is going to cost to do it and the credentials as far as production, then make it clear that this is for use on a free or nonroyalty basis to anybody around the country and I'm sure we'll be happy to look at what you have and evaluate it.

Would cable be able to go into a small area on a one-way basis?

David Foster: This is one of the problems originating from the new rules. If this community finds itself falling within the television market of Lansing, then the FCC requirements for two-way capability, twenty channel, and the rest, would apply. I don't know what the commission is going to do on reconsideration of this point; it has been raised by a number of communities, by a number of operators who have franchises as yet unbuilt in similar communities. I have

a feeling that with this problem the Commission will be granting some relief. I say that simply on the basis of my own hunch, rather than any insight as to what the Commission might do. I think we are talking about a situation in which the rules could, logically, be relaxed; but as the rules stand, no.

Bud Hostetter: I concur with David's answer. However, it may not satisfy the questioner. I sense you are asking about a specific community and suggest you go to some cable operator with the facts of the specific market and say, "Is this a viable proposition?" The answer will vary tremendously depending upon where it falls relative to existing broadcast stations, and therefore, how the current FCC rules impact it. I can tell you that we are operating systems in which as few as 2,000 homes participate, which is a community of about 6,000 or 6,500. I'm perfectly satisfied with the results there. It's definitely a situation by situation analysis, and you can find out easily enough by talking to any of the cable people here about it.

Does federal funding of a project generate copyright-free material?

Mike Neben: That's not entirely the case. There is a policy that allows that a limited copyright be placed on materials under certain circumstances, which results in royalty sharing with the government. I would say that we exercise that option very rarely. Probably the most outstanding example of that right now is "Sesame Street" which does have copyright on everything they are doing.

How do translater systems fit into a cable operation? What is their function?

Gary Christensen: A translater is simply a low-powered repeater station which takes a particular television signal and then processes it through some electronic equipment and puts it out on a different channel for a limited area. In terms of the federal regulations, translater systems fit into the cable operations only insofar as its location is in the community where the cable system operates. In that instance, the carriage of a translater is required by the cable system and it has no other responsibilities than that, nor is it connected in any other way.

What about cartridge TV? How does this fit in with cable plans?

Dave Foster: We don't see any basic conflict between cartridge video and the cable system; we feel that they are complementary arts.

Mike Neben: We've been talking with people over at the Mitre Corporation who are developing a system called "TICKET", and I hope nobody asks me what that is an acronym for, because I have trouble with it. They use a frame graphing technique, which is a video tape recorder with the transport mechanism disabled in order to stop a frame and repeat it many many times. This allows you to use a single frame over and over again and service a great many subscribers in almost simultaneous fashion. One of the things we've been talking about is that by taking a standard cartridge television receiver and putting on a disabling switch, so the transport motor can be disabled, you can have your cake and eat it too. In other words, you will be able to record the normal cable offerings for your own pleasure at your own time without the mechanism disabled, and use the mechanism disabled as the TICKET system for the specific purposes for which it is intended. I think that goes merely to reinforce what David said about CATV being compatible in many respects. A lot of this is still laboratory; it's going to be what the market will bear in terms of what people are willing to buy.

Bud Hostetter: I had said this morning, before I ran over my time, that I would be happy to give you one operator's point of view on what I would call the NEA or PUBLICABLE thinking on CATV. I notice that you haven't asked for it, so maybe I should be smart enough not to offer again. However, I think it is important.

This industry is a vested interest, as I think educators are a vested interest. I think we have to be able to stand back and take our role as citizens and say as a "citizen cable operator" and a "citizen educator", "What are the implications of demands or requests for 20 percent of the channel capacity of the cable system on a free basis?" I don't think you have to be a brilliant economist to see that, in fact, what you are asking is that the other 80 percent of the users pay your way. I think as citizens we've got to think pretty hard about the propriety of such a request. Aren't you in fact saying, "I'm so discouraged by the failure of my school bond levies that I want to impose an indirect school bond levy." I think this presents a significant policy issue. But even this structuring of the issue begs the question of whether educators can and will use cable in a constructive, cost efficient way.

Our association had Ralph Nader at its national convention a week ago as the keynote speaker. I think we are one of the few industry associations that has asked Ralph Nader to come to lunch and felt that we were going to be able to digest what we ate. We did, and Nader gave us a lot more to digest. A theory that he expounded and one that bears repeating, is a theory of Joseph Shumpeter's. In described economic growth and business cycles, Shumpeter placed heavy emphasis on the role of innovation. Innovation was the process of creative displacement, new technology replacing old and allowing productivity increases from primary and derivative reemployment of capital and labor. For me, consideration of cable in these terms, in terms of potential "creative displacements",provides some useful insights.

Quite simply, the quantity of revenue required to support cable will not result from creation of new demand for new services. If cable is to succeed, it will be by providing more cost efficient ways of doing things which are already being done. We are talking fundamentally about substitution of demand filling processes,not creation of new demand.

Education today is a multi-billion dollar undertaking. Massive amounts of capital are coming from the public in tax levies and going into static, nonproductive assets -- bricks and mortar, desks, blackboards and paper. Our mutual task is to find applications of cable which represent creative displacements for such uses of society's capital. Until we find such applications, cable is no more than an expensive toy in the education process.

The FCC has provided, in its wisdom, a period for experimentation, initially one channel, more as justified by use, for education on a "free" basis for five years. For this period other users will pay for the capacity used by the educational community. To view this as an annuity, a fundamental right to capacity, paid for by others is in my judgment a mistake. I think as citizen educators and citizen cable operators we must view such free use as a social investment. It brings with it the responsibility to find applications

which are economically justifiable in the long term -- whose benefits more than offset the cost to society of the capacity used. "Hoarding" against the day of possible use or possible shortage is in my opinion socially irresponsible. There are no "freebies" in cable for society at large; cable has social value only if it fosters creative displacements, more new cost efficient ways of providing "an education." Quite simply, the FCC rules have said, "You have five years, go and find such applications."

If we can approach our mutual problem in this framework, if we can focus our efforts on a search for such uses and avoid the struggle over "who gets what for free," I think we will be well on our way to realizing cable's potential in education. The problem is not access, it is not capacity, the FCC has, for the interim, dealt with these problems. What we must focus on now is finding and demonstrating beneficial cost efficient ways of utilizing this new distribution system in the education process.

TELECOMMUNICATIONS CABLE CONFERENCE PLANNING COMMITTEE

Dr. Charles Ruffing, Chairman
Michigan Department of Education

Dr. Tom Baldwin
Associate Professor
Michigan State University

Mr. Patrick J. Conley
Vice-President
Continental Cablevision of Michigan
Jackson

Mr. Robert G. Leffler
Director, Television Services
Alpena Public Schools

Mr. Jack Lotz
Instructor, Radio and Television
Kalamazoo Valley Community College

Mr. Michael J. McCarrol
Chief Engineer
Detroit Public Schools Broadcasting Division

Mr. Leslie E. Steen, Jr.
Instructional Media Consultant
Lansing Public Schools

Mr. Tom Terwilliger
Michigan Cabletronics
Southfield

MASTER OF CEREMONIES

RICHARD EGLI

Richard Egli is presently the Director of School Information Services for the Adrian Public Schools. He began his work in communications at Kent, Westminster and Boston Universities, receiving his M.A. from Michigan State University. Mr. Egli has worked in the Promotion Department of WMSB-TV and has been the General Manager for both WIOS, Tawas City, and WVIC, East Lansing. At this time he is actively involved in the planning of the Lenawee County Education Telecommunications Network.