# THE VIDEOCASSETTE & CATV NEWSLETTER THE SYSTEMS/THE MARKET/THE FUTURE

The oldest, most authoritative and widely-read newsletter in the electronic audio-visual and telecommunications fields

## **Special Report**

WARNER CABLE'S QUBE

What It Is - Why It Is Important - And What Effects It May Have

The back cover of the 1977 Warner Communications, Inc., annual report, is a still life of objects representing the entertainment products and services which the company produces and distributes worldwide. These include record albums, motion picture film, sheet music, magazines, soft-cover books, a soccer ball, a tv set hooked up to an electronic game, and casually perched in the middle of it all, a computer terminal with numerous buttons and the inscription, "QUBE -- a Warner Communications Company."

This is Warner Cable's QUBE computer terminal now being test-marketed as part of a <u>highly sophisticated cable communications system</u> in Columbus, Ohio. The system holds the potential of revolutionizing the entertainment, audio-visual instruction and educational industries, among others.

QUBE, pronounced "cube," is a division of Warner Cable, which in turn is a wholly-owned subsidiary of the Warner Communications entertainment conglomerate.

QUBE represents a minimum investment of \$13 million in capital and operating expenses



so far, with some industry observers placing the cost closer to \$25 million. Warner Cable's revenues for 1977 were \$55.7 million, which compares with an incredible \$532 million-plus for recorded music and music publishing, and \$253 million-plus for theatrical film distribution -- the two largest divisions of the parent corporation.

However, the WCI top management, including chairman of the board Steve Ross, look forward to the day when Warner Cable will be the largest or second-largest operating division. At a stock-

holder's meeting in early May, Ross said he expects a <u>cash flow of \$220 million</u> <u>yearly</u> within the next decade -- "a conservative estimate." Ross also predicted some time ago that Warner Cable will eventually out-distance all other departments of the company in profits. QUBE is perceived as the computerized 'yellow brick road' which will lead WCI to that future.

Warner Communications had a spectacular year in 1977, with gross revenues above the \$1 billion mark for the first time. Net profits, however, were only about

\$9 million above 1976, due to a variety of factors. In the first quarter of 1978, successful film, music, and publishing operations propelled WCI to the best first quarter -- and best any quarter -- in company history. Net income through March 31st jumped 13% to over \$20 million; and gross income soared 23%, to over \$312 million. Clearly, WCI has the cash and the leverage to expand QUBE within and outside of Columbus, despite Warner Cable's lower operating income in 1977 due to QUBE's market debut.

#### A Technical Overview

To understand how the QUBE service operates and what ramifications it might have, a technical overview follows. QUBE is an interactive computer hardware and software system utilizing bi-directional cable television technology as its video and data distribution network. Two-part computer terminals are placed in each subscribing household which communicate with the central computers, so the subscribers' to sets function not only as conventional receivers, but as interactive data displays.

Technically, the Columbus project thus consists of four parts -- the central computer hardware, the central computer software, the two-way transmission network via cable, and the home terminal units. The tv set is, of course, provided by the consumer. The central computers are Data General units, which are by far the most sophisticated ever married to a cable system. One of the four computers sweeps the entire cable system every six seconds, hitting each of the thousands of home terminals in extremely rapid succession, and asking each one three questions: 'are you functioning well?" - 'what channel are you tuned to?' - and, 'which response button are you touching?"

Let's say that a subscriber has just switched to a first-run movie on one of the two Premium movie channels. The computer will register that fact. Six seconds later it will register it again, and again, until two minutes have elapsed (an arbitrary choice), and another computer then bills the subscriber. (The two Premium movie channels are now actually 'pay-per-day', and not pay-per-view, which will be discussed shortly). In this sense, one of the computer's functions as a sophisticated sweep generator, while other computers process the information and route it throughout the system appropriately. This, in turn, is controlled by the computer programming, or software.

Says Warner Cable chairman Gustav Hauser, "The software is totally our own, because you couldn't go to IBM and say, 'give me your standard package for processing this data.' No one has ever done this before, and it cost a bundle, and has taken some pretty smart people to get it together and maintain it. We have that capability in-house. We probably have more of this technological capability than anyone else in the business."

QUBE brings Columbus subscribers thirty channels, of which nine are pay-perview or pay-per-day Premium channels, and any one of the thirty can be made computerinteractive (electronic question-and-answer) at Warner's discretion -- which gives some idea of the complexity and importance of the computer software.

While the QUBE computer software package is certainly the most sophisticated yet applied to a cable system in this country, it pales in comparison with the complexity of some state-of-the-art, computer-aided instruction and information retrieval

computer software program. One such system is the Control Data Corporation's proprietary PLATO system.

The third element of the QUBE technical system is the distribution plant -- the coaxial cable and bi-directional amplifiers themselves. The decision to move ahead with QUBE service in Columbus required the upgrading of the existing cable system there to a full thirty-channel capacity, and to have two-way data communications at the rate of 250,000 bits per second established between the headend computers and each home terminal. Five hundred and ten miles of existing one-way coaxial cable plant was converted to the two-way QUBE plant (all video and data traveling over the same wire), and 270 miles of new plant were designed and built to meet the new specifications. Amazingly, the physical work of the change-over was accomplished mostly at night to avoid disrupting the conventional cable tv service of existing subscribers.

Contrary to some published reports, there is only a single strand of cable carrying all video and data communications, which branches out like a tree to serve each subscribing home. The system has not been configured to handle voice signals traveling upstream back to the headend. Says Hauser, "If we need voice at some point, we can use the telephone network." Amplifiers exist which can send audio and/or video back upstream, but they are not needed at this stage of the QUBE experiment. Warner has spent millions in upgrading, expanding, and maintaining the new distribution plant as it is.

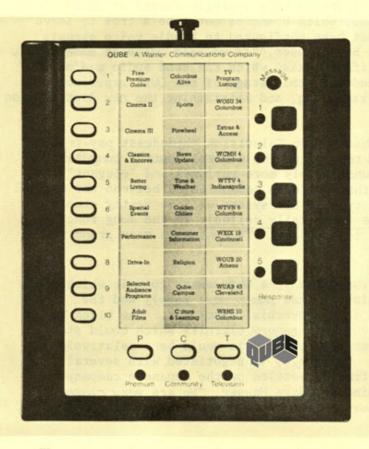
Compared with some of the latest Subscription Television (broadcast pay-tv) systems, which use the telephone network to dial up the central control computer for billing and security purposes, QUBE is considerably more rational and 'elegant' in an engineering sense. Despite the fact that the data communicated between the central computer and each computer terminal in a typical STV system will be vastly simpler than QUBE, QUBE will probably be far more technically reliable in the long run. The complicated path that data has to travel in a typical STV system is more prone to accident.

The subscriber's home terminal has two parts -- a data entry console which looks something like an overgrown pocket calculator, (see photo next page), and the electronics themselves, which are housed in a proverbial black box. The black box does not as yet contain any solid state computer memory circuits which could store complicated graphics and alphanumeric characters, but this would be a relatively small stepup to take at some later date. Warner Cable negotiated with several American electronics manufacturers, but finally settled on the Japanese company, Pioneer, to build the complete home terminals. Says Hauser, "We are very close to Pioneer -- they are WCI's partners in some other businesses including records in Japan."

Pioneer is best known in this country as a stereo manufacturer. Interestingly, another major Japanese manufacturer of audio products, Clarion, is currently manufacturing the "Teleglobe 410" Subscription Television black box for a California company called Telease, Inc. Neither Hauser nor anyone else at WCI will reveal the actual cost of the home terminals. Says Hauser, "It certainly will be well under \$500. Not very expensive." Independent and unofficial estimates by engineers who have seen the terminal, place the price tag at around \$200, which doesn't take into account savings which might become available through mass production at a later date.

If the cost is approximately \$200, and at the basic service rate of \$10.95 per month, it will take Warner a rather long time to amortize these boxes. This cost-per-home-terminal is in the same ballpark with some of the more sophisticated STV terminals, such as the "Teleglobe 410."

Much of the cost of these STV boxes is for the circuitry to unscramble a television signal which is scrambled at the transmitting site for security reasons. The QUBE box avoids the whole problem of scrambling and unscrambling the pay television channels, because the central computer would instantly detect any theft of service perpetrated by any but the most sophisticated electronics buffs. The QUBE terminal was designed by experienced engineers, and built with state-of-the-art components. Nevertheless, there were problems with security in the nine Premium channels, and an undisclosed percentage of the boxes had to be retrofitted with better circuitry. Clearly, the QUBE computer hardware and computer software system is a Rolls-Royce in a world where a Chevy can possibly do the basic job and earn as much revenue.



The Warner Qube System Control Unit

One of the reasons Warner Cable chose Columbus was because of an already well-established pay-per-view cable system which has been operating there in about one-fourth of the city since 1974. This is the Telecinema service of Coaxial Communications, a small but technologically brilliant cable company, which has been successfully operating the only pay-per-view cable system in the country for several years. Coaxial is the second of three franchises in the city of Columbus -the third is a subsidiary of American Television and Communications Corp., which was recently absorbed by Time, Inc. Coaxial's physical facilities, and the complexity of their computer terminals, pale in comparison with QUBE. But 4,300 of Coaxial's pay customers are currently receiving four channels of pay programming, and being billed on a pay-per-view basis by a relatively uncomplicated off-the-shelf computer. Coaxial officials estimate the cost of their black box to be about \$30 -- it's a rebuilt Oak channel converter with some additional circuitry added. If they ever went into assembly-line production, and built this terminal from

scratch, they estimate that each unit would cost only about \$35 -- but it does not have the question-and-answer capability of the QUBE computer system.

A Coaxial Communications engineer says that he has rebuilt a Jerrold thirty-six channel converter that functions "identically to Warner's, with response capability that is being used experimentally in a pilot project in Rockford, Illinois, financed

by the National Science Foundation." Because the quantities are so small, the price for this unit is alleged to be around \$65, but the engineer claims that it could be manufactured from scratch in large volume for about \$50 apiece. "That box will do everything that Warner's will," he claims. Clearly, Warner Cable has spared no expense in the design and construction of the QUBE home computer terminal, and may, in fact, have deliberately over-designed it for the job at hand. However, Warner undoubtedly plans to use the experience gained in Columbus to further refine their computer hardware and software systems, as well as their programming and marketing strategies.

Technically, there is nothing new about the joining of computers and two-way cable television. Experiments have been conducted with the technology for at least two decades, and it has had limited applications in medical, educational, and governmental institutions. Such companies as RCA and Hughes Aircraft experimented with highly-sophisticated computerized two-way cable systems on a limited test market basis in the early 1970's, but shelved these experimental projects when the cable television financial picture went sour in 1973. Neither of these systems had nearly the programming and marketing resources, or the commitment to build a viable business, that Warner Cable has. An interactive two-way cable system financed by foundation grants has been in operation for several years in Reston, Virginia. Last year the Japanese government installed a system similar to QUBE in a 'new-town' in Japan.

A British company, Rediffusion -- the major cable operator in Britain -- is now installing what is probably the prototype of the ultimate communications system in a town in the Netherlands. This is a dial-a-program, switched-network, fiber-optics system, with fiber optic connections directly into the home. This is at least five years in advance of anything that will be done commercially in America, although various foundations might partially support such a system for test purposes.

What is different and new about QUBE is that it is the <u>first fully commercial</u> use of the technology, and one that is attempting to measure its value and adapt itself to the marketplace. Warner Communications has approached this not as a technical exercise, but as a programming and marketing test for which the sophisticated technical system is only the conduit.

The Control Data Corporation, a major computer manufacturer and marketer with over \$1.5 billion in annual revenues, is also going into a full commercial marketing campaign with their incredibly complex and sophisticated PLATO system in the fields of computer-based education and information retrieval. In terms of interactive computer technology and computer programming, PLATO is to QUBE as a rocketship is to the wheel. One of the main distinguishing features of PLATO is its capability for computer-generated, animated graphics possible on each individual terminal; something which is also being explored by British telecommunications experts in their Teletext and Viewdata information retrieval systems.

The other major feature of PLATO is its time-sharing configuration, in which hundreds of thousands of terminals may be simultaneously going through as many different computerized courses of instruction -- this is where awesome and expensive computer power becomes necessary. However, the Warner Cable executives did not want to complicate the Columbus market test with such highly complex systems, until the basic concept has been proven at least. Says Hauser, "I'm aware of PLATO and the British systems, but no one has come as far as we have in actually implementing any

activity of this kind. Our computer programming cannot be described as being simple... We're in the process of building a business, and we have enough problems without making the computer software anymore complex than it is."

Although QUBE was designed as a testing ground for programming and marketing strategies, the various manufacturers of computer equipment, both large and small, are very anxiously awaiting the outcome. Says the president of one small computer hardware and systems manufacturer, "We're standing on the sidelines, cheering like hell. We're hoping that QUBE will open up the investment community to the potential for a lot of new services that can come onstream... We don't view QUBE as a competitor; we view them as an ally." It is doubtful that much of the QUBE hardware or software is patentable, because it duplicates or re-configures existing products, and if QUBE succeeds as resoundingly as Warner Cable hopes it will, other firms will probably jump into this market.

So much for a technological perspective on Warner Cable's QUBE. What this system permits is not only pay-per-view billing of premium motion pictures and specials from nine different channels, but also subscriber interaction with the central computer which can be manipulated in many different ways. An on-air moderator can ask any yes-no or multiple-choice question(with as many as five responses), and the computer instantly tabulates the results and superimposes them over each subscriber's video picture. Like the introductory brochure says, all the subscriber has to do is "touch the button" at the appropriate time and his "vote" becomes part of this instant democracy. Says Hauser, "We are leaving the age of passive television, and entering the age of participatory television." With this interactive capability, the subscriber may do such things as take part in opinion polls, participate in competitive quiz show games, rate performances of amateur "Gong Show" contestants from his livingroom, express his views on political issues, make restaurant reservations, and purchase books or other items.

The response-polling and direct-marketing implications, and other potential interactive uses, are tremendously significant, and will be discussed later in this report. It hardly requires a science-fiction mentality to sense how revolutionary this could be. Says QUBE director of marketing Ronald Castell, "I'm waiting for the day when a politician will be interviewed on QUBE, and the interviewer will say, 'I'm not sure I believe you -- let's see how the audience feels.'" Like all those mad-as-hell viewers who threw open their windows and screamed out at the world in the movie, "Network," the QUBE-equipped populace will be offered the chance to shout back at the world.

In the first six months of QUBE's existence, this has proven to be one of its most popular features. The programming which has the potential to tie-in computer interaction has been recently expanded on the schedule. The long-term business strategy behind QUBE is to bring cable into the urban markets, where it has not yet been very successful due to good off-air reception and astronomical construction costs.

Another possible long-term strategy is to compete against such other innovations as MCA Inc.'s soon-to-be-marketed DiscoVision videodisc programming (Magnavox, a North American Philips subsidiary, is manufacturing the consumer videodisc players). Significantly, Harvey Schein, the former president of Sony Corp. of America, was hired away by Warner Communications several months ago. He has speculated publicly regarding the possibility of combining computer interactive home terminals with consumer video recording devices.

Atari, Inc., one of the major manufacturers of computerized electronic games that are played over home tv receivers, was acquired by WCI in 1976. This suggests that if the initial market test of QUBE is successful, future technological developments might include not only the integration of consumer vcr's into QUBE, but of highly sophisticated computer interactive games. When QUBE service began in Columbus, one of the nine Premium channels was entitled: "QUBE Games." It was deleted from the service in April 1978, but Warner officials promise a return in late summer or early fall. All of these factors would help usher in the "age of participatory television" which WCI refers to, and which is perceived as being necessary to make cable succeed in large urban markets. Television has been called the most under-utilized appliance in the home, and the QUBE-connected customer would perceive and use his set quite differently. These recent innovations and acquisitions position Warner Communications to compete very effectively against all challengers in the home video entertainment market if QUBE is successful and if some of the above scenarios are correct.

#### QUBE To Help CATV Penetrate The Urban Markets

Commenting on the hoped-for penetration of urban markets, Hauser has stated, "I think it was our perception that cable had to have a new product, and that the channel of subscription pay was not a sufficient product all by itself to make that kind of dramatic leap forward into the urban markets. We think the way to get urban people to want cable, is to offer them a multiplicity of services. Cable can offer an incredible number of exotic communications services, but the problem is to first get into the homes for a monthly rental fee."

WCI's 1977 annual report states: "The management of both Warner Cable and WCI believe that QUBE offers the hope of providing the economic base for cable television service in urban markets — those served by at least the three commercial television networks with good reception. These markets have proven to be resistant to significant penetration by cable television.

"QUBE's greatly expanded programming choice, and its ability to allow the viewer to become an active participant, are a radical advance over what television or cable television has heretofore offered, bringing the potential of opening up the cities of America to cable television service on a profitable basis. This ability to interact with what is happening on the screen is why QUBE marks the beginning of the era of participatory as opposed to passive television."

In trying to turn QUBE into a profitable business on a broad basis involving perhaps other major cable television operators, QUBE will be going after the non-television viewers. On any night, it is estimated that 60% of all television sets in the country are on. Some 85% to 95% of those sets are tuned to one of the three commercial networks. What Hauser hopes to capture with QUBE is the 40% of the American population which doesn't watch much television. "The people who watch 'Laverne and Shirley,'" Hauser admits, "will still watch 'Laverne and Shirley.' I'm not concerned about them. I've got all the heavy to watchers already -- they are cable to subscribers. What I want is that other mass -- the mass that doesn't turn on the to set. That's where the cable has to go. If we're going to get more basic subscribers (increased cable penetration), we're going to have to get those people. And to get them, we're going to have to provide something different -- education,

culture, unique rather than mass appeal programming... If you go to Scarsdale, for example, and talk about a Parisian special, they could care less. These people want live local programming; they want to vote on the Panama Canal."

The QUBE market test in Columbus is a continuously evolving phenomenon of which Hauser has stated, "The program mix after year one will probably be totally different than it was in the first month of operation." By the end of the year, Warner will clearly have a better idea of the ultimate configuration of QUBE. Today, QUBE is an ever-changing concept, with which Warner is experimenting to determine how much certain projects cost, what projects are worth doing, what programming is worth acquiring, and what it could just as well do without. This is especially critical with the nine Premium channels which must not only pay for themselves, but amortize the high costs of the local live (and canned-programmed) community channels. It is apparent that in the first four or five months of operation, local programming must have attracted a very significant audience in Columbus. On April 1st, Warner more than doubled its community programming effort. The introductory brochure announcing QUBE to 100,000 Columbus residents and to the cable industry and press, boldly announced thirty virtually continuous channels of programming which would soon be available.

These thirty channels are divided into three groups: nine Premium channels which are billed on a pay-per-view or pay-per-day basis; ten community channels, and existing television channels and alphanumeric services which would all be included for the basic subscription fee of \$10.95 per month. The original configuration of the nine Premium channels was: first-run movies, "Movie Greats" from the past, classical and contemporary "Performance," "Better Living" how-to courses, sports, special events, various interactive "QUBE Games," "College At Home," and "Adult Films." The ten community channels included (and still include) one throwback to the heady days of live television, the "Columbus Alive" channel. There is also a "Pinwheel" channel devoted to non-commercial, non-violent children's programming, another channel devoted to religious programming, a "narrowcasting" channel for selected audience programs, an instructional and informational channel, and four character-generated alphanumeric information channels. The ten "Television" channels include the three Columbus commercial network affiliates, the Columbus educational station, three independent tv stations imported from other markets, a public access channel, and an alphanumeric video guide. Several major changes in this original channel configuration took place in April.

With such a smorgasbord of both pay-tv and 'free' programming to choose from, QUBE snared an audience of 13,000 subscribers within three months which is roughly half the number of subscribers to its basic cable service. There are slightly over 100,000 potential QUBE subscribers in the Warner franchise area in Columbus, the remainder of whom are now being aggressively marketed with direct mail, door-to-door sales, and various other media.

The basic monthly fee to be a QUBE subscriber is \$10.95 per month, with a \$9.95 installation fee for current conventional cable subscribers, and a \$19.95 installation fee for non-subscribers. An additional one-time \$10.00 fee gets the QUBE subscriber five 24-hour stereo music channels, playable through the home hi-fidelity system. This stereo hookup also allows QUBE subscribers to see many QUBE programs with stereophonic sound. "Our subscribers are getting the most fantastic package ever assembled for \$10.95," says Hauser.

The typical range of prices for movies and events on the nine Premium channels is \$1 to \$3.50. The average first-run movie costs subscribers \$2.50, with a top price of \$3.50 for the adult films. (The adult films are 'hard R's, but not X's). Of all the nine Premium channels, Warner undoubtedly hoped that the first-run movies would be the most heavily viewed and the most profitable. The results to date have been rather disappointing -- included in the only data released thus far is the information that the average subscriber buys 2.2 first-run movies per month, with an average bill of under \$6.00 for first-run movies alone. One problem is common to theatre owners -- an inadequate supply of top first-run movies. Also, considering that there are twenty-seven other channels to compete against (other than program listings) for the viewers' attention, including the three commercial network affiliates, there is no captive audience.

QUBE director of programming Ned Candle confirms that finding good product is a real challenge. "There's product around. We haven't run through all that there is." Candle continues, "A buy rate of 2.2 features per month is not disappointing to the movie distributors, because they get 25% of the gross or \$.62 per subscriber for the average first-run movie that the subscriber elects to buy, which is much greater remuneration per title than with the per-channel, pay-cable systems."

While the motion picture distributors would much prefer to get 30% or more of the gross, they are willing to accept 25% initially to help get QUBE and pay-per-view systems in general off the ground, just as they are being rather generous in their licensing terms with some of the early subscription television (STV) operators. The motion-picture distributors are eagerly awaiting the day of a nationwide pay-per-view electronic box office in which their pictures could gross millions in one night, and they are willing to partially subsidize QUBE and similar market tests to accelerate the arrival of that Nirvana.

"In total, the viewership of the first-run movie channels has increased incredibly since we switched over from a pay-per-view to a pay-per-day system on these channels, but on a feature-by-feature basis, it has stayed about the same," says Candle. In April, the Premium channels and the community channels were re-shuffled and re-configured. There are now two Premium movie channels -- Cinema II and Cinema III -- playing a total of eight first-run movies per month, an increase of two titles per month from the original configuration. Says Candle, "This increase from six to eight first-run features per month has not hurt the 'buy' rate of any individual feature, but has increased the total viewing of these channels." Undoubtedly, the fact that a subscriber can now watch a movie as many times as he likes during a one-day period for the price of a single admission -- 'pay-per-day' -- has also increased total viewership. This brings pay-television even closer to theatrical exhibition in licensing arrangements.

Candle continues, "With Cinema II, Cinema III, and our new 'Drive-In' movie channel, we're showing a total of fourteen features each month." The 'Drive-In' channel features action-adventure and exploitation product from a variety of major and independent distributors -- just as you would find in a local drive-in." However, any pornographic product is reserved for the 'Adult Films' channel which can be selectively trapped out of any home not wishing this service. There is also a keylock device built into the home terminal for parental control.

Significantly, Cinema II and Cinema III, including the immensely popular Disney motion pictures, are the only Premium channels which have been reconfigured into the

pay-per-day format. All seven other Premium channels, including "Drive-In", are pay-per-view. One of the vast advantages of QUBE over the pay-per-view cable and STV systems is that the data processing and billing functions are infinitely flexible, and the billing method can evolve to suit each individual market.

With a tremendous maw of nine Premium channels to fill, and an average of about fifty-five Premium programs of all kinds per month, one wonders what happens when a Premium program concludes. Says Candle, "We are pretty much wall-to-wall programming. We've got programming on from 8 a.m. until 2 a.m. on most of the Premium channels." Obviously, there is a tremendous amount of repetition for the viewers' convenience. When the channels are not otherwise occupied, a Metrodata alphanumeric display of local and regional news is fed into the Premium and Community channels.

#### QUBE Moving Into Production Of 'Specials'

QUBE has been quite aggressive in producing, co-producing, and acquiring lavish entertainment specials under the supervision of director of Premium programming, Harlan Kleiman. Their first major co-production was "A Spectacular Evening in Paris," co-produced by Warner Cable and the Societe Francaise de Production (SFP) at a cost of about \$400,000. Warner Cable has been syndicating this program to other pay-tv operators domestically, and SFP holds the worldwide distribution and syndication rights. "Cafe Manhattan" has been a continuing series, which has showcased night-club and Las Vegas-type entertainers much like Home Box Office's "On Location" and "Standing Room Only" specials which Kleiman initiated before he left HBO in 1976.

One show featuring a highly regarded E.S.P. expert, David Hoy, has also been shown as an entertainment special on QUBE, and has now been successfully syndicated to Viacom for their Showtime service. With the Warner Bros. feature film and Warner Bros. Television muscle worldwide, there is speculation that the corporation will produce entertainment programs which will go into theatrical distribution overseas, and be premiered on pay-television, including QUBE, in this country. With improvements in tape-to-film and film-to-tape transfer techniques, this material would probably be shot on videotape, and transferred to 35mm film for theatrical projection.

One major area of disappointment for the QUBE pay channels in Columbus has been sports. The sports channel has merged into the Premium 'Special Events' channel, and the quantity of sporting events being piped into Columbus from other locations has now been reduced to virtually nothing. The only sporting events which QUBE will offer on a pay-per-view basis, are expected to be intermittent spectaculars such as world championship boxing, and local high school and college contests. In April, QUBE debuted live horse racing from a local track -- a full afternoon for \$1.25 -- humorously titled the 'QUBE Stakes.' The potential for computer interactive gambling, either for fun or for real money, has undoubtedly not gone unnoticed by QUBE executives or Ohio officials.

Perhaps the most fascinating and potentially revolutionary aspect of Premium sports on QUBE is this interactive capability. In a November 1977 NCAA college football game, the viewers (of this test telecast) were asked to vote on which play they thought the coach should call during various critical moments. In seconds, the viewers' responses were tabulated by the central computer and superimposed on the viewers' tv screens before the next play took place. "It's Monday morning quarter-

backing on Saturday night, and the home audience has the opportunity to pit themselves against the coach, to <u>call the plays in advance</u>," says Kleiman. Such interactive sports will continue on the special events channel from time to time. The major problem with the full-time sports channel was simply the tremendous profusion of televised sports coming in over the three commercial network affiliates, and especially over two of the three independent tv stations which are now imported into Columbus from Cleveland and Indianapolis via cable.

#### SATURDAY, MARCH 18

Time	P	Min.	1000	Program
9:00 am	2	98	2.00	Carrie R
	3	109	1.00	Pal Joey
	5	30	.50	Dr. Who/Ambassadors
				Episodes 1, 2, 3, 4, 5 at 9, 9:30, 10, 10:30, & 11 am
	10		3.50	8, 9:30, 10, 10:30, & 11 am Alice in Wonderland
10:00	4	97	2.00	I Am A Dancer
10.00	7	120	2.00	Cafe Manhattan III ≪S≫
10:30	10	120	3.00	Midnight Blue
11:00	2	100	1.50	The Shootist PG
11.00	3	72	1.00	Duck Soup
12:00 n	4	137	2.00	King Lear
12.00 11	10	131	3.50	Alice in Wonderland
12:30 pm	7	60	2.00	Chita Rivera
1:00 pm	2	116	2.50	Airport '77 PG
1:00	3	105	1.00	The state of the s
1:30	7	60	1.50	Dial M For Murder Live at CBGB
1.30	10	60	3.00	Blue Summer
2:30	4	129	2.00	Bach: B Minor Mass
2.30	7	84	1.50	
3:00	2	125	2.00	Supersonic 2 Marathon Man R
3.00	3	118	1.00	
	1.7	118	3.00	Desperate Hours
4.00	10	100		Flying Acquaintances
4:00 5:00	7	120	2.00	Cafe Manhattan III ≪S≫
5:00	1.5		2100	Picnic
1 - 67 1 1	4	79	2.00	Coppelia (Ballet)
0.00	10	00	3.00	Blue Summer
5:30 6:30	2	98	2.00	Carrie R
6:30	-	129		Bach: B Minor Mass
	7	84	1.50	Supersonic 2
7.00	10	100	3.50	Alice in Wonderland
7:00	3	105	1.00	Dial M For Murder
7:30	2	100	1.50	The Shootist PG
8:00	7	60	2.00	Seals & Crofts
	10	100	3.00	Flying Acquaintances
9:00	3	109	1.00	Pal Joey
	4	146	2.00	Madame Butterfly ≪\$≫
	7	84	1.50	Supersonic 2
9:30	2	116	2.50	Airport '77 PG
10:00	10		3.00	Blue Summer
11:00	3	94	1.50	Cries and Whispers
	7	60	2.00	Chita Rivera
11:30	2	125	2.00	Marathon Man R
10.00	10		3.50	Alice in Wonderland
12:00 m	4	97	2.00	I Am A Dancer
	7	60	1.50	Live at CBGB
1:00 am	3	109	1.00	Pal Joey
	7	84	1.50	Supersonic 2
	10	1000	3.00	Blue Summer
2:00	2	98	2.00	Carrie R
2:30	10		3.50	Alice in Wonderland

A Typical Saturday Schedule For The Premium Channel

Is is possible that a Premium sports channel would succeed in other markets, where there is greater interest in general, and less available for free via conventional cable. Hollywood Home Theatre's PRISM pay service has been highly successful in the Philadelphia area, for example, carrying mostly blacked-out home games of live pro basketball and hockey. The same company's Fanfare service of sports and movies, etc., originating from Houston, is expected to be successful when it debuts via satellite in June. With the three commercial networks continually increasing their amount of sports coverage, and bidding the television rights to many sports events (such as boxing) through the roof, implementing pay-tv sports channels is a tricky business.

QUBE plans to buy the Madison Square Garden package of live sports events delivered via satellite, provided by UA-Columbia Cable, which will play as part of the basic QUBE service package on one of the Community channels. The strategy seems to be that if you can't sell it, give it away to insure subscriber retention.

Cultural performances have also been less successful than was hoped on a pay-per-view basis. "Right now, culture is not a big item" with QUBE viewers, and the audience for classical music, ballet, and opera is "nothing compared to motion picture product... " according to a QUBE official. These classical programs were recently moved off the Premium channels onto the community channel entitled: 'Culture and Learning.' It is safe to assume, however, that if truly spectacular classic cultural events become available in the future, they will appear from time to time on the premium 'Special Events' channel. (There is expected to be a profusion of Lincoln Center events offered to Public Broadcasting Service affiliates when the PBS satellite feeds begin to member stations later this year. Whether this will

ultimately help or hinder cultural events on a pay-per-view basis is unknown at this time, but Lincoln Center and pay-tv industry executives expect it to build the total audience.)

This relative <u>failure of classical cultural performances</u> on QUBE must come as a disappointment to Lincoln Center which has invested more than five years and millions of dollars in developing technology and negotiating myriad union contracts in preparation for a nationwide assault on the pay-tv audience. Performing arts organizations view pay-television as being the most practical way of reducing the large and increasing financial deficits that they are subject to.

Surprisingly, the newness of the Premium programming does not seem to be as important as outside observers thought it might. The 'Classics' and 'Encores' channel include movies which have played in every conceivable medium. The 'Cinema II' and 'Cinema III' channels play films from the major distributors a few months earlier than the per-channel, pay-cable distributors, because of the greater revenue potential on a pay-per-view (or pay-per-day) basis. Says Harlan Kleiman, "We don't know how relevant it is to get movies very early relative to per-channel, pay-cable and relative to theatres. There is no indication yet that getting a film one, two or three months earlier is significant. A great many of our subscribers are not extensive movie-goers, and to them getting a movie one or two months earlier really isn't that significant." The same thing may be true of non-live special events which have no specific time reference.

One of the happiest surprises to emerge from QUBE so far is the extraordinary response and the high audience shares of some of the community programming, which is included in the \$10.95 basic service package. As reconfigured in April 1978, the ten community channels include'Columbus Alive'(live local programming);'Sports';'Pinwheel' (a full-time children's channel); 'Golden Oldies', a 'Religious' channel; 'QUBE Campus'; 'Culture and Learning'; and three alphanumeric character-generated news services including comparative shopping data. 'Columbus Alive,' is the showpiece of the QUBE community programming effort, and is a throwback to the early days of live television programming.

It functions as a sort of super public-access channel, thus far with four loose program formats. In the early afternoon the "Celebration" gives an alternative to network soap operas and syndicated game shows, by covering various community events on location throughout Columbus as well as in the QUBE studios. From 3 p.m. to 4 p.m. after area schools are out comes "Flippo's Magic Circus," a live show for kids hosted by Flippo the clown. At 6 p.m. when the commercial network affiliates are into their local news shows, "Columbus Goes Bananaz" appears on the 'Columbus Alive' channel; a show for teens centered around "music, cars, and other topics teenagers devour." From 6 p.m. until 8 p.m. the showpiece, 'Columbus Alive' talk show, counterprograms the commercial broadcast competition with what is ironically just what the FCC had in mind when it passed the Prime Time Access rules in 1973 for commercial broadcasters.

From the Warner Cable glass-fronted studio in a local shopping center, various local, regional, and national celebrities and people of interest participate in a lively local talk show, which regularly competes head-to-head against what the commercial stations are offering. Not only does this live local 'counter-programming' in the classic sense achieve high shares of the audience, but the weekly circulation

of the 'Columbus Alive' channel--the percentage of people watching it at least one time--is over two-thirds of QUBE subscribers. The multi-million dollars in capital and operating expenses which Warner Cable poured into local live programming will take a long time to be amortized, if ever. However, this of course is a test market situation, and the management is extremely pleased with the enthusiastic response of Columbus residents to this local live programming.

Interestingly, two of the thirty QUBE channels switched places in April -'Selected Audience Programs' moved over into the Premium column, and 'QUBE Campus'
college courses at home became a community channel included in the basic service
package for \$10.95 a month. 'Selected Audience Programs' are centrally scheduled and
controlled "narrowcasts" to specific audience segments, such as doctors whom pharmaceutical manufacturers want to reach with a continuing education-promotional pitch.
QUBE officials previously reported that fifty-five students enrolled for credit via
the former premium academic channel in the first few months, but the response must
have been less than hoped for.

The superficial implications of this are that there are more dollars available for continuing education "narrowcasts" to professionals, than there are for college courses taken on a more casual basis; and that casually-taken continuing education courses are not perceived as being as unique and valuable as the "narrowcasts" for which there is really no viable substitute. It would cost far more for a pharmaceutical manufacturer to have a salesman visit each physician in the QUBE franchise area, than to lease the 'Selected Audience Program' channel on an occasional basis and inform the physicians of it via direct mail or phone calls.

Another addition to the community channels in April, in response to community feedback, is the 'Golden Oldies' channel which is reviving some of television's earliest programs and gets a significant share of the audience at certain hours. In addition to the 'Columbus Alive' channel, the greatest success is 'Pinwheel' -- a twelve-hour-a-day, seven-day-a-week recycling, ever-changing loop of non-commercial, non-violent children's programming, both live and syndicated. 'Pinwheel' and the three other educational or quasi-educational channels -- 'Better Living,' 'Culture and Learning,' and 'QUBE Campus' -- are all community channels as part of the basic service, and are all under the direction of Dr. Vivian Horner, who is the former director of research for the Children's Television Workshop ("Sesame Street" and "Electric Company"). Dr. Horner sees QUBE as an exciting opportunity for extending educational opportunities, and a viable tool for continuing education. Some non-credit continuing education courses include such things as 'fundamentals of the guitar,' 'introductory shorthand,' 'instant backgammon,' and 'success through efficient reading.'

The 'Culture and Learning' community channel includes various cultural events and 'how-to' projects. The four educational-instructional channels cover the gamut of age ranges and educational needs from 'Pinwheel' for the pre-schoolers, through continuing education of all kinds. The programming is extremely diverse and comes from a wide variety of sources. College courses are available on either a credit or non-credit basis, organized through several colleges and universities in the area including Ohio State.

### Educational Services May Be The Biggest Source Of Revenue

Some expert observers of the telecommunications field predict that educational and informational services offered in the home will one day be the greatest revenue source for cable. Clearly, QUBE has only scratched the surface of the potential in this area. QUBE now offers the pupils a limited response back to the instructor, to answer yes-no or multiple choice questions (with a maximum of five possible responses). The state of the art of computer-based education systems, such as Control Data's PLATO remote terminals complete with cathode ray tube (like a tv receiver) now cost over \$4,000 each. If a PLATO computer terminal/keyboard were designed to be compatible with existing tv receivers, it is questionable whether it could be done for less than \$1,000 apiece even in large manufacturing volumes.

PLATO is also a <u>user-controlled information retrieval system</u> whereby each subscriber can choose from a vast library of programs at his discretion, while QUBE is not. 'QUBE Campus' students are currently limited to what is being programmed over the channels for all students -- there is no individualized instruction capability. Warner Cable has clearly chosen not to complicate matters by getting into highly sophisticated computer-based education. However, the Control Data Corporation has hired special consultants and is eagerly looking at cable as a potential distribution vehicle for PLATO. The PLATO computer software system is so sophisticated that the entire QUBE computer software system could be swallowed as one small and relatively simple part of PLATO's vast and unlimited repertoire.

If, in fact, Warner Communications is looking forward to the day of a home videotape recorder, married to a computer terminal in a QUBE-like system, it is reasonable to assume that the same recorder could also record and store data for interactive purposes, which could be used in computer-based education in a distributed processing configuration.

The programming and service mix on QUBE continuously evolves. Warner Cable is not only getting feedback from its subscribers and perhaps from pressures from the various programming suppliers, but also from heavy competition in the marketplace. Coaxial Communication's TeleCinema service, which is available in a franchise area covering about one-quarter of the city, offers four pay-per-view channels. Warner Cable has had the opportunity to learn a lot from Telecinema, such as one of their executive's comments that "the significant thing is that the number of events watched has gone up over the past several years. We have some people where their monthly billing is around \$50-\$60, and there are some where it is consistently in the area between \$20 and \$50 per month. We're still at the very low end of the growth curve. I think that as people become more and more dependent on this kind of entertainment, they're going to spend more and more dollars. This trend is evidenced by what we've seen since 1974 -- if you use a smoothing or averaging device, it has been a steady upward trend." Telecinema's prior entry into the market has educated Columbus residents what to expect from pay-per-view, pay-cable television. Their willingness to share some of their information has undoubtedly been helpful to Warner Cable.

However, the third cable company in Columbus -- a subsidiary of American Television and Communiations, which was recently acquired by Time, Inc. -- recently introduced the nationwide satellite-delivered Home Box Office pay-channel for a rockbottom price of only \$5.00 per month, the lowest that HBO is sold for anywhere. ATC is marketing this single channel of subscription pay heavily against the more

expensive pay-per-view (or pay-per-day) systems of their two rivals. It is no accident that HBO is also a Time, Inc. subsidiary. Warner Cable's Hauser sees this as a vindictive and predatory pricing tactic.

ATC points out that it had originally planned to introduce a low-cost pay package into Columbus for more than a year, prior to QUBE's announcement. "We realized long ago," says an ATC executive, "that there was no way to turn our system around financially unless we got more product into the market." ATC claims that it has tried not to go after Warner's throat in Columbus, but their consumer advertising freely compares the price-value superiority of the HBO service complete at only \$5.00 per month. But QUBE is much more than movies and entertainment specials. "If you're talking movies," says Hauser, "we doubt that people will spend more on a per-program service than on subscription television." It is the new and different services and the convenience aspect of QUBE that Warner is pinning its hopes on.

#### Plans For Using QUBE For Market Research And Advertising

Warner is also pinning its hopes on the potentially huge profit center surrounding advertising and marketing research via QUBE. Says Hauser, "I have a number of sources of revenue with QUBE: regular subscriber fees; per-program charges; revenue from advertising; research; polling; and narrowcasting; and of course, burglar and fire alarm systems (now scheduled to be introduced this summer). If I have more subscribers, obviously I can live with less of something else. If I have more of something else, obviously I can live with fewer subscribers. I don't know what the mix is until I try it." QUBE has already opened up several new profit centers for Warner Cable and several others -- electronic funds transfer, ordering merchandise, information retrieval -- are being explored.

Advertising on QUBE falls into two broad categories: local business interested simply in promotion, and national advertisers interested in advertising research and copy-testing. Over a dozen local and regional businesses have advertised in the community channels, including a large restaurant, a travel agency, an appliance dealer, etc. But the real action lies in advertising research. Says Jack Dahaney, advertising sales manager in Columbus for Warner Cable: "QUBE should not be bought for its media value only -- if they want to talk rating points and CPM's, we tell them they're in the wrong ball park. Rather, the value of QUBE lies in learning what an interactive commercial can do."

Dahaney suggests that QUBE can be used, for instance, to <u>sample selectively</u>. The product is displayed on the screen and/or demonstrated, and those interested in receiving a free sample could indicate it by pressing the appropriate response button. "Wastage could be cut drastically with this kind of pre-screening compared to what product samplers now spend," Dahaney advises. The potential for this advertising and marketing research use is tremendous in Columbus, which is an <u>established test marketing area</u>. It is an ideal city in which to test not only the viability of a new communications service like QUBE, but to use QUBE to test new concepts of all kinds. The interactive capability is only part of the story -- because Warner Cable can determine the precise demographic profile of each QUBE subscriber by a simple (and voluntary) questionnaire, the interactive responses to concept testing commercials can be measured against selected demographics. This is an <u>enormously powerful marketing research tool</u> with tremendous built-in statistical advantages over other methods of concept testing.

Dahaney also notes that with QUBE, commercial length need not be restricted to conventional 30-second or 60-second spots. The vehicles for concept testing (and advertising) are the "Qubit" and the "Informercial." The "Qubit" is a variable-length interactive commercial, which requests viewer response, and is under two minutes in length. It can be bought for from \$50 to \$225, in the community channels depending upon time and frequency. The "Informercial" is actually a sponsored program segment built into the format of the particular community program, for five to seven minutes in length. Both commercial formats provide greater information delivery capacity by far than the standard spot commercial, because of the interactive question and answer. "Informercials" are priced at twice as much as "Qubits." These two commercial formats now appear almost exclusively on the 'Columbus Alive' channel, because it is the highest-rated non-Premium channel. However, there is nothing technically or legally preventing Warner Cable from putting "Qubits" and "Informercials" on its other 'Community' channels, or even on its nine Premium channels.

As the ratings and audience shares of the other 'Community' channels increase and stabilize, commercials will appear in them also. However, Warner Cable is <u>unlikely</u> to encourage any kind of advertising on the Premium channels, for fear of alienating the subscribers. None of the hundreds of pay-cable systems and program packagers in the United States have yet encouraged advertising on any Premium channels.

A variety of national and regional advertisers have thus far signed up to use QUBE as a guinea pig and to be guinea pigs themselves; to test the value of the interactive commercial. Although virtually all of the top fifty advertising agencies in New York have sent delegations to Columbus, only a relative handful of advertisers have thus far taken the plunge -- the Lazarus division of Federated Department Stores, American Express and Paine, Webber, Jackson & Curtis among them. Several others are reportedly on the verge of signing. Warner's enthusiasm for its project isn't entirely shared in the advertising community.

One top agency analyst sees Warner's Columbus effort as more of a market test for pay-tv than a marketer's or advertiser's chance to evaluate the system's advertising and research possibilities. Critics question the actual research value of the Columbus cable audience -- what segment of the Columbus population will the cable audience represent? Does QUBE represent a real and valid test of interactive cable? Will the pay-per-view aspect restrict the total cable audience to an upscale segment, or single them out of the 'Community' channel audience? When agencies have other copy-testing and marketing research methods at their disposal, why do they need an untried new one? Virtually all of these objections could be overcome if Warner administered a detailed questionnaire to all of its subscribers, collated and analyzed its viewership data, and made a detailed presentation. However, advertising agency executives are both professional skeptics and quick followers of new successful trends, and it is possible that the number of national advertisers willing to test the waters of QUBE will increase sharply without too much additional effort from Warner.

The potential uses of QUBE as an advertising testing and marketing research vehicle are <u>limited only by the imagination</u>. For example, a local travel agency asks viewers which travel film clip they would like to see, after which they offer brochures to interested respondents. A local restaurant takes reservations for Mother's Day via QUBE. A giant credit card company tests the preference for and believability of some of its advertising claims. As the total universe of QUBE

subscribers in Columbus expands beyond 13,000 households, the number of advertisers of all kinds will probably increase geometrically.

Companies which produce tv shows and films are also interested in the concept testing potential of QUBE. NBC-TV has been conducting tests of program pilots on the Telecinema system for several years, and has announced plans to also try QUBE for that purpose.

#### Intriguing Potential For QUBE Use In Direct Marketing

Long-term, the industry which may have the greatest stake in the concept testing and response capabilities of QUBE may not be the advertising community, or the entertainment community, but the rapidly growing field of direct marketing (bypassing retail channels). For example, it is only a step from asking 'who wants a travel brochure?' -- to booking a group tour via QUBE; and only a step from offering a recipe booklet on microwave cookery to actually taking an order for a microwave oven (both of which would have to be later validated in writing, of course). Says the editor of Direct Marketing magazine, "It is my belief that within the next ten years, interactive cable may represent the most vital new element in direct marketing...and thus I would urge you to carefully follow Warner Cable's Columbus experiment...and to take early advantage of such test opportunities as Warner may make available."

The overall direct marketing field is estimated to have grossed well over \$60 billion in sales in 1977, and lives on testing and retesting consumer motivating concepts. The potential of the marriage between direct marketing and interactive cable, both for concept testing and for selling direct to the consumer, is gigantic. One QUBE executive has stated, "Consumer shopping is a complicated business, and one we will have to inch our way into."

"Narrowcasting" on the 'Selected Audience Program' channel (now a Premium channel) has already been alluded to. The possible marketing research uses of this specific channel include such things as magazine readership studies, product usage studies, or to help determine product purchase habits -- assuming subscribers are willing to cooperate. QUBE officials are aware of the possible perception of QUBE as "Big Brother," and they have been very careful not to abuse the data which the computer has been silently gathering.

QUBE should be thought of as two entities -- a sophisticated technical conduit with interactive computer capabilities, and an almost unlimited potential; and also as a programming and marketing strategy launched by a major entertainment-communications company which thus far is meeting with mixed success. The major significance of QUBE overall will be its impact on the economic and political climates for cable television in the U.S. in the years ahead. Many investment analysts have felt that despite the operational status of Coaxial Communications' Telecinema service already in Columbus, and the other more limited demonstrations of two-way cable tv services for homes, that the cable industry was unlikely to make the major investments necessary to bring such systems into existence on a wide scale, at least until the early 1980s.

Warner Cable estimates that it would take literally billions of dollars to expand the system nationwide, and at least hundreds of millions to expand it to

existing large cable systems. The investment analysts have speculated that in the early 1980s, many cable operators would begin converting to various per-program charging methods, or mixing per-program and per-channel approaches in a multi-channel "tiered" approach. QUBE is widely perceived, both within and outside the industry, as being premature by at least several years. Of a total of a dozen bi-directional cable systems installed during the late 1960s and early 1970s -- several with interactive, question-and-answer capabilities -- only the systems built and operated by Tocom, Inc. (headquartered in Irving, Texas) and Coaxial Communications' Telecinema service, have been commercially viable.

Warner Cable is sticking its neck out to provide the programming and marketing resources and muscle to try to prove for the first time that expensive subscriber and head-end computer equipment can be the foundation of profitable businesses in the long run. The higher costs of providing a per-program service would not be justified by revenues which only equal per-channel pay revenues. Clearly, an average motion picture buy rate of only 2.2 first-run features per month per subscriber cannot possibly amortize the tremendous costs and overhead of QUBE. Additional revenues must be obtained from other Premium channels and from the other revenue sources. Although the Telecinema system laid the infra-structure for the multi-channel, per-program approach, only QUBE has thus far provided the programming and marketing muscle necessary to exploit the full potential of this charging method.

Warner Communications, Inc. has the financial resources to keep running (or limping) at a deficit for several years. A clear-cut failure and the cessation of operations within the first eighteen months is quite unlikely. However, if the cable industry and the investment community perceive QUBE as barely successful or as a qualified failure, the huge investment sums needed to bring cable into the major urban centers, and to provide sophisticated interactive capabilities on a broader basis, will retreat under the impact.

If QUBE succeeds definitively, it will prove that most of the investment analysts and industry watchers were wrong in their assumptions and projections, when they thought that such services were off in the early or mid-1980s. If it succeeds, cable industry stocks will probably continue their upward climb, and a variety of major lenders such as insurance companies, pension funds, and tax shelter funds will contribute toward an improving investment climate for cable.

The success of QUBE is by no means assured. Warner officials have quieted their initial promotional hype in the trade and national consumer media. Feature stories which appeared on the CBS network news, 'The Today Show,' Time magazine, Newsweek, Business Week, The New York Times, The Los Angeles Times, The Chicago Tribune, The Wall Street Journal, TV Guide, etc. about QUBE have not been followed up as yet, and the volume of press releases has diminished considerably. At the recent NCTA annual convention, Hauser was neither over nor under-confident about QUBE's success, with cautious statements like the hope that QUBE will return a profit in fewer than the five years that it took Home Box Office to move into the black.

The promotional hype has disturbed other industry leaders -- the constant stream of headlines touting QUBE as the "new kind of cable system," which "Warner and the industry view as the most extensive effort to restore to cable tv some of the glamour that it had a decade ago." (From a recent issue of Business Week). It is felt that if a billion-dollar company having assembled all the necessary programming, marketing,

and technological expertise, takes a nose dive in two-way communications, it could render a severe economic and political blow to an industry just now recovering from the first round of blue-sky hype in the early 1970s.



The Columbus, Ohio QUBE Control Center

If QUBE fails or is a qualified failure, the federal regulators -- in Congress, the FCC, and the administration -will have less incentive to try and foster the further growth of cable services, and will have less reason to protect the cable industry against the awesome competition of the broadcast tv industry, AT&T and the local telcos, and future technological possibilities such as direct satellite-to-home broadcasting. Congressman Lionel Van Deerlin, chairman of the House communications sub-committee has stated: "If it should fail in Columbus, I think it would tell a great many people that cable is not ready to perform the two-way communication that marks the difference between

cable's potential and conventional broadcasting." If QUBE fails, other cable operators will be unlikely to try to step up to bat with an ambitious QUBE-like system for at least five years.

QUBE will have major significance to education particularly to computer-aided instruction and computer-based education. The depth of involvement could range from live courses taught by on-camera professors and utilizing interactive question-and-answer, to correspondence courses pre-recorded on videotape in a library-retrieval type system, all the way through computer-aided and computer-based education. The addition of hard-copy facsimile print-out of information displayed on the tv screen is technically possible now, and forms the basis for the exploding word processing field.

Per-channel, pay-cable systems are already beginning to have an impact on the entertainment industry. At a recent meeting of the motion picture services committee of the Cable Television Administration and Marketing Society, several of the motion picture distribution executives confirmed for the first time that revenues from pay television are now taken into account, in deciding which properties to make into theatrical features. Instead of grossing 20 cents or less per subscriber for six or seven runs for their first-run features, as is now often the case with per-channel, pay-cable networks, the distributors could gross 25% or more of the total per-program exhibitor's gross of \$2.50 or more per subscriber who selects that movie.

The distributors would be rewarded based on the box-office popularity of their product, just as in theatrical exhibition. Not only does this represent a difference of 62 cents or more per subscriber, versus 20 cents or less under the per-channel system, but if five years from now a million homes elect to pay \$2.50 to see a first-run feature under a QUBE-like system, the film rental would be at least \$620,000 in one day!

With greater total revenue potentials to the motion picture industry, more product will be made available. If action-adventure and exploitation product continues to perform well on pay-tv channels such as QUBE's 'Drive-In' per-program channel, the relative impact could be even greater on independent film producers whose distribution channels and exhibition outlets are currently more tenuous than those of the major studios. Independent producers and distributors would find themselves on a more equal footing with the majors if QUBE-like systems spread nationwide, due to greater access to audiences.

QUBE-like systems could have an enormous impact on the music recording and publishing industries as well. Not only do records and music publishing outgross the theatrical film division at WCI by a ratio of over two to one, but the music business is considerably larger in America than the motion picture business. The popular music specials "In-Session", produced by Columbia Pictures Pay Television, and the "On Location" and "Cafe Manhattan" specials done by HBO and Warner Cable respectively could be the beginning of an avalanche -- in part because of the impending introduction of the MCA/Philips DiscoVision videodisc. Many executives in the music business view the videodisc as the most important Great Leap Forward since the debut of the long-playing record in the 1940s. They are quietly gearing up to unleash audio-visual performance versions of their major artists on the American public.

Pay-television and QUBE-like systems in particular, represent another lucrative market -- if the music executives are paying to videotape a live performance of their artists, why not amortize the cost by distributing it live or on tape to pay-tv? This is a question of 'when' and not 'if.' Indeed, the talent and financial resources of the popular music industry are so great, and the market potential for audio-visual performances is so vast, that this industry could make a very substantial contribution to entertainment available on QUBE-like systems.

If QUBE succeeds and expands into other markets, it could also have a big impact on the production and promotion of non-popular-music special events, all the way from boxing and hard-contact karate, to regional sports like rodeo and soccer, through live repertory theatre and classical performances of opera, ballet and concerts. The effect here would be analagous to the effect on the motion picture business -- while an increasing number of these events will be made available as the per-channel pay audience increases, the revenue potentials from pay-per-view will be a much greater incentive to produce these live specials. The geometrically increasing number of satellite earth stations accessible to cable operators will also make such live specials more attractive to produce.

QUBE-like systems could also eventually be significant to the newspaper and periodical publishing industries. With the addition of a facsimile hard-copy printer to the home terminal, newspapers or magazines (or direct mail pieces) could be printed overnight. Add a frame-grabbing electronic device on top of that, and

a custom-designed, dedicated newspaper would become possible, whereby the home subscriber could choose which specific pages he wanted. The least expensive hardware to accomplish this now costs several thousand dollars, but with the explosion of the word processing industry which uses similar technology, and the increased manufacturing volume, prices could come down substantially. It is significant to note that several huge conglomerates with major newspaper publishing interests, such as the Times-Mirror Company, are investing heavily in cable-tv ownership.

If we take the same frame-grabbing and facsimile technology and apply it to business uses of interactive cable, QUBE-like systems could have a major impact on office procedures and financial transactions in this country. Many office jobs, from the clerical and secretarial on up, could just as well be performed at home if a suitable communications system with the main office existed. In banking, there are few services offered by most banks, with the possible exception of physical access to a safety deposit box, that could not be performed at a distance by future electronic communications. This type of banking service would overlap to some degree the concept of the "checkless-cashless" society.

This ability to handle transactions could also be extended to such things as travel fares and reservations, tickets of various kinds, and restaurant reservations. A large restaurant in Columbus is now using QUBE advertising to book holiday reservations...and the same thing could easily be done to book tickets for local performances with the existing technology. This relates back to the direct marketing possibilities mentioned previously.

The total repertoire of entertainment, educational and informational services which QUBE can provide to its subscribers -- even with its fairly limited 'yes-no' or multiple-choice capability -- is very broad, and has only been summarized in this report. The potential interactive services which could be offered by a more sophisticated interactive system with complete keyboard input and time-sharing capability is unlimited, and could fill a library -- just ask Control Data Corporation or any other computer manufacturer.

As to the overall economic effects of QUBE, Warner Communications, Inc. chairman Steve Ross, has stated that he expects Warner Cable to be grossing at least \$220 million yearly within the next decade, and to eventually outdistance all other divisions in profits. Telecommunications industry consultants and investment analysts project that the total market for interactive services to the home consumer from relatively simple to super-sophisticated, could be \$20 billion a year by 1990. Yet it is an industry which is not now widely recognized, and which only 13,000 lucky residents of Columbus and a handful of CDC PLATO consumer customers can talk about with first-hand experience. That \$20 billion is projected potential revenue coming back from the home subscribers -- the cost of installing such systems across the country would be in the tens of billions.

Hauser was recently asked whether things could be hubbed out: "I don't have the answer to that yet. You could obviously get out of here to Akron (where another Warner Cable system is located) -- all twenty Premium and Community channels -- but it is very expensive. It would probably be cheaper to start over, and it is technically tough to do interaction at long range. But maybe we could have the main activity

here, and pick it up with mini-computers in other cities. Then we could post how five cities voted instead of just one."

The most recent announcement to come out of QUBE headquarters discussed organizational and management changes. Says Hauser, "These changes are designed to enhance the operational management of Warner Cable's QUBE system, and to further facilitate the continued growth of QUBE service within and beyond Columbus."

QUBE could be the first market skirmish in programming, marketing and technological revolution that could profoundly affect the economy, the gross national product, the entertainment habits and the lifestyles of America.

(A Supplement to the May 1978 Videocassette & CATV Newsletter)