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CABLE TELEVISION:

PROSPECTS, PROMISE, AND PROBLEMS

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by

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## ABSTRACT

This paper makes an appraisal of the long-run outlook for cable television (CATV). Partial relaxation of FCC regulations in 1972 has provided a more favorable climate than before for penetration of CATV into the 100 major markets in the United States. Before significant expansion can occur, however, certain key problems must be overcome. (1) Substantial capital is needed to construct cable systems in major markets. A recent trend toward consolidation of cable systems may result in firms better able to attract capital. (2) Increased advertising revenues are needed to help finance better program originations by the cable systems. Accordingly, CATV is evaluated as a potential advertising medium in order to determine whether adequate growth in such revenues is likely to occur.

The strength of consumer demand for the benefits offered by CATV will play a critical role in determining cable penetration into major markets. This appeal will be enhanced as the entertainment quality of CATV program originations becomes competitive with over-the-air offerings. Factors influencing progress in this direction are analyzed in this paper.

As the problems facing CATV are solved, over-the-air broadcasters will find cable an increasingly strong competitor in contending for audiences and advertising revenues. Analysis suggests that CATV will indeed make progress in the next few years, but that over-the-air broadcasting will not be jeopardized.

## BACKGROUND

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## Introduction

Cable television (CATV) was originally developed to bring a clear television picture into homes that otherwise could receive either a poor signal or none at all. More recently it has been used to provide viewers with greater program variety in cities served by only two or three television stations. The advantages CATV offers to consumers have been great enough to lead them to pay an installation fee ranging from nothing to \$100 (average \$20) and a monthly subscription fee averaging \$5.00. As of 1972, CATV provided service to approximately 6 million homes or about 10% of the total United States television audience. Estimated annual revenues of the 2,750 operating cable systems in the United States were about \$360 million in 1971.

What is the outlook for future growth of CATV? What problems must be overcome if the industry is to achieve its potential?

Are cable operators likely to offer program originations superior to over-the-air broadcasting and attractive to subscribers? What are the potentialities for new services growing out of the availability of two-way communication between the cable subscriber and the program source?

Since expansion of advertising revenues is crucial to profitable operation of CATV, is cable an advertising medium that is likely to receive serious consideration by retailers, service institutions, and consumer goods manufacturers? Does CATV offer advertisers an opportunity for improving the effectiveness of their television commercials through pretesting them while they are still in the developmental stage?

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In view of the outlook for growth in CATV, what business opportunities are likely to exist in the construction, equipment supply, and operation of cable systems? What is likely to be the impact of CATV upon the over-the-air broadcasting industry? Is CATV an industry that individual and institutional investors should consider for inclusion in their portfolios? These are the topics that are to be explored briefly in this article.

#### Development of CATV

As background for understanding the potential for the future development of CATV, it is helpful to review briefly the character of CATV service, what it offers to the subscriber, and its present stage of development. Starting in 1949, CATV first developed in communities where there was no local television broadcasting station and where reception from the nearest stations in the area was either impossible or poor because of distance or topographical obstructions.<sup>1</sup> The strong desire of people located in such communities for television entertainment led to the development of community antennae systems for receiving broadcast signals and feeding them through a network of coaxial cables to the homes of individual viewers on a subscription basis. Sensitive antennae were erected on a specially selected site; broadcast signals received were modulated, amplified, and fed to subscribers through a cable system.

Beginning in 1953 this original concept was supplemented by microwave relay systems to bring the broadcast signals of metropolitan-area stations over long distances to remote communities having little or no television service. This development also made it possible for cable-system operators to offer their subscribers a greater variety of programs than could be provided by the community antennae alone. The result of these technical developments was not only to provide a clear television picture to subscribers, but also to provide them with program diversity, which is an important feature of present-day CATV.

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<sup>1</sup>Adapted from E. Stratford Smith, "The Emergence of CATV: A Look at the Evolution of a Revolution," Proceedings of the IEEE, Vol. 58, No. 7, July 1970, pp. 968-970.

According to Broadcasting, most cable systems offer between 6 and 12 channels; the average for all is 10; in practice they carry an average of 7 signals. Most new systems being constructed have 20 channels; the state-of-the-air<sup>ant</sup> maximum is about 48. Technology exists for two-way cable television which permits subscribers to transmit signals directly back to the originating cable operator. As of March, 1972, cable firms in the top 100 markets are required by the Federal Communications Commission to have the capacity for such return communication at least on a nonvoice basis.

Current Status of CATV

CATV's growth has been one of the fastest in the communications field. Selected figures published by Broadcasting in its TV Fact Book, No. 42, 1972-73 edition, demonstrate the progress that has been made since 1952 (as of January 1 of each year):

TABLE 1  
Progress in CATV, 1952 to 1972

Item	1952	1962	1972
Number of operating systems	70	800	2,750
Total subscribing households	14,000	850,000	6,000,000
Estimated number of viewers	n.a.*	n.a.	18,500,000
Homes per system	200	1,062	2,182
Percentage of TV homes subscribing (household penetration)	.1	1.7	9.7

\*n.a.: not available

Additional growth may be anticipated. Between January 1 and March 30, 1972, the number of operating systems increased from 2,750 to 2,839. These systems served 5,328 communities. Another 1,641 franchises had been approved, however, but were not yet in operation, and 2,702 applications for franchises were still awaiting action in 1,530 communities.

Although the average size of the systems operating in early 1972 was

approximately 2,182 subscribers, there were 22 systems with 20,000 subscribers or more. The largest--San Diego--served over 51,000. The greatest number of systems (805), however, fell in the 50 to 499 class, and there were 38 with less than 50 subscribers.

Of special significance is the percentage of TV homes served by CATV. Whereas overall household penetration of CATV was 9.7% in 1972, this system had its greatest strength outside the major population centers. An A.C. Nielsen survey in 1969, for example, indicated that CATV had a 23.3% penetration of TV homes in rural areas, 34.5% in small towns, and 1.6% of TV homes in major metropolitan areas. Why is CATV penetration so low in large population centers where there would appear to be a sizable potential market? While the high cost of constructing cable systems in metropolitan centers is one deterrent, of greater importance are the regulatory actions of the Federal Communications Commission. The impact of these regulations on the development of the industry will be traced in the following section.

#### Influence of FCC Regulation on CATV

The FCC freeze on VHF channel allocation in effect from October, 1948, to July, 1952, encouraged the early development of cable systems in communities lacking television service.<sup>2</sup> With the development of microwave relay systems, beginning in 1953, cable operators saw an opportunity to expand revenues and profits by offering program diversity in densely populated metropolitan areas served by only one or two television stations.

This movement prompted quick opposition from the established broadcasting stations on the grounds that: (1) CATV competition tends to reduce the audiences of existing local stations; since advertising rates depend upon the size of audience reached, this reduction would tend to cut advertising revenues. (2) The nonpayment of copyright fees on program material by CATV operators gives them an unfair advantage over local stations who must pay for program material. The resulting controversy led the FCC, first, to assert control over the

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<sup>2</sup>Stratford Smith, op.cit., 970-971.



importation of distant signals by microwave relays (1965); and second, to assume total jurisdiction over all CATV systems, including ~~non~~ microwave operations (1966). Rules were issued prohibiting the importation of distant signals into the 100 markets with the largest television household population using a list of cities compiled through a survey by the American Research Bureau (ARB). Cable operators were also not permitted to duplicate on the same day programs carried by local television stations. These rules discouraged the entry of CATV systems into the top 100 markets.

In December, 1968, these rules were replaced by extremely restrictive regulations that resulted in a freeze on new CATV installations and on the importation of distant signals into the top 100 markets pending the adoption of a new set of rules. These restraints of CATV were criticized by the President's Task Force on Communication Policy.

As a result of the restrictions outlined above there was little growth in CATV operations in the top 100 markets. Cable operators claimed that it was necessary to import outside programs in order to provide the diversity of entertainment that would attract subscribers already able to get a clear picture from existing local stations.

After considerable debate and controversy, however, the FCC issued a new set of rules which went into effect on March 31, 1972, and were designed to permit expansion in CATV without jeopardizing over-the-air broadcasting.<sup>3</sup> The following rules were designed to permit cable television systems to operate in major markets:

1. Systems in the top 50 markets may carry signals of at least three network and three independent stations.
2. Those in markets ranked in size from 51-100 may carry at least three network and two independent stations.
3. All systems in the top 100 markets are entitled to carry two distant signals. (According to the FCC, permission to carry two distant signals not available in the community was given to enable CATV to attract investment capital and to open the way for the full development of cable's potential.)

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<sup>3</sup>"The FCC Delivers on Cable," Broadcasting, February 7, 1972, p. 17 ff.

4. Systems in markets below the top 100 in size are limited to three network signals and one independent.
5. Those outside any definable market are not limited in the number of signals they carry.

At the same time, protection to ~~on~~<sup>over</sup>-the-air broadcasting was provided by the following rules:

1. Cable systems in the top 50 markets are prohibited from carrying any syndicated program for one year after its first appearance in any market and then for the life of the contract under which it is sold to a local station.
2. In markets 51-100 in size, different kinds of nonnetwork material would be protected for varying periods of time up to two years.
3. The "same-day exclusivity protection" that had previously been afforded network programming, however, is reduced to simultaneous (same time) duplication.

The controversy over whether cable operators should pay copyright royalties to program producers has not yet been resolved.<sup>4</sup> The question at issue is whether or not the carriage of a television program by a cable system constitutes a performance that makes it liable for royalty payment under U.S. copyright laws. In 1966 the U.S. District Court for the Southern District of New York ruled in the case of United Artists Television, Inc., v. Fortnightly Corporation (a CATV operator) that the cable firm had infringed upon the United Artists' copyright. When the U.S. Supreme Court reviewed the case, however, it ruled in a 5 to 1 decision that CATV incurs no liability for carrying copyrighted programs under present statutes.

This ruling had led to proposals for revising U.S. copyright laws, and the Senate Subcommittee on Copyrights has been considering such suggestions. It is believed that action on this issue is necessary to eliminate the uncertainty that impairs the ability of the cable industry to attract the capital needed for substantial growth. Hope was expressed by the Chairman of the FCC that issuance of the new rules covering cable television would facilitate the passage

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<sup>4</sup>Ibid., p. 18.

of copyright legislation.

Outlook for Future Growth of CATV

Now that FCC regulations have been promulgated that are designed to get cable moving without jeopardizing over-the-air broadcasting, what is the future outlook for CATV? Let us examine two estimates of anticipated growth by 1980--one conservative and one more optimistic.

TABLE 2

Estimates of Anticipated Growth in  
CATV, 1972 to 1980

Item	1972	1980	
		Conservative*	Optimistic <sup>+</sup>
Number of systems	2,750	3,600	4,391
Number of subscribers (millions)	6.0	18.0	28.5
Homes per system	2,182	5,000	6,000
Household penetration (in percentage)	9.7	25.0	38.0

\* Reported by Director of Media, large consumer goods advertiser.

+ Samson Science Corporation, Cable Television, 1970.

The 1972 household penetration of CATV was approximately 10 percent. The director of media of a large consumer-goods manufacturer estimates that this figure will probably amount to about 25 percent by 1980. In a 1970 study, however, the Samson Science Corporation forecast the more optimistic figure of 38 percent. Whether we accept the forecast of 25 percent penetration or 38 percent, such gains would indeed be significant when compared to the 10 percent penetration of 1972.

These forecasts take into account the comparative service offered by CATV versus over-the-air broadcasters, the growth in proportion of families with color television receivers, the anticipated changes in average household income, the size of installation and subscription fees charged by cable systems, and the offering of specialized consumer services by CATV without competition from traditional broadcasters, among other considerations.

The success experienced by CATV in penetrating the top 100 markets between now and 1980 will have an important influence upon achievement of the forecasts summarized above. A key factor determining the rate of expansion of CATV service in major markets is the strength of consumer demand for the benefits that CATV promises to viewers currently being served by over-the-air broadcasting. Let us examine these benefits briefly.

#### What CATV Offers to the Consumer

As CATV systems are established in metropolitan markets such as Detroit, they hold out to the potential subscriber a number of benefits. The first is better reception of television channels they already receive without the cable (i.e. greater clarity, absence of "ghosts" and "snow" common in fringe area of the market).<sup>5</sup> The improvement of reception is especially noticeable on color television sets. The second benefit is the reception of additional channels from other areas, thus increasing the diversity of program material available for viewing.

The third potential benefit is the program material originated by the CATV operator over the channel or channels reserved for his own use. Over 400 CATV systems have the capacity of originating programs, and nearly 300 do so on a regularly scheduled basis--an average of 16 hours a week.<sup>6</sup> Almost 800 have the capability of providing automated originations such as time and weather services and stock reports.

<sup>5</sup> John Oppedahl, "Are We on the Brink of a New TV Era?" Detroit Free Press, February 7, 1971, Section b, p. 1 ff.

<sup>6</sup> "A Short Course in Cable, 1972," Broadcasting, May 15, 1972, p. 45.

In Manhattan, for example, certain cable systems make available a channel showing a variety of special interest programs such as foreign films, live New York Knickerbocker basketball games, Ranger hockey games, Kennel Club show finals, tennis matches, and other events. Another channel is devoted almost entirely to weather reports. Still another shows stock market reports. A fourth channel features local and neighborhood news and analysis.

The quality of the local programs originated by cable operators varies widely, of course. The FCC provided a stimulus to the development of such programs by requiring as of January 1, 1971, CATV systems having 3,500 or more subscribers to operate "to a significant extent" as a local outlet by offering programs other than automated services, music, and announcements. Cable systems willing and able to invest in superior local programs will gain subscribers and revenue and thus be able to enrich their offerings still more. The problem CATV operators face is to break out of the vicious circle of low audience penetration that limits the funds available to support high-quality, appealing programming on the system's own channels. Without such original programs, CATV is limited to rebroadcasts of material already available on standard broadcast stations and to the limited drawing power of inexpensive local programs: town meetings, local news, and local sports, and others. Such offerings are not likely to draw subscribers.

An important potential source of revenue for cable operators is advertising. Accordingly, let us examine the long-term outlook for the sale of advertising time on CATV systems.

#### Outlook for Use of CATV as an Advertising Medium

FCC regulations permit cable operators to carry advertisements on their own program originations. As of 1972, however, only 53 cable systems carried advertising in conjunction with local-origin programs, and another 375 did

so on automated service channels such as time and weather, news ticker, and others.

Spot-time sales opportunities are limited by the FCC regulation that permits advertising only at the beginning and conclusion of programs originated by the CATV operator, or at "natural" intermissions or breaks within a cablecast such as time-out in a sports contest. From the consumer's point of view this is desirable, but it does limit potential advertising revenue for the cable operator. It is noteworthy that 1972 CATV advertising billings were estimated at less than \$3 million by Advertising Age, whereas \$300 million was being collected from subscriber homes for cablecasting service.

Accordingly, it is significant to inquire how the projected growth in CATV household penetration to between 25% and 38% is likely to affect the use of cablecasting as an advertising medium.

Local advertising. At present the bulk of cablecasting advertising revenue comes from local advertisers. Such firms are attracted to CATV by the following considerations: (1) The message may be confined to a given community or part of a community covered by CATV. (2) It can be beamed at a limited percentage of television viewers believed to be the prime-target market for the advertiser's product or service. (For example, desired ethnic groups, upper-middle income class, and senior citizens.) (3) CATV advertising rates tend to be lower than over-the-air broadcast stations since the audiences for its programs are generally smaller. CATV advertising costs, accordingly, fit more easily into the budget of the local advertiser. (For example, a one-minute spot on Cablechannel 10 in Manhattan costs \$250, whereas 60 seconds of prime time on a New York City television station would cost about \$5,000.)

Of course, advertisers consider not only the absolute size of CATV advertising rates, but also how they compare on a cost per 1,000 basis with

competing broadcast stations. By this criterion CATV rates tend to be higher than over-the-air broadcasting. In making this comparison, however, an advertiser with a select but limited market would recognize that buying over-the air broadcast time would involve waste coverage. If he computes the cost per 1,000 prospects for his product via over-the-air broadcasting and compares it to that for CATV he may find that CATV is the better buy.

Also, the potential advertiser must determine whether the programs originated by the cable system are good enough to attract viewers from the entertainment offered by competing broadcasting stations. Cable operators who have been most successful in selling advertising time are the ones who have met this challenge.

Local retailers, and banks, as well as manufacturers with local distribution, are among actual or potential advertisers over cable systems. As cable penetration increases in the years ahead, substantial expansion of local advertising may be anticipated. Use of CATV by regional advertisers is likely to develop more slowly.

Regional Advertising. The major obstacle to advertising by manufacturers with regional distribution is logistics. If such a firm wishes at present to advertise over CATV systems on a regional basis, his advertising agency is forced to buy time from a number of individual cable systems within that area. The manpower required to contact, analyze, purchase time, process paperwork, and pay bills is prohibitive. Advertising agencies, accordingly, shy away from such a task.

As cable penetration increases between now and 1980, however, observers predict that regional associations will probably be formed to handle the sale of CATV advertising time. One purchase of commercial time from such an association would offer a much larger potential audience than individual systems now provide. The network would quote a single rate for the use of the associated systems and would submit only one bill to the advertiser.

The development of regional systems which market CATV time will be encouraged by the trend toward merger of cable systems that began late in 1970. As a result of this movement, in 1972 the 50 largest system owners accounted for 4.1 million subscribers, and 12 firms had slightly more than half of those on the cable.<sup>7</sup> These firms are not yet organized into regional networks. In 1971, however, six systems on the East Coast cooperated on a one-time basis by offering advertisers a combined audience of 80,000 subscribers for a special event.<sup>8</sup> The development of regional networks to market CATV commercial time will tend to encourage regional advertisers to give careful consideration to such groups in making media decisions.

National Advertisers. Although at present there are a number of influences that tend to discourage the use of CATV by advertisers with national distribution, certain of these influences may be removed as cable penetration increases in the next eight years. Let us examine these factors briefly.

(1) Lack of a national cable network. Development of regional networks may facilitate the move to a national hookup. Especially encouraging is the recent comment by Sol Schildhause, Chief of the FCC's Cable Bureau, that the launching of domestic satellites in the next year will permit the creation of another network over which CATV can beam its own programs nationwide.<sup>9</sup> Availability of the satellites may thus speed up the organization of a national cable network.

(2) Smaller audiences for programs originated by cable operators when compared with audiences of programs attracted by competing over-the-air broadcast

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<sup>7</sup> Broadcasting, March 27, 1972, p. 21.

<sup>8</sup> Marketing/Communications, April, 1971, p. 30.

<sup>9</sup> Ann Arbor News, March 25, 1973, p. 19.



stations. As CATV systems grow, either through increased market penetration or by consolidation, more of them will be better able to provide programs that will attract larger audiences. At some point between now and 1980, accordingly, audiences for CATV program originations may be large enough to compete favorably for advertising with over-the-air broadcasters--especially where a brand finds its market among only a limited segment of those who watch television.

(3) Lack of reliable audience data broken down into various demographic categories. This lack makes it difficult for advertisers to determine whether the target market for their brands can be reached economically via CATV. A few of the larger CATV operators can now provide such information either from subscriber questionnaires or by retaining market-research firms to undertake surveys that will provide the desired information. As CATV penetration increases and cable operators recognize the improved possibility of selling advertising time to firms with regional and national distribution, they may then take steps to provide the necessary data. Creation of a national cable network should encourage cable operators to remove this obstacle to marketing their advertising time. This limitation should become less significant as the years go by. It may disappear by 1980.

(4) Low CATV penetration in the top 50 markets (less than 5%) now inhibits national advertisers from using cable as a supplementary medium to build up advertising weight in key cities. Although CATV penetration in major markets will probably grow more slowly than in other areas, it will certainly expand. R. E. Park estimates, for example, that in cities served by three network-affiliated VHF stations, we can expect about 20% to 25% of households located in the center of the market to subscribe by 1982.<sup>10</sup>

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<sup>10</sup>R.E. Park, "Prospects for Cable in the 100 Largest Television Markets," Bell Journal of Economics and Management Science, Spring 1972, p. 147.

In markets where some of the stations broadcast on UHF channels, 30% to 35% penetration can be expected because of reception problems peculiar to UHF. As such levels of penetration are achieved in the top 50 markets, national advertisers may then include CATV as a significant supplementary medium to consider in planning their media strategies.

Even when the above obstacles are removed, CATV will probably be most interesting to those national advertisers marketing products purchased by a relatively small percentage of the total population--e.g. men with incomes of \$20,000 per year and up, mothers of new-born babies, and others. Provided the cable operator knows the demographic characteristics of his subscribers, it is theoretically possible to beam an advertising message directly to the target segment with a minimum of waste circulation. National advertisers seeking selective media, accordingly, are likely to be the first to include CATV as a significant alternative medium in planning their promotional efforts.

Firms selling brands that appeal to the mass market are not likely to find advertising attractive on programs originated by cable networks if penetration reaches only 25% by 1980. In a community with 25% penetration, for example, a cable system offering its subscribers five alternative programs at a given time may find its own program drawing an average of only 5% of the television viewers. In contrast, two over-the-air stations that together have 75% of the viewers in the same market and can offer these people only two alternative programs at any one time may secure average audiences of 37.5% if viewers are divided equally between them.

Even if CATV penetration reaches 40%, however, a program originated by the cable operator might expect to draw only 8% of the television viewers, on the average, whereas the two over-the-air stations with a combined penetration of 60% might get audiences averaging 30% of the viewers. These examples indicate why the advertiser aiming at a mass market would not be likely to regard CATV as an important alternative media vehicle in promoting his brand.

Opportunities for Testing Advertising

Although it does not appear that by 1980 CATV is likely to be used extensively by national advertisers to promote the sale of their brands, such firms have already begun using certain cable systems for the purpose of testing alternative TV concepts. For example, Adtel, Ltd., offers a system for measuring the sales effectiveness of television-advertising alternatives over time. Research is conducted in a city of about 100,000 population ("Ad-Tel City") located in the eastern half of the United States. When CATV was installed in "Ad-Tel City" two cables were used instead of one. This made it possible to wire homes to either of the two cables; accordingly, subscribers were hooked-up on an alternate A and B checkerboard basis throughout the city. As of July, 1970, there were 12,000 CATV subscribers in Ad-Tel City, 6,000 on the "A" cable and 6,000 on the "B". Using complex electronic equipment Ad-Tel could cut-in test commercials among the B homes, while A homes continued to get normal advertising exposure, or vice versa.

Using this dual-cable system, alternative advertising campaigns or schedules may be tested. Results are measured by tabulating weekly purchases of two matched panels of about 1,200 families on each cable. This research design makes it possible to control all variables except the one being tested. Such experimentation usually requires from six to twelve months and is relatively costly in absolute dollars.

Ad-Tel reports that it ran 50 tests in 45 different product categories during its first year of operation. About half dealt with marketing and copy alternatives (strategies, executions, or target audiences). The other half dealt with media alternatives (dayparts, flighting, sponsorship vs. participations, and amount of advertising).

A second CATV research facility is the Television Laboratory developed by Market Facts, Inc. It was designed to enable advertisers to evaluate the relative effectiveness of two alternative television strategies via commercial cut-ins to CATV households. It differs from Ad-Tel in that the test city is wired with a single cable, but this cable is split into two branches, each covering one-half of the market geographically. Through special arrangements, one test alternative is relayed to households in one-half of the market. The other alternative is sent to households in the remaining half of the market. Results of the experiment are determined through monthly telephone interviews with 500 CATV subscribers providing information on brand attitude, awareness, product and brand usage, and reported purchases. Research costs for a study requiring 30-60 spots over a period of 5-10 weeks are estimated to be about one-third of a 6-12 month Ad-Tel test.

In addition to the split-market facilities described above, there are also CATV research facilities in markets with only single-cable facilities. These are designed primarily for test marketing and for copy testing. The four listed below are systems offering natural exposure to test commercials via CATV in several markets.<sup>9</sup>

1. AdTel Mini-Markets: designed for test marketing and campaign testing in 40 CATV communities. Cut-in and substitute test commercials in advertiser-owned time. Results measured through audits of retail sales, purchases and usage determined by consumer diary panels, as well as by consumer usage and attitude studies. Minimum of 3 months required for tests.
2. TV Testing Company: available for concept testing, test marketing, program testing in 100 TelePrompter markets. Studies custom-designed to meet advertiser needs. Test commercials or programs telecast on unused CATV channel or by cut-in and substitution of test commercials on advertiser-owned time. Results reported depend on type of research client requests.
3. ASI: offers copy-testing service in 60 markets of which 2 are used at any one time. Test commercials sent by CATV by insertion in full-length feature film and broadcast on unused CATV channel. Telephone interviews conducted 24 hours after exposure, measuring recall of commercials.

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<sup>9</sup> Advertising Research Bulletin, Young & Rubicam, February 3, 1972.

4. D.M. Systems: provides copy-testing facilities in approximately 15 markets. Test commercials are sent by CATV by inserting into 8-minute "pilot program" and broadcast on unused CATV channel. Each commercial shown on 4 consecutive nights in different program material. Results measure recall and brand-preference data secured through telephone interviews after 4th telecast from those who viewed at least 20 telecasts.

Through scientifically designed advertising research using CATV facilities such as those described above, leading advertisers are able to improve the effectiveness of their current over-the-air broadcasting. At the same time such firms are gaining experience with CATV, keeping a close check on its penetration into major markets, and observing the development and viewer acceptance of CATV program originations. When will such firms accept CATV as a significant advertising medium? This will depend upon the character of the target markets for their individual brands, the distribution of their brands, the penetration of CATV into major markets, and the development of CATV program originations appealing enough to attract a significant share of viewers during different parts of the day in competition with over-the-air television entertainment, among other considerations. If overall market penetration reaches between 25% and 38% by 1980 it appears likely that CATV may be approaching a stage where certain leading advertisers may begin to include it in their media choices. As CATV advertising revenues increase, funds will be available for improved program originations. Better CATV programs will draw larger audiences. Larger audiences will attract more advertisers. CATV will then begin to find its place among the significant media alternatives of leading advertisers.

#### Two-Way Communication Services

Under the new FCC rules, cable systems are required to have the capacity for return communications on "at least a nonvoice basis." Potentially, however, the cable can provide a wide range of new services beyond the FCC minimum standards.

The technology already exists for two-way cable television. Amplifying equipment, which enables each subscriber to transmit signals directly back to the originating CATV operator, was introduced in mid-1969 by two companies: Cascade Electronics Ltd., of Port Moody, British Columbia, and HTV Systems, Inc. of Rochester, New York. Two-way cable operations have taken such a prominent place in CATV systems planning that nearly all equipment suppliers in this field are offering, or planning to market soon, equipment capable of simultaneously sending signals in both directions.<sup>10</sup> By 1980 most cable systems with over 2,000 subscribers will probably have some type of two-way capability.

Since revenues from advertising are likely to grow slowly for some years to come, cable operators are considering a number of possible two-way services which over-the-air broadcasters cannot duplicate economically. One interesting possibility is shopping by CATV.

#### Shopping by CATV

Using CATV a retailer could display merchandise in color over a system with two-way capability. Following the display, together with information necessary for making a purchase decision, the subscriber could place an order via the two-way system for whatever items she might wish to buy. Shopping in this manner would offer important benefits in saving time, travel, and energy. Such an arrangement might have strong appeal for certain types of consumers in buying appropriate kinds of merchandise.

The economic feasibility of shopping by CATV is currently being tested by TeleVision Communications Corp. in Akron, Ohio; TelePrompter in Los Gatos,

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<sup>10</sup> Samson Science Corporation, Cable Television, 1970, p. 8.

California; and Telecable in Overland Park, Kansas. The results of such tests should be of key interest to both retailers and CATV operators.

One problem to be faced, of course, is the cost of equipping each subscriber with a keyboard terminal or equivalent device with which to order merchandise from the advertiser. The Sloan Commission estimates the minimum cost per home for such facilities at approximately \$250.<sup>11</sup>

If shopping by CATV is to succeed, enough retailers must be willing to market their goods this way to make this method of shopping feasible for the consumer. Likewise, enough consumers must place orders for the advertised merchandise to cover the costs of this method of marketing and to provide retailers with a reasonable profit. It is hoped that the tests mentioned above will provide evidence on these important questions.

Should shopping by CATV prove to be economically feasible the implications are far-reaching. Not only would retailers have a new way of selling their merchandise, but also changes would occur in the need for transportation to and from shopping centers, use of credit would increase, and more delivery service would be required, among obvious repercussions.

#### Other Applications of Two-Way Communication Service

The availability of two-way communication makes possible a number of other applications of CATV. Possible services include the following:<sup>12</sup>

1. Education: Educational television providing student interaction with the instructor. Access to library reference materials via video tape.
2. Public safety: Remote monitoring of television cameras used for surveillance in stores, banks, business offices, and private homes. Fire and police alarm systems. Emergency communication.

<sup>11</sup> Sloan Commission, On the Cable, p. 182.

<sup>12</sup> Charles Tate, ed., Cable Television in the Cities (Washington, D.C.: The Urban Institute, 1971), p. 13.

3. Preference polling of television audiences.
4. Automatic reading of gas, water, and electricity utility meters via CATV.
5. Communication: Computer accessibility and interaction; videophone.
6. Politics: Low-cost local access to CATV subscribers; voting via cable; political polls.
7. Work activity: Information flow by facsimile; delivery of mail.
8. Recreation: Via pay television, availability of movies, plays or sports programs of unusual interest; game interaction on cable.

Listing these possibilities indicates how broad the opportunities for the development of CATV services are. It is reported that cable operators are recognizing that offering distant signals to television viewers in large cities is not enough to attract a substantial number of viewers to subscribe for cable service. They recognize that something more is needed. At the National Cable Television Association convention in May, 1972, many cable operators were indicating that the "something more" might well be pay television.<sup>13</sup> This plan would make available full-length movies and major sports events which may be viewed without commercial interruption. Pay cable entertainment of this sort is likely to be made available by leasing one or two cable channels to firms organized to develop such programs, providing equipment to enable only those subscribers who pay to have access to the entertainment offered, and handling the billing and collection of "admission" charges. Tests of pay cable entertainment services scheduled to begin at the end of 1972 have been announced by Optical Systems, Inc., Theater-vision, Inc., Home Theater Network, Inc., and others. These experiments should provide evidence as to whether pay cable entertainment would be purchased by

<sup>13</sup>Broadcasting, Cable Sourcebook 1972-73, p. 3.



enough subscribers to make it profitable.

Impact on Over-the-Air Broadcasting

As CATV penetration grows between now and 1980, what is likely to be the impact upon over-the-air broadcasting? It is recognized, of course, that subscribers to CATV will have more alternative programs from which to choose than were available to them before. Subscribers will have not only the network programs they previously received, but also other program material from distant stations as well as programs originated by the cable operator.

It is likely that the network programs brought in by cable will still be popular with television viewers, but the competition from additional programs will probably result in smaller audiences than before for network shows, with the result that advertising rates will have to be reduced to compensate for the change.

The Sloan Commission estimates that network affiliates could lose 10% to 15% of their audiences if cable penetration reaches 50% and that network profits could drop from 20% to 50%.<sup>14</sup> Evidence reviewed here does not indicate that 50% penetration is likely by 1980, however. The Samson Report, for example, projects a penetration of 38% by 1980 and concludes that the threat to broadcasters is real--but small.<sup>15</sup>

In this study of the prospects for cable in the 100 largest television markets, Parks estimates that the impact of cable television would be quite small. He estimates that cable would increase the revenues of UHF independent stations by about 20% over the period 1971-81 while reducing the revenues of other stations in the top-100 markets by considerably less than 20%. He concludes that the new FCC rules will tend to get cable moving without

<sup>14</sup>Sloan Commission, On the Cable (McGraw-Hill Book Company, New York), p. 219.

<sup>15</sup>Samson Science Corp., op.cit., p. 2.

jeopardizing over-the-air broadcasting.<sup>16</sup>

Financial Requirements of the Cable Industry

Assuming that improved color reception and greater program diversity are attractive enough to stimulate a consumer demand for CATV service in major markets, are cable operators likely to be able to raise the capital that is required for the construction of facilities in these cities or for the expansion of limited service already available? According to Broadcasting, the total cost of an average system is estimated at between \$500,000 and \$1,000,000.<sup>17</sup> The cost of laying cable ranges from \$4,000 per mile in rural areas to more than \$50,000 per mile in large cities. Hence operators tempted by the prospects in major markets are asking themselves, "Where is the money going to come from?"

It is generally assumed that CATV will need to achieve a base of about 25 million homes in the next ten years if technologically advanced applications of cable are to be economically feasible. The achievement of this goal would require industrywide investment of over \$1 billion per year for ten years. To achieve this rate of investment is a formidable task. It is estimated that total national savings-to-investment flow of new funds to corporate users is at a rate of only \$25 to \$30 billion a year. Of this the utilities take over half. No other single industry attracts capital at the rate of \$1 billion per year.

Trend Toward Consolidation in CATV Systems

The CATV systems began as small companies. Pioneers in the field began with little more than an enlarged version of the usual rooftop antenna. Because

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<sup>16</sup>R.W. Park, "Prospects for Cable in the 100 Largest Television Markets," Bell Journal of Economics and Management Science, Vol. 3, No. 1, Spring, 1972, pp. 148-9.

<sup>17</sup>"Now...where's the money?" Broadcasting, May 15, 1972, p. 45.

of conditions outlined above, systems developed more extensively in medium-sized communities and rural areas than in major markets. Usually these systems served one community and were owned by a small company. Accordingly, organization of a CATV company to serve a community has offered many individuals with limited capital an opportunity to participate in a rapidly growing industry. Indeed, as of 1972, out of a total of 1,100 companies in the cablecasting industry, there were 925 such systems representing perhaps 850 companies, serving over a million subscribers. But these companies are standing still.

According to Robert Peters of the Stanford Research Institute, "The mom-and-pops don't want to become involved in the next generation of CATV." Instead, it is the larger multiple owners who are undertaking the major construction, the new services, and important acquisitions that are consolidating the cable industry and directing its growth.<sup>18</sup>

What has produced this trend toward concentration of control in the hands of large companies? Realization of the problems involved in raising capital needed to develop systems in major markets is certainly one of the important considerations encouraging the strong trend toward consolidations. This movement began in 1970 but accelerated in 1972.<sup>19</sup> Other factors encouraging consolidation include the following: (1) There is a limited amount of management talent in the industry. The greatest benefit is derived by

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<sup>18</sup> "Will the Mighty Inherit the CATV Earth?" Broadcasting, March 20, 1972, p. 21 ff.

<sup>19</sup> Ibid!

concentrating corporate resources in the few talented hands. (2) Adoption of the new FCC rules permitting limited entry into major markets opens new possibilities for growth. (3) Mergers provide for a marriage of needs of the participating companies--acquisition of established systems and subscribers, construction of new facilities, addition of new services, increased cash flow, greater appeal of securities on the stock market, and others. (4) Ability of the firm to offer potential advertisers a package deal is enhanced when a single company can offer a variety of cable systems and a large number of subscribers. (5) Consolidation may bring cost savings. (6) Resources for substantial, professional program origination are more readily available to larger, better-financed companies.

As a result of this trend, the top 10 firms command about 40% of all subscribers, the top 50 account for 75%. Below are listed leading firms and the number of subscribers they serve: Teleprompter Corporation 639,300; American Television and Communications Corporation 264,000; Viacom International Inc. 255,000; Cox Cable Communications, Inc. 230,000; Tele-Communications, Inc. 225,000; Warner Communications 215,000; Communications Properties, Inc. 207,000; Sammons Communications 200,000; Cypress Communications Corporation 162,000; and Cablecom-General Inc. 150,000.

Thus CATV has been overtaken by the traditional shakeout that occurs in the development of a young and growing industry. The implications of this development are that there will be less opportunity for organizing and operating a CATV system in the future than has been true up to this point. Those who wish to participate in the opportunities that will come from the continued growth of CATV are likely to find their best opportunity in investment in the securities of well-managed firms with a favorable profit outlook.

Investment in the CATV Industry

The impressive and sustained growth of CATV has attracted the attention of investors interested in growth stocks. According to Standard & Poors Industrial Surveys, September 7, 1972, "Continued growth is expected, predicated on: (1) strong customer demand for these services; (2) in the introduction of certain specialized consumer services without competition from conventional broadcasters; and (3) a more favorable trend of governmental attitudes toward CATV."<sup>20</sup>

According to a promotional brochure published by the Research Institute Investors Service, Mt. Kisco, New York, in 1972, "To stock market investors, the mushrooming of Cable TV into a major new communications industry may represent one of the classic ground-floor growth opportunities of this decade. For solid evidence suggests that CATV earnings may even challenge the combined earnings of all three nationwide broadcast TV networks (which, like the telephone companies, are barred from further participation in the CATV field). However, the capabilities of individual Cable TV companies to reap the rewards of this volcanic growth potential vary markedly".

Richard A. Donnelly, in Barrons, however, sounds a note of caution. He notes that investors seem to be overlooking several drawbacks facing CATV operators: (1) Expansion into big cities will be expensive and require heavy financing; (2) program origination will be costly; and (3) CATV must compete with rich networks and stations for programs.<sup>21</sup> He continues, "In sum, operators are going to need a lot of financing--perhaps more than is realized,

<sup>20</sup> Standard & Poors Industrial Surveys, Electronics-Electrical, Sec. 2, Sept. 7, 1972  
p. E-29.

<sup>21</sup> Richard A. Donnelly, "The Dimmer View," Barrons, Vol. VLL, No. 28, July 10, 1972, p. 5.

owing to the upward trend of construction costs. And this will likely mean repeated trips to the equity market and continued dilution."

Participation in the CATV industry is possible through investment in the many independent companies that install and operate CATV systems and through the suppliers of major components such as master antennas, microwave equipment, and coaxial cable. In addition, many large companies other than broadcasters have an appreciable stake in the CATV industry.

Among the more important companies mentioned by Standard & Poors as involved directly in systems operation, construction, or equipment supply are General Instrument, TelePrompter, American Television and Communications, and Cox Cable Communications. In addition to these, Barrons mentions the following publicly held companies but notes that there are no big earnings reported by any of these firms: Tele-Communications, Viacom, Vikoa, Communications Properties, Cable Information, CableCom General, LVO Cable, and Columbia Cable.

Obviously, those interested in the possibility of investment in CATV securities would be well advised to make their own careful appraisal of the quality of management of firms under consideration, past-earnings record and future prospects, as well as current price-earnings ratios. No attempt is made here to provide advice on these matters.

#### Summary and Conclusions

At present CATV has achieved greatest penetration outside of the 100 major markets of the United States. Although the high cost of constructing cable systems in major markets tends to slow down entry there until March, 1972, the chief obstacle had been restrictive FCC regulations. With new FCC regulations designed to permit orderly penetration of CATV into major markets, what is the long term outlook for growth in this industry?

CATV not only brings television entertainment to areas where over-the-air reception is poor or impossible because of distance or natural obstructions, but also provides improved color reception and program diversity in major markets where broadcast programs are already available. The demand for these benefits will encourage a moderate degree of expansion in CATV penetration in major markets. The full potential of cable will not be achieved, however, until two milestones are passed: (1) program originations equal or exceed over-the-air competitors in audience appeal; (2) two-way communication services are offered that are unique to cable systems.

Improvement in program originations may well require the investment of funds in superior entertainment material in advance of the achievement of viewing audiences large enough to support such expenditures. The larger cable systems are better equipped financially to make such investment spending than are smaller operators. Then too, the high cost of constructing cable systems in major markets requires access to substantial amounts of investment capital. The larger, better-managed systems are likely to experience more success in securing the capital necessary for penetration of major markets than are the smaller cable operators. The current trend toward consolidations in the cable industry, accordingly, should result in firms capable of raising the capital necessary to finance improved programming and expansion of cable facilities in major markets.

Against this background, leading observers have forecast that expansion of CATV penetration of television households by 1980 will range from a conservative 25% to an optimistic 38%. Even with this expansion in prospect, however, the outlook for the use of CATV as an advertising medium is mixed. Retailers, service organizations, and manufacturers with local distribution who find television adapted to their promotional needs account for the lion's

share of CATV advertising revenues currently and will probably be the major users of this medium in the years immediately ahead. As regional associations are formed to sell CATV time, the usage of this medium by firms with regional distribution will tend to increase. Significant use of CATV by national advertising for other than research purposes is likely to come first by those firms whose products find their market among a limited segment of consumers and where the selective aspects of CATV would, therefore, be a distinct advantage. Until national networks of cable systems are available and acceptable audience data can be provided to advertising agencies buying media, use of CATV by national advertisers will be inhibited. As these obstacles are removed, and cable penetration of major markets reaches between 25% to 38%, it is likely that CATV will be reaching the threshold where certain leading advertisers will begin to include it among the major types of media by which to communicate their messages.

As CATV advertising revenue increases, more funds will be available for improved program originations without incurring a deficit in system operation. Better CATV programs will attract larger audiences, and this will make CATV even more attractive as an advertising medium.

As two-way communication becomes increasingly available on cable systems, operators will be able to offer new services that may serve to attract subscribers and increase penetration of major markets. One of the first is likely to be pay cable television making available full-length movies and major sports events on one or two channels of the system. Whether enough subscribers will be willing to pay for such entertainment without commercial interruption is yet to be determined.

Another exciting long-term possibility is shopping by CATV. If this catches on with consumers the impact upon transportation, credit usage, delivery service, and marketing will be revolutionary.



Applications of two-way communication in areas such as interactive education, public safety, preference polling, meter reading, communication, and politics, may also serve to make CATV more attractive to potential subscribers and thus speed household penetration.

It is evident that the 1972 FCC regulations will permit CATV to make significant progress by 1980. Although over-the-air broadcasting will not be jeopardized, firms in this segment of the industry will find CATV an increasingly strong competitor in contending for audiences and advertising revenues. It is to be hoped that this may result in improved entertainment for television viewers and better service to the public at large.

Whereas CATV originally offered opportunities to individuals to go into business for themselves by organizing and operating a community cable system, this opportunity is going to be less likely in the future. Instead, the opportunity to participate in the growth of CATV will probably be found in judicious investment in the securities of well-managed publicly held firms in sound financial condition and with a favorable earnings outlook. Firms involved in systems operation, construction, and equipment supply might also be considered in making this analysis. In view of the problems that lie ahead for this industry, careful analysis, sound judgment, and a good sense of timing would appear to be essential if potentialities are to be realized.