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# TV & Communications



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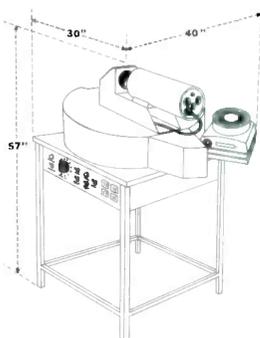
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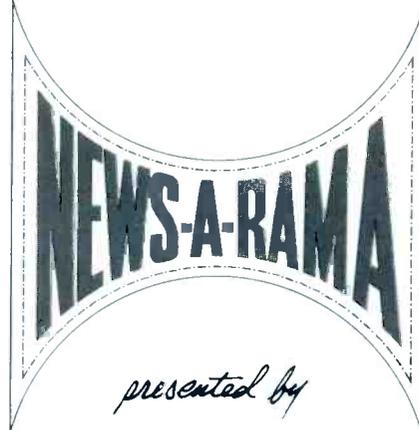
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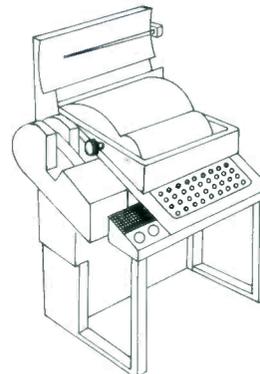


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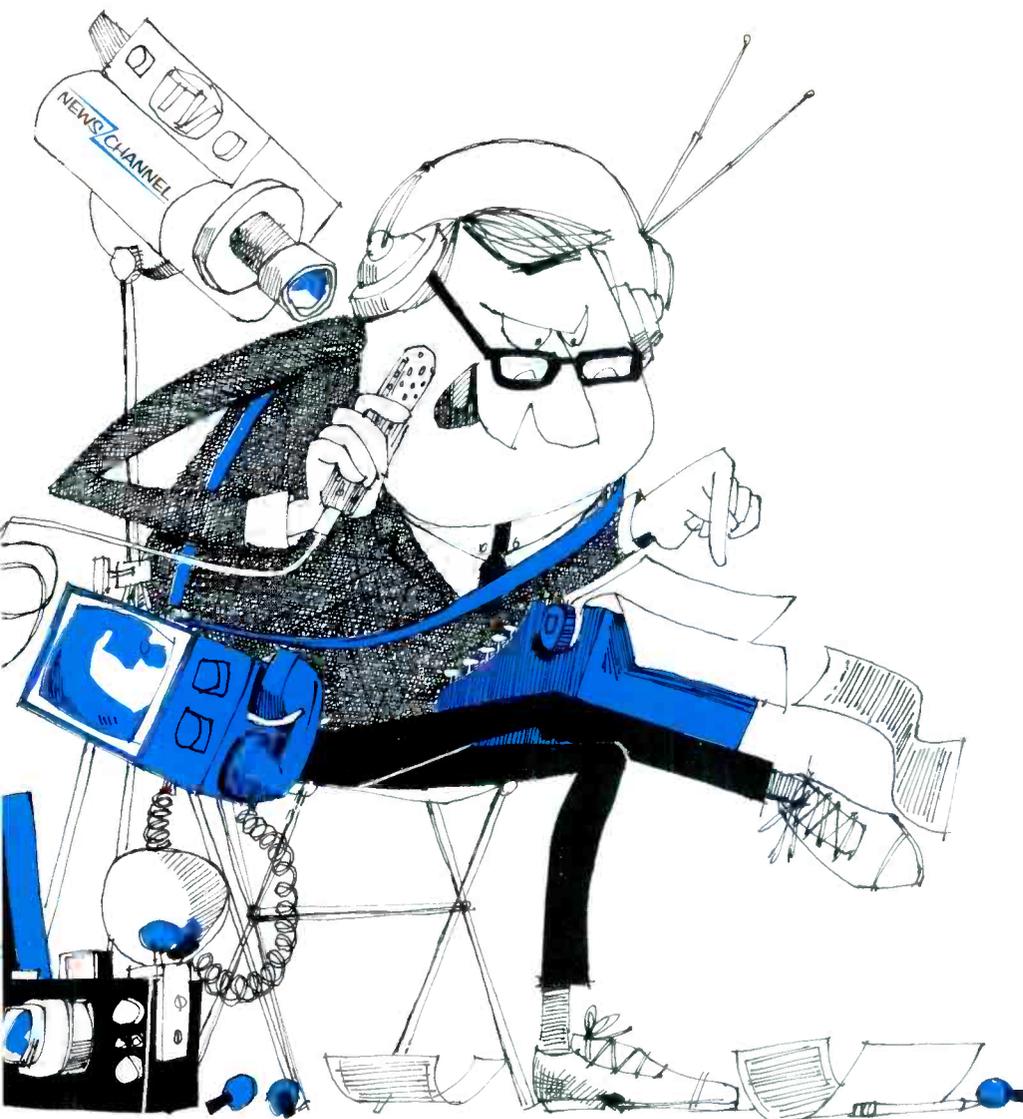


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IN THIS ISSUE . . .

**LAUNCHING A SUPER-SYSTEM**



On opening day, the new cable system in Harrisburg, Pa. was already one of the largest in the nation. The pre-selling operations which led to this unique success are the subject of this most informative article. In addition to valuable subscriber promotion ideas, the Harrisburg story gives clear insight into the future of CATV in large urban markets. Read about it on page 34.

to valuable subscriber promotion ideas, the Harrisburg story gives clear insight into the future of CATV in large urban markets. Read about it on page 34.

**THE FCC & CONGRESS**



NCTA Chairman Frederick K. Ford's comments at the recent CATV financial seminar in New York are reprinted in full. At a time when cable television's image to outside interests is vitally important, the industry's relationship with these Federal bodies deserves scrutiny by all cable operators. As a former FCC member and chairman, Mr. Ford discusses this relationship with an insight which is unique in the CATV industry. See page 44.

industry's relationship with these Federal bodies deserves scrutiny by all cable operators. As a former FCC member and chairman, Mr. Ford discusses this relationship with an insight which is unique in the CATV industry. See page 44.

**NEW MAN AT THE TOP**



Robert H. Beisswenger has been elected President of the Jerrold Corporation, succeeding Milton J. Shapp who remains as Board Chairman. What is Bob Beisswenger like? And what brought him to the top of this pioneering giant of CATV manufacturing? For a closer look at this dynamic executive see page 22.

For a closer look at this dynamic executive see page 22.

**OUR COVER:** One of Tommy Moore's microwave installations located in Texas. Photograph is courtesy of Fort Worth Tower Co. and Worrell-Ericson Adv

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# TV & COMMUNICATIONS

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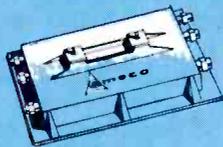
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# NEW CATV RULES

WASHINGTON, FEB. 15—The FCC today announced new regulations for all cable television systems. The rules are moderate compared to earlier proposals—call for same day non-duplication. Operation in top 100 TV markets; filing of ownership information are key areas of concern.

The suspense over threatened FCC rules over all CATV was relieved Tuesday, when Commission Chairman E. William Henry at a jammed news conference announced the rules, said Congress will be asked for additional legislation, and answered questions from the press.

The CATV industry's bombardment of capitol hill with letters opposing strict FCC regulation apparently paid off, as the new rules are considerably "softer" than feared. CATV's won't be required to ask station permission to carry signals, the 15-day non-duplication requirement was reduced to a single day, and CATV systems in smaller markets will not be banned from importing distant signals.

The rules will take effect 30 days after they are published in the federal register, which will occur within several weeks. Taking effect immediately, however, is a rule that systems in the top 100 markets that want to bring in distant channels will have to justify their service at an FCC hearing.

The FCC was immediately asked to appear before the House Commerce Committee Tuesday afternoon in a closed session to discuss the new rules. Henry started by noting that the new rules were decided on after Commission meetings Feb. 10, 11, and 14. They won't apply, he noted, to CATV systems with fewer than 50 subscribers or apartment house master antennas. He then gave a rundown of the eight major points of the FCC's "new CATV program":

(1) "A CATV system will be required to carry without material degradation the signals of all local television stations within whose grade B contours the CATV system is located." A system with limited capacity, Henry said, can apply for a waiver if there's a good reason.

(2) "A CATV system will be required to avoid duplication of the programs of local television stations during the same day that such programs are broadcast by the local stations." Non-duplication won't be enforced, however, if a network's prime time shows aren't presented by the local station during prime time, nor will it be enforced on color programs that the local outlet carries in black and white.

(3) "The Commission will continue to give full effect to private agreements between CATV operators and local television stations which provide for a different type or degree of protection for the local station than do the Commission's rules. Moreover, the Commission will give ad hoc consideration to petitions from local television stations seeking a greater degree of protection than provided by the rules, or from CATV operators seeking a waiver of the rules."

(4) "Parties who obtain state or local franchises to operate CATV systems in the 100 highest ranked television markets (according to American Research Bureau net weekly circulation figures), which propose to extend the signals of television broadcast stations beyond their grade B contours, will be required to obtain FCC approval before CATV service to subscribers may be commenced." Henry said the hearing before the Commission "will be concerned primarily with (A) the potential effects of the proposed CATV operation on the full development of off-the-air television outlets (particularly UHF) for that market, and (B) the relationship, if any, of proposed CATV operations and the development of pay television in that

market. The hearing requirement will apply to all CATV operations proposed to communities lying within the predicted grade A service contour of all existing television stations in that market." The decision said "service presently being rendered to CATV subscribers will be unaffected."

(5) "The Commission's prior approval after an evidentiary hearing will not be required by rule for proposed CATV systems or operations in markets below 100 in the ARB rankings. However, the Commission will entertain, on an ad hoc basis, petitions from interested parties concerning the carriage of distant signals by CATV systems located in such smaller markets."

(6) FCC listed the following information that at a future date CATV systems will be required to file: "(A) the names, addresses and business interests of all officers, directors and persons having substantial ownership interests in each system; (B) the number of subscribers to each system; (C) the television stations carried on each system; and (D) the extent of any existing or proposed program origination by each CATV system."

(7) FCC "asserts its present jurisdiction over all CATV systems, whether or not served by microwave relay."

(8) FCC will ask Congress to "enact legislation designed to express basic national policy in the CATV field."

Basically, it wants "clarification and confirmation of FCC jurisdiction over CATV systems generally," prohibition of program origination, consideration of whether CATV should have to get permission to carry channels, and consideration of whether CATV should be considered a public utility.

Although those eight points were the majority position, it was not unanimous. Commissioner Robert T. Bartley said the FCC doesn't have jurisdiction but he supported legislation to forbid program origination by systems. Commissioner Lee Loevinger also disagreed with the jurisdiction, but said he thought the decisions were "A moderate and reasonable compromise" and so he concurred. Commissioner Kenneth A. Cox favored much tighter regulation and said the congressional mail campaign had scared the Commission into not acting strongly enough. The mail was written, Cox said, by "A rather small number of CATV subscribers who have been galvanized into pressuring Congress and the Commission by a campaign of outright misrepresentation by the CATV industry."

The fastest public reaction to the new rules came from the Association of Maximum Service Telecasters, which issued this statement: "We are encouraged that the Commission has agreed to exercise its jurisdiction over all CATV systems. We are concerned, however, that the rules will be inadequate in several respects. We are particularly concerned that the rules will fail to preserve opportunities for free local and area television broadcasting service in smaller markets, where the adverse impact of CATV is most severe."

The Commission's major negative action—requesting Congressional prohibitions of local origination—drew strong reaction from TeleMation Inc. president Lyle O. Keys. "We feel certain that neither the FCC nor Congress will tolerate, let alone foster any legislation that will deprive the American viewer of full access to valuable weather and news information." Adding that "We do not consider use of our Weather Channel and News Channel to be local origination *per se*," he declared, "However, we are adopting a protective policy for systems purchasing Weather Channel, in the unlikely event that the FCC and/or Congress should prohibit their use. News Channel users are already protected by agreement with Associated Press."



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# LETTERS

## FCC REGULATION DEBATED

Gentlemen:

Your letter of January 24, 1966 to the President concerning the community antenna television (CATV) industry, has been referred to me for comment.

The Commission has long been concerned with the matter of CATV growth and its impact upon the fullest development of our nationwide television system. We have had these long-standing CATV questions under close and active study in a number of proceedings dating back to the late 1950's . . .

The Commission intends to resolve as many of these CATV questions as it can as soon as it can. It is not possible at this stage to know what and when final action will be taken. In light of the complex and extensive record before the Commission, it is likely that no dispositive action will be taken at the February 10th meeting, and that subsequent meetings will be required for our final decisions. Any action taken by the Commission would, of course, be subject to judicial review and would not preclude Congressional consideration or legislation in this area.

E. William Henry  
Chairman, FCC

Gentlemen:

Thank you very much for your letter of February 1st. We have the assurance of Chairman Henry of the Federal Communications Commission that as if and when the Commission decides what they think should be done about CATV, they will then come to our Committee and talk it over with us. If it is not agreeable, we will proceed to hold hearings and if legislation is needed, we will legislate in that field.

As of the present time, I think the majority of our Subcommittee on Communications and Power does not believe that the Commission has authority under the Communications Act to regulate the simple antenna CATV.

J. Arthur Younger  
Congressman  
11th District, California

Dear Stan:

I have in front of me the editorial in the issue of (Cable Television Review) January 17, 1966. I recognize that you publish a newsletter for an audience which is largely, if not wholly, made up of cable operators or manufacturers of cable equipment. Perhaps

this is what leads you to refer to "our" industry in the editorial. I suppose it's an understandable tendency for a trade publication to identify with the industry about which it writes, but I think there are dangers both for the publication and the industry if this leads it to be totally uncritical and to seek to advance the interests of the industry at all costs.

I think there is a lot of loose talk used in the entire debate over CATV. You say, for instance, that the Commission apparently intends to deprive viewers of their "right" to choose from a multiplicity of programs . . . I am rather certain that no such enforceable right exists.

You then say if we proceed we will be interfering in the business of Congress. Admittedly, Congress may be concerned about the CATV problem, and if so should take whatever action it deems desirable. However . . . there is room for both Commission and Congressional action, and if Congress disagrees with the policy underlying any actions taken by the Commission it can, of course, require us to change by amending the law. You then talk about usurpation of jurisdiction which clearly has not been granted to the Commission by Congress. Again, I would comment that if it is as clear as all that, the industry should have no difficulty setting our action aside in Court.

You also refer to past Commission statements with regard to jurisdiction . . . I think it did state that it lacked jurisdiction to regulate CATV comprehensively. I think that these statements were in error, and it is my opinion that they are not legally binding upon the present members of the Commission. If we are wrong, then the Courts will correct us on this point as well.

I am somewhat amused by the suggestion . . . that only those in the CATV industry are interested in the future of television in America. While you may disagree with what the Commission has done, or may do, in this area, I would hope that you would concede that we also have an interest in that future and are trying to promote it for everyone concerned. For an industry which accuses us of protecting the "entrenched" broadcast interests, a lot of cable operators seem bent on preventing the Commission from affecting adversely any practice in which they now engage which renders their service more attractive and more readily saleable.

I am just as interested as you are in having Congress fully informed about the CATV problem. As you know, when the Commission proposed last April to assert jurisdiction over

off-the-air cable systems, it expressly stated that it would allow time for Congress to consider the matter and to act to provide us with more precise direction if it wished to do so. Legislation was introduced, hearings were held in the House, but nothing beyond that has happened. If the Commission now acts after the lapse of nearly a year, Congress can still reverse any decisions we reach if it finds them contrary to the public interest. I am a little concerned, however, that some of the efforts made to inundate Congress with expressions of opinion from "an aroused public" are not really designed fully and fairly to inform the Congress about the matter.

There is a lot of talk about the desirability of some constructive, broadly based agreement among broadcasters, cable operators, the Commission, and the Congress which could lead to clear-cut legislation on the subject . . . I think, however, that no such agreement will ever be reached if the cable industry is simply assured that "free enterprise, truth and the public interest are clearly on the side of cable television." I think that some aspects of all of these matters are clearly on the side of CATV operators, but I think that the rights of businessmen engaged in over-the-air broadcasting, some of the facts, and the interests of some substantial part of the public require careful integration of cable operations onto the total television system. That's all we are really trying to do.

Very truly yours,  
Kenneth A. Cox  
Federal Communications  
Commission

● *Thank you for your reply to our editorial. You are right; we do "identify with the industry" we serve. And you correctly note that we refer to CATV as "our" industry. Inasmuch as TV & COMMUNICATIONS and CABLE TELEVISION REVIEW are the only independent news media serving cable system operators, we feel a strong obligation to speak out clearly on issues of vital concern to CATV. But it has never been our intention to "advance the interests of the industry at all costs," as you imply.*

*The American people, we believe, do have the right to receive as much information and entertainment as modern technology, within the framework of free enterprise, can deliver to their television sets. Our extremely successful system of advertiser-supported television stations does not need "protection" from the cable systems which broaden signal coverage and multiply program*

*(Continued on page 56)*

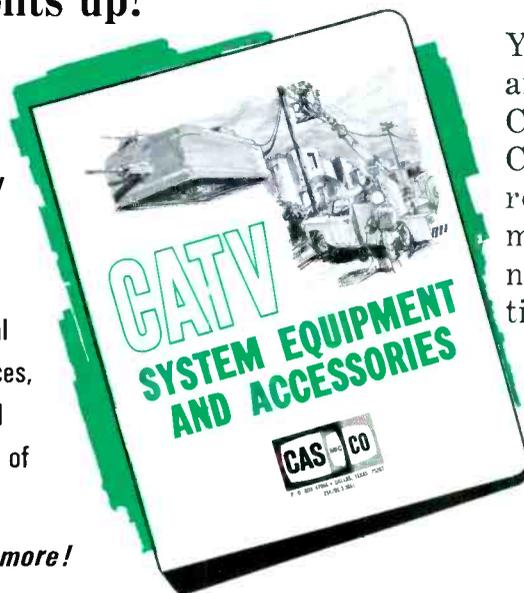
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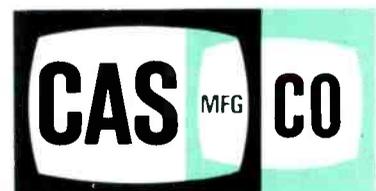
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## INDUSTRY FIGHTS EXTREME REGULATIONS

An aggressive campaign to enlist the support of Congress against possible total CATV regulation by the FCC has resulted in a literal flood of letters, calls, and wires to Congressmen from all areas of the country. The combative effort came after predictions of FCC regulations so extreme as to require Congressional action on behalf of CATV operators. The need for immediate and decisive action was impressed upon members of the industry by rumors of impending extension of regulations requiring nonmicrowaved CATV systems to carry signals of local TV stations and to protect such stations from duplication of their network programs. In addition, there were suggestions that the FCC might also outlaw microwave pickups of distant stations by CATV's in markets where UHF stations are allocated by the FCC.

Reaction to such rumors came in the form of instant indignation on the part of the NCTA and cable leaders across the country. An emergency session of the NCTA Board of Directors was held in Washington, and board members presided over ten regionally held NCTA emergency meets. The larger commercial interests of the industry responded with published literature and informative kits for use in furthering the cause of CATV. And cable subscribers came forth with a deluge of objections that has been described as unequalled in the legislative career of many Congressmen.

In addition to the campaign of CATV interests, other organizations with an eye on the industry have formulated policies in an attempt to influence the FCC. The National Association of Broadcasters (NAB) at press time is in the process of filing formal comments with the Commission regarding present developments on the regulatory scene. The Association of Maximum Service Telecasters (AMST) prepared a list of claims about FCC regulation that is attributed to various CATV operators and followed this "fiction" with AMST "facts". The Television Accessory

Manufacturers Institute (TAME) issued a press kit outlining its arguments that CATV should be tightly regulated and also wrote to Congressmen asking them to support CATV regulation.

Protests from both sides have been met with varied reactions by Congressmen and Commission members. The flood of letters to Congress from CATV viewers and operators generated enough heat to draw an explanatory letter to Congressional communications leaders from FCC Chairman E. William Henry. Indicating that "It is not possible at this stage to know what and when final action will be taken," Henry assures that the FCC "intends to resolve as many of these CATV questions as it can as soon as it can." House Communications Subcommittee Chairman Walter Rogers (D-Tex.) said that he is planning to wait to see what the FCC does, and Representative Harley O. Staggers (D-W. Va.), Chairman of the House Commerce Committee, has indicated that after the Commission's discussion of the problem his committee will welcome recommendations and proposals of legislation.

At press time, most results of the campaign are still not in evidence. It is apparent, however, that Congress will take no steps to interfere before the FCC has discussed the problem of regulation. The question now is whether action will be taken by Congress before or after the FCC enacts such regulation. Whether Commission minds have been swayed one way or another by the widespread reaction to the proposed regulation is not apparent from action or comment. Noteworthy is the recent FCC visit to the Harrisburg, Pa. system, which took place a scant three weeks before the February 10 date scheduled for FCC discussion of CATV. Although Jerrold officials who conducted the tour were pleased with the FCC members' apparent openmindedness in viewing the system, no comment was made on a change-of-attitude on the part of the Commission.

## HARRISBURG SYSTEM TOURED BY FCC

FCC Commissioners who recently visited the newly-opened system in Harrisburg, Pennsylvania, left with a complete impression of the effect of CATV on the area it serves. Visiting Commissioners Henry, Cox, Bartley, and Hyde, as well as 14 staff members, were accompanied on their investigation by Jerrold executives including Milton J. Shapp and Robert H. Beisswenger. In addition to the standard tour — headend facilities, cable and tapoffs, and downtown office — the Commissioners were taken to several homes where they could actually see the picture delivered by the system and also talk to the subscribers. In addition, they had an opportunity to visit with a television dealer who told of the rapid increase in sales of both color and second sets as a result of the opening of the system. Finally, they were able to see at first hand the accessibility of the UHF signals through the cable system.

Optimism was expressed by those who accompanied the Commissioners at Harrisburg, due to the openmindedness with which most of the Commissioners viewed all facets of the system. An ideal site for the visit, the Harrisburg plant is a large all-channel system which is not microwaving in any signals, and for comparison purposes, encompasses an old 5 channel system.

## NBC BUYS NEW YORK SYSTEMS

NBC, a pioneer in the broadcasting industry, has entered the growing ranks of CATV system owners. Through its NBC owned Stations Division, the broadcasting giant purchased three systems in New York State. Raymond Welpott, the division's president, stated that the systems are in Kingston, Hurley, and Woodstock, New York, and have a total of more than 7,000 subscribers.

## MEMPHIS APPROVES FRANCHISE ORDINANCE

The city commission of Memphis, Tennessee, has opened that area for CATV development. A joint action by the city commission and the Shelby County Court gave approval to a cable ordinance granting 30-year, non-exclusive franchises. Franchise fee was placed on a sliding scale of 3 percent of the gross on the first 25,000 subscribers, 4 percent on the next 25,000, and 5 percent on all over 50,000.

Immediately following the action, the city commission granted a franchise to Memphis CATV, Inc., and prepared to grant another to Total Television of Memphis.

## AMECO FORMS CABLE SUBSIDIARY

Ameco, Inc. has announced the formation of a wholly owned subsidiary, Ameco Cable, Inc. Bruce Merrill, president of Ameco, Inc. stated that J. R. "Jack" Woods will head the new company, bringing with him a background of 25 years in the cable industry. Woods has served in electrical testing, production, and sales engineering positions, and is thoroughly familiar with all phases of cable production. Until recently, he held the position of national sales manager for power, communication and control cable at the Rome Cable Division of Aluminum Company of America. A complete line of cable for the CATV industry will be produced by the firm, including solid sheath aluminum cable. The new cable will be marketed under the name "Amecoax." Merrill reports that the company will occupy a 30,000 square foot plant now under construction in Phoenix.

## NEW YORK CATV'ers HOLD ANNUAL MEET

The annual meeting of the New York CATV Association was held at the Country House, Syracuse. Special guest speaker was Commissioner Kenneth Cox of the Federal Communications Commission, who received an



Al Bagnardi (left) New York Association president presents Commissioner Kenneth Cox with honorary membership.

honorary membership in the association. He was accompanied by Lew Cohen of Washington, the association's legal counsel. 70 members and guests attended the meeting.

## LEGISLATORS URGE REGULATION •

Legislators in two states have urged that CATV be placed under the jurisdiction of the Public Utilities Commission. Massachusetts Rep. James R. Nolen (Dem.-Ware) has announced that he will seek passage of a bill during the present session of the Legislature. According to Nolen, "Companies offering CATV should be brought under public supervision and regulation." West Virginia Delegate John W. Pyles (Morgantown), in a letter to Governor Hulett Smith, asked that CATV legislation be included in the call for the January session. Pyles specifically cited "a large California

corporation" as the chief object of his attack. He stated, "In order to protect the people of West Virginia from further rate increases (referring to the 40 cent increase levied by American Cablevision after they had completely rebuilt the Morgantown system), I strongly urge that you seriously consider placing on your call to the January session legislation which would place television cable companies under the jurisdiction of the Public Service Commission."

## CONROY SUGGESTS COOPERATION

NCTA Chairman Benjamin J. Conroy, Jr., voiced his opinions on growth and regulation barriers to the industry at the New York meeting of International Radio and Television Society members. Calling for a new national television policy to be established by Congress, Conroy urged CATV operators and television broadcasters to work together to remove "regulatory barriers that are being erected to restrict the public's right of freedom of choice." He noted that this might best be accomplished by a "Hoover-type Commission study" of all aspects of television.

Stressing that the most urgent need of the industry presently is "not continued divisive action but incisive and cohesive leadership from all parties concerned. We must recognize and respect the larger concern . . . the public we all serve . . . Isn't it about time that cable operators and broadcasters stopped pulling each other apart and began to pull together 'for the larger and more effective use of radio in the public interest'?"

Quoting from the lines of poet Robert Frost, "Something there is that doesn't love a wall,/That wants it down," Conroy suggests that the 'something' he mentions is the public, possessed of an ingredient that will not tolerate barriers to freedom — such barriers as exist in the FCC's CATV rules. If "reasoned thought" had been given by the Commission in the construction of the rules, he said, "It could have built a roadway instead of a wall."

## VERMONTERS REJECT CATV UTILITY BILL

A CATV utility bill introduced in the Vermont House of Representatives is receiving little support from the people of that state. The House Banking and Corporation Committee, under the chairmanship of Rep. Dalton Mann, held open hearings on the bill, which was opposed vigorously by Vermont business and educational people. With the notable exception of New England CATV Association counsel Ralph Foote,

the majority of the speakers opposing regulation were not directly involved with CATV.

## FLORIDA ASSOCIATION RATIFIES OFFICERS

Officers of the Florida CATV Association, which was formed last fall, have been ratified. They are: William F. Hemminger, Sarasota, president; Harry Harkins, Gainesville, first vice president; H. H. Harris, Jr., Ft. Walton Beach, second vice president; Harry Bennett, Cocoa Beach, third vice president; and O. E. Brillante, Melbourne, secretary-treasurer.

The association held its first annual general meeting in Orlando, during which the group approved the new status of Florida CATV Association as a non-profit corporation. Due to the Washington activity occasioned by the FCC, the meeting was the scene of one of the ten regional meetings held around the nation. The special meeting was presided over by NCTA board members Doug Danser and Bob Jernigan.

Among the other topics of discussion was the annual NCTA Convention to be held at the American Hotel, Miami Beach, June 26-30. The first official meeting of the NCTA convention committee was held, with Wally Briscoe coordinating the activities of the committee and the Washington staff. The committee is headed by Terry Lee of Storer Broadcasting, and includes John Spottswood, William Hemminger, and Bob Jernigan.

## ILLINOIS BELL PROVIDES FACILITIES

Television and FM-radio distribution facilities for Dwight Perfect Picture Television, Inc., Dwight, Ill., will be supplied by Illinois Bell Telephone. Perfect Picture, a subsidiary of J. F. D. Electronics Corp., will provide programming on twelve channels. The service will include carriage of all Chicago stations, a time/weather service, FM-radio, and MPATI, the Midwest Program on Airborne Television Instruction.

## AKRON CONSTRUCTION UNDERWAY

Construction has begun on Telerama's plant in Akron, Ohio. Akron attorney Robert Blakemore, president of Akron Telerama, states that the plant, when completed in 3 to 4 years, will have approximately 950 miles of cable. At present, the tower site has been selected and construction of the headend facilities begun. Akron Telerama will offer a continuous selection of 12 video signals, chosen from 17 signals picked off the air. By alternating the video selection, Akron plans to stay with the non-duplication regulations set forth by the FCC.

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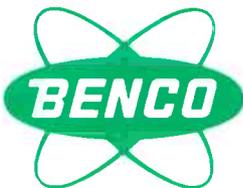
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#### HENRY SUMMARIZES FCC ACTION

FCC Chairman E. William Henry, in his year-end statement, "1965 and the FCC", reviewed the action taken by the Commission with respect to the various communications services in the United States. Summarizing FCC action and attitude toward CATV, Henry noted that "The Commission reached an initial conclusion that it has jurisdiction over all community antenna systems because they engage in interstate communication and their operations affect the FCC's broadcast regulatory responsibilities. Accordingly, it instituted an inquiry looking toward regulations and resolving other questions posed by CATV's mushrooming growth."

Noting the Commission's adoption of rules governing microwave relay services to CATV systems via common carrier, Henry stated that "the rules require CATV systems to carry the signals of local television stations and to protect such stations from duplication of their network programs." The Commission also proposed like rules for CATV systems not served by microwave, he added.

#### FCC REJECTS TRANSITION PERIOD

The FCC rejected a suggested transition period for CATV systems which come under the recently oriented 15-day non-duplication rules for microwave-fed systems. It ordered accordingly that the rules will be pertinent to all applications for renewal of microwave authority in the common carrier band filed on and after Feb. 1, 1966.

The Commission said that in making the decision it was relying on responses to questionnaires sent to all known CATV systems, as well as to other information, all of which indicates that less than 20 percent of microwave-served CATV systems were not in compliance with the rules. Even of these, half either had unused channel capacity enough to permit compliance or planned expansion permitting compliance. Less than 10 percent of the systems would have had to drop one or more signals presently carried in order to comply.

Under these circumstances, said the FCC, "... there appears to be no compelling reason to provide, by a generally applicable rule, a transition period for the microwave-served systems before requiring full compliance with the rules. Rather, the Commission believes that an immediate application of the rules is desirable, with the provision that any system showing need for delay in complying may be granted a waiver of the rules for a reasonable

period on a case by case basis."

As to these requests and requests for waivers for new authorizations, the Commission said the request should include a statement that a copy has been served on any TV station which may be affected, should demonstrate hardships to the CATV system, the disruption of service to customers of the CATV system which would result from immediate compliance, the need for the particular length of time for which waiver is requested, and future plans for coming into compliance.

#### FCC OFFERS RECONSIDERATION

The FCC has offered to reconsider its order to Mesa Microwave that it must carry the signals of KXII, Ardmore, Oklahoma. However, a similar order with respect to K TEN, Ada, Oklahoma, has been refused reconsideration. Mesa asked for review on grounds that neither station placed an actual grade B signal over Ardmore. The Commission ruled that Mesa's petition with respect to K TEN came too late, but that it was nevertheless considered on its merits and denied for lack of proper engineering proof. As to KXII, however, the Commission said action is being deferred for 20 days to give both sides a chance to submit evidence as to the strength of that station's signal over the affected community.

#### FCC GRANTS MICROWAVE PERMITS

Microwave restrictions recently placed on systems by the FCC have resulted in requests for authorization for microwave construction in different parts of the country. In the Business Radio Service, the FCC has granted authorization to Northern California Cable TV (permission to construct microwave relay systems at Goat Mountain, Cal.; to relay TV signals to a Willows, Cal., CATV) and to TeleSystems Corp. (permission to construct microwave relay systems at Wabasha and Peru, Indiana; to relay TV signals to CATV systems to serve the two cities.)

Black Hills Video of Little Rock has received a construction permit to add a new point of communication, located at Squaw Mount, to provide Denver TV stations to a Chadron, Nebraska, CATV. Microwave Service Co., Tupelo, Mississippi, proposes to modify its existing microwave station at Santa Rosa Mountain, California, to provide the Los Angeles Spanish Language and Educational stations to Palm Springs, Palm Desert and Rancho Mirage, California, CATV systems.

(Continued)

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(Spectrum continued)

### COX SPEAKS ON REGULATION

FCC Commissioner Kenneth Cox, speaking before the annual meeting of the New York CATV Association, stated clearly his ideas on cable systems and the Commission's role in regulation of them. "The simple truth," said Cox, "is that I think Congress created the Commission to regulate communications. This means that I believe in regulating the broadcasters—and as CATV has become a more and more important factor, it means that I believe we should regulate it as well.

Speaking of the "industrial explosion" of CATV, Cox indicated his belief that "the current expansion of the CATV industry depends on convincing the people in cities with three, four, or even five local services that they are also underprivileged. This involves, I suspect, considerably more sales and promotion effort than was required in 1950-1955. It has meant the sharp reduction, if not the elimination, of connection charges. And I wonder if it doesn't sometimes involve some talk of improving signal quality which may be a bit questionable—plus a lot of emphasis on eight, ten, or twelve beautiful channels of television just as if each were a completely different service offering a wide range of new and different programming which, with some exceptions it is not."

Turning to the subject of the recently-oriented microwave restrictions, the Commissioner noted that "Those of you who employ microwave have either already had experience with our rules, or have probably formed a pretty good idea as to how they will

affect you. Those of you who pick up all your signals off the air may not be so clear about it.

"If the Commission decides to extend its proposed rules to your operations, and I say 'if' advisedly, . . . I am certain you will not experience any drastic consequences. If you are outside the Grade B contour of any station, then you will not be affected at all. If you are within the contours of one of two stations and already carry them, you will now have to take steps to avoid duplicating their programs if they ask you to do so."

In reference to limiting the number of channels carried, Cox stated that he thinks, "the five channel system was a great invention. . . . It permitted the CATV operator in an area with limited service—or none at all—to bring in all three networks, plus an independent station and an educational service if they were available. . . . In part, I reach this conclusion because I think that five channels can accommodate about all television has to offer.

In conclusion, Cox defended the position of the FCC regarding CATV by telling operators that "when CATV began to have some impact on small market broadcasters, they asked, in essence, that you be excluded from their markets entirely. The Commission didn't grant that request—and hasn't to this day. It has recognized that you provide a valuable supplemental service in many situations, and has tried to arrive at a reasonable balance between you and the broadcaster—and between those who are willing to pay for your service and those who do not wish to do so—or cannot."

### SYSTEM SALES

Purchase of **Cable-Vista, Inc.**, cable television system at Elizabethtown, Kentucky, has been announced by Donald R. Atwell, president of **American Cable Television, Inc.**, an Ameco affiliate. The Elizabethtown system makes an even dozen owned by ACT in Kentucky and 36 systems in the nation.

Ted Simmons of Tulia, Texas, has announced the sale of **Tulia Cable Television, Inc.**, to **Robert A. Singer** of Dimmitt, Texas. Singer plans to enlarge the service offered by adding FM channels and the ETV station operated by Texas Tech at Lubbock.

**Rediffusion, Ltd.** is reportedly selling the third largest cable system in Canada to a Vancouver company, **National Cablevision, Ltd.**, in which Columbia Broadcasting System has an interest. The Rediffusion system, which is on the island of Montreal, has about 15,000 subscribers.

Jack Kent Cooke's **American Cablevision Co.** has purchased **Ironwood Community Systems, Inc.**, in Ironwood, Michigan. Negotiations have begun with Cable Constructors, Inc., of Iron Mountain, Michigan, for the modernization of the system, which has been in operation since 1958.

Ed Hewson of **King Broadcasting, Inc.**, Seattle, informs us of the purchase from **Sylvia TV Cable Co.** of the system which provides service in Elns, McClery, Montessano, and Westport, Washington.

Jack Kent Cooke's **American Cablevision** has acquired the microwave system of **Golden West Communications** for a reported \$1,250,000.

Harry Wilson of **Uniloy Community Antenna, Inc.**, Bogalusa and Franklinton, Louisiana, reports that he has purchased the system in Picayune, Mississippi from **Cable Video, Inc.**, of Bay Springs, Mississippi. Wilson announced that "The cable system in Picayune will immediately be re-engineered and the plant rebuilt where necessary."

**Richard Wilson** of WTVJ, Miami, reports the purchase of 1/3 interest in **Grand Bahama Theatres, Ltd.**, which is in the process of building a system in Freeport, a Caribbean tourist center which is in the midst of an economic boom.

F. Elliott Barber, Jr., president of **Brattleboro TV, Inc.**, has announced the sale of the Brattleboro system to **United Cablevision of Vermont, Inc.**, a new corporation formed by Robert H. Gibson, David A. Gibson, Ran-

(Continued)



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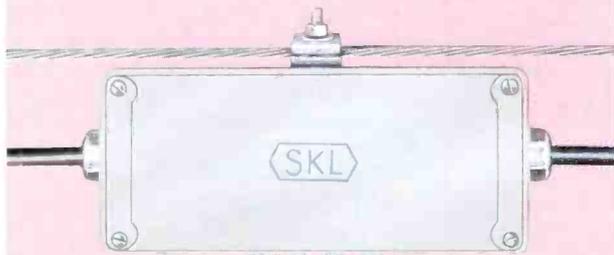
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(Spectrum continued)

dolph Tucker and Kathryn F. Anderson.

**George Puga**, Portland, Oregon, has purchased the system in Camas, Washington, which has been operated by a community organization, **Mountain View Television Association**. The city commissioners have granted Puga a 15-year franchise.

The stockholders of **CTV-Clear Television, Inc.**, Moundsville, West Virginia, have reported to the city council that **Neptune Broadcasting Co.** of Steubenville, Ohio, has purchased their stock and plans to build a new system.

Bill Knievel of **Reeves Broadcasting**, Charleston, South Carolina, reports that Reeves has made a substantial investment in **National TV Corp.**, which has franchises in three Pennsylvania Townships: Uniontown, South Union and Allen.

The Wellsville, New York, village board has approved the transfer of the **Wellsville TV Cable Co.'s** franchise from Gus Rigas to **William Harrison** of Alfred, New York. The original franchise, which was granted to Rigas in 1956, was for 99 years.

**Allen Woodall, Jr.** has purchased 20% of **Rentavision of Brunswick**, Brunswick, Georgia, from Fuqua Industries, Augusta, Georgia. The 40-mile plant in Brunswick began operation this fall.

**American Cable Television, Inc.**, of Phoenix, Arizona, has announced that it has purchased the cable systems in Pecos, Texas (**Pecos Cable TV**) and Fort Stockton, Texas (**Tele-Vue of Fort Stockton**) from Frontier Theaters.

**Entron, Inc.**, has become the major stockholder in the **Cable Television Company** of Wilmington, North Carolina, announced Robert J. McGeehan, president of Entron, Inc., a CATV equipment manufacturing firm, and Martin F. Malarkey, former president of Cable Television Company.

**JFD Electronic Co.** of New York has purchased the recently formed **Louisiana Cable Television Co.**, which has a franchise in Louisiana, Missouri.

**United Utilities Corp.**, which is actively engaged in seeking franchises through its subsidiary United Transmission Inc., has announced a merger with **Columbia Telephone Co.**, Columbia, Pennsylvania. Columbia Telephone will provide maintenance service for United Transmission systems in Pennsylvania towns which it serves.

**Bradford TV Cable Company** has purchased **TV Cable Company** of Foster Township, Pennsylvania, from Stanley K. Odell.

FEBRUARY 1966

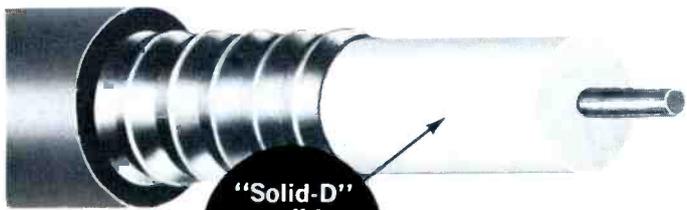
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6030	0.56	0.67	0.79	1.05	1.19

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## CAS NAMES PACE SALES MANAGER

The appointment of *Kemp Pace* as sales manager of CAS Manufacturing Co. has been announced by *John Campbell*, president.



Mr. Pace

Pace will be responsible for the sale of the full line of CAS products nationally as well as the company's distributor network. The new sales manager studied mechanical engineering at Texas Christian University and is a former sales manager with Racan Corporation of America.

## DUANE CRIST JOINS KAISER-COX

Kaiser-Cox CATV, Phoenix, has announced the appointment of *Duane Crist* as vice president of general administration and financing. Crist was previously vice president of contract sales for Ameco, Inc. A graduate of Mount Union College in Alliance, Ohio, Crist has had several years' experience in finance and general management.

## BOCKHACKER JOINS LENKURT ELECTRIC

*William G. Bockhacker* has joined the staff of Lenkurt Electric Co., Inc. Announcement of Bockhacker's appointment was made by *Jay Naugle*, manager of industrial sales. Serving in the capacity of an industrial sales engineer for the western district of Lenkurt Electric, Bockhacker's prime area of responsibility will be with TV transmission customers in the 12-state district.

## CASCADE APPOINTS TWO

*Victor G. Tarbuton* and *S. J. Gomm* have been appointed to the staff of Cascade Electronics at Port Moody, British Columbia. *Donn G. Nelson*, vice president, announced that Tarbuton will serve as director of development for the plant's new CATV product line, while Gomm will hold the position of plant and production manager.

Tarbuton has been employed as a project engineer for Ameco and as a field engineer with The American Institute of Aerological Research. Gomm,

who will also handle special problems in inventory control and personnel organization, has recently retired from the regular army and the Corps of Royal Electrical and Mechanical Engineers in which he held the appointment of Captain (EME). At the age of 40, he brings to Cascade many years experience in technical and personnel management.

## ROSS PROMOTED AT AMECO

Ameco, Inc., has named *William E. Ross* to the newly-created post of sales administration manager. Ross, who has been controller for the firm since 1956, will coordinate sales among Phoenix departments and Ameco's network of warehouses around the United States. He is considered a CATV pioneer, having managed a system at Globe, Ariz., and been in charge of manufacturing for Antenna-vision at Safford, Ariz., as early as 1954.



Mr. Ross

Mr. Ross

## KRUSE JOINS DYNAIR

*William P. Kruse* was recently appointed to the position of Project Engineer at Dynair Electronics, Inc., according to *E. G. Gramman*, president. In his new position, Mr. Kruse will direct the development of new RF equipment.

## BRADLEY NAMED V-P

*Rex Bradley* has been named vice president and general manager of Telecable Corp. The CATV division of Norfolk-Portsmouth Newspapers, Inc., Telecable Corp. owns and operates systems in Roanoke Rapids, North Carolina, and Princeton-Beckley, West Virginia.

## COX PLANS MILLION DOLLAR EXPANSION

The second building addition in five years is now underway at White Columns, home of Cox Broadcasting Corp. The \$1 million, two-story expansion, with the addition of over 34,000 square feet, will almost double the size of the original antebellum building. Following completion in July, employees of Cox Broadcasting Corp., WSB Radio and

Television, and Cox Cablevision Corp. will enjoy almost 100-thousand square feet of working area in one of the largest broadcasting plants in the nation.

## JERROLD NAMES KRAUS AS DIRECTOR

The Jerrold Corporation has named *Max H. Kraus* as Director of Jerrold International. In making the announcement, *Robert H. Beisswenger*, president of Jerrold, stated that "Mr. Kraus brings to this position a thorough knowledge of all aspects of the Jerrold Corporation and its products, plus the management experience required by such a post." Kraus, who previously was manager of the communications system division of Jerrold Electronics, will now direct the marketing, distribution and licensing of all Jerrold products sold in international markets.

## C-COR REGISTERS TRADEMARK

C-COR Electronics, Inc., has received official notification of the registration of its name as a trademark. The announcement was made by *James R. Palmer*, president of the firm, which is located in State College, Pennsylvania. C-COR Electronics (formerly known as Community Engineering Corp.), manufactures amplifiers for the industrial and military market, as well as for the CATV industry.

## CO-AX CONSTRUCTION FORMED

Co-Ax Construction Co. began operations at Phoenix November 5, 1965 as a wholly-owned subsidiary of Ameco, Inc. Its function is to build complete CATV systems under turnkey contracts.

President of Co-Ax is *Lewis G. Coggins*, formerly Ameco director of contracting. Director of purchasing is *Horace Brown*, assistant contracting manager at Ameco for two years.

Heading the technical division of Co-Ax is *Frank Jackson*, who has 12 years' CATV experience. Construction division manager is *Charles Snider*, who was with New York Telephone for 18 years before joining Co-Ax this month.

## ROBERT LEMON JOINS KAISER-COX

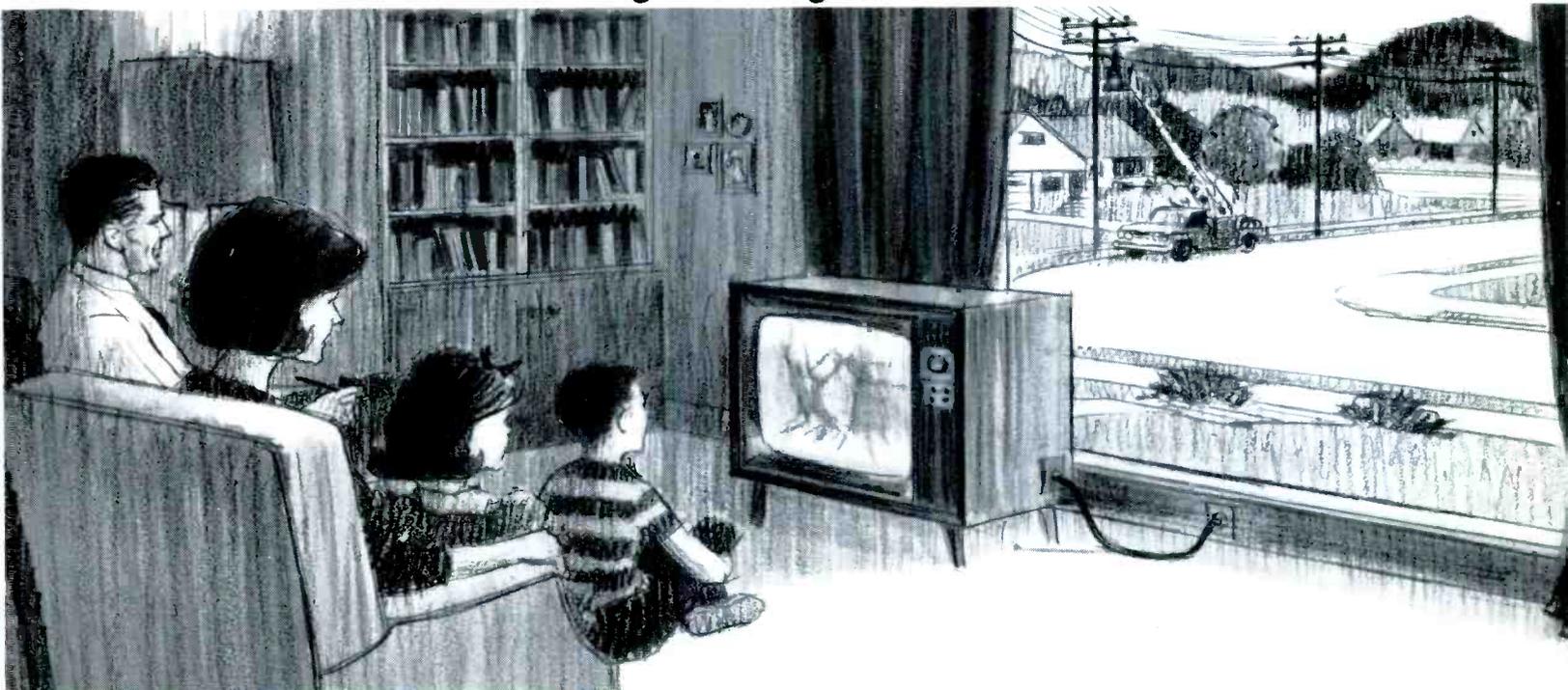
Kaiser-Cox CATV has announced the appointment of *Robert Lemon* as sales engineer for the area of Northern California, Oregon and Washington. Lemon is a graduate of UCLA, and has several years' experience in the electronics industry. He operated his own firm, the B. W. Lemon Company, for several years.



Mr. Coggins

# This is CATV Show Biz

...or how to make your system a box-office hit



Cable: Available in seamless lengths up to 1/2 mile

Timatch® perfect match connectors



**TIMES**  
CATV CABLE & CONNECTORS

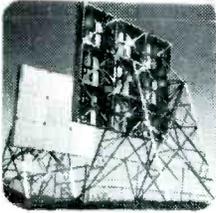
Putting a good show on the home screens of your subscribers is one part of CATV show business. Having the equipment to back up your programming—with clear, dependable pictures that don't ghost, fade or give up altogether—is another.

Times 30db CATV cable—and instantly-installed matching connectors—delivers award-winning performance to your subscribers' homes year after year. It's the surest way to keep them happy and put profits in your system's picture. Times cable is trouble-free because of the way it's made:

in continuous seamless lengths up to 1/2 mile. This means fewer splices, fewer trouble points, less maintenance . . . and less labor cost. And because it's seamless, it's water and vaporproof . . . won't stop the signal short of target. All in all, you get improved electrical performance from Times cable and matching Timatch connectors. Long after so-called economy cable has been replaced, Times cable will still be a top performer, even while you're upgrading your system.

To take advantage of this direct way to assure your system's pay-out, contact Times for information on its CATV cable.

## MICROFLECT



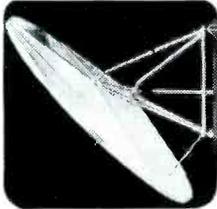
### REPEATERS

Ground mounted, flat, billboard type passive repeaters. 30 standard models up to 30' x 48'.

## MICROFLECT

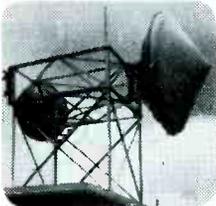
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Tower mounted elliptical reflectors. 5 models up to 12' x 17'. Exclusive Omni-Mount.



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## New Jerrold President Robert H. Beisswenger



"Our plan for the future is to continue to advance the CATV state of the art. Beyond that, we intend to develop newer, more efficient ways to help the CATV operator to upgrade his business operation." This is the course set for Jerrold Corporation by its newly elected president, *Robert H. Beisswenger*.

Bob, as he prefers to be called, has been with Jerrold since February of 1961. During the past two years, he's gone from vice president to executive vice president. Under his leadership, Jerrold achieved a profit of \$2.5 million for the first nine months of fiscal 1965; Jerrold will reportedly close the year with sales in excess of \$35 million. It was this record that earned him his present position.

Beisswenger has been interested in electronics, and communications in particular for a long time. His first employer after receiving his Bachelor of Science degree from Temple University was the Philadelphia Electric Company.

Two years later, in 1941, he went into the U.S. Army Signal Corps. After less than a year as an enlisted man, he was awarded a commission and by the time he had completed his five year hitch, he had been promoted to Major. As Executive Officer of his battalion in Italy, Major Beisswenger was responsible for pole-line construction.

For five years following the war, he was a manufacturer's agent in the electronic industry. Then Indiana Steel and Wire Company hired him as sales manager. His outstanding record with Indiana Steel and Wire led to another step up the ladder. He became vice president and general sales manager of the Whitney Blake Company, a cable manufacturer, the last position he held before joining Jerrold.

A devoted family man, Bob has been married for 23 years. He, his charming wife, Margaretta, and their 18-year-old daughter, Loreen, presently live in Ocean City, New Jersey.

The location of his home is a clue to one of Bob's prime passions — boating. An expert sailor, he and his family enjoy life aboard the Redhead, a 40-foot sport fisherman. Naturally, he's a member of the Ocean City Yacht Club.

This is the man who heads Jerrold's "team" — a man very much a part of cable television's future. □

### PERFORMED APPOINTS PURCHASING AGENT

*Thomas N. Andrews* has been appointed purchasing agent for Preformed Line Products Company, Cleveland. In his new post, Andrews will direct purchasing activity for Preformed plants in Cleveland, Palo Alto, California, and Tucker, Georgia.

### AMECO ADDS AFFILIATE

Ameco, Inc., added a fifth affiliate to its complex the first of the year, with the signing of a purchase agreement with Remcor. The printed circuit board manufacturer will continue supplying outside customers as well as Ameco, with no anticipated changes among the plant's 50 employees.

### MASTER ACQUIRES TOWER COMMUNICATIONS

Master Tower Company, Sioux City, Iowa, has recently acquired all engineering data and customer records of Tower Communications Company of Sioux City and Dallas. *Milton Glazer*, president of Master Tower, has also announced that three men associated with Tower Communications have joined Master Tower. *Glen Houpt* will be the vice president in charge of engineering; *Richard Krone* will be the chief estimator and coordinator; *Gerald Hirsch* will be in charge of engineering.

(Continued)

(Focus continued)

### JERROLD NAMES DIVISION MANAGER

James F. Shanley has been named manager of the newly formed Central Region of the CATV Systems Division of Jerrold Electronics. The announcement was made by Jerry Hastings, CATV Systems Division manager. The new sales region comprises Michigan, Wisconsin, Illinois, Indiana, and the western



Mr. Shanley

and central portions of Kentucky. Shanley is headquartered in West Lafayette, Indiana. He was formerly a sales engineer for the CATV Systems Division.

### AMECO ADDS SALES ENGINEERS

Six new CATV sales engineers have joined the team of Ameco, Inc.'s, customer service representatives. Thomas V. Goodall, George E. Martin, Gregory M. Klein, Jon W. Westfield, Paul J. Breau, and Thomas Umbreit began operations after finishing the Ameco Solid-State school.

Goodall, who has a background as a cable system manager, is based at

Portland and serves Oregon, Washington and western Idaho.

Martin, who has been a chief technician for a CATV system, is based at Harrisburg, Pa., and serves eastern Pennsylvania, Maryland, New Jersey and DelMarVa peninsula.

Umbreit, formerly in TV sales and service, takes over as CATV sales engineer at Cincinnati, serving Ohio and Kentucky.

Klein offers sales and service to cable TV systems throughout Indiana, Illinois and southern Michigan from his home base at Mishawaka, Ind.

Mont., makes the circuit through Westfield, based at Great Falls, Montana, Wyoming and eastern Idaho.

Breau services the Quebec area from headquarters at Montreal. In Canada, the firm operates as Ameco Antenna Equipment, Ltd.

### NEW CHANNELS APPOINT FIVE

E. R. Vadeboncoeur, president and general manager of WSYR-TV, Syracuse, New York, has announced five executive appointments for New Channels, Inc. Albert J. Eicholzer has been named general manager of microwave operations; Joel Fleming has been named general manager of CATV operations; Robert Winn has been appointed comptroller; Lyle Kneesern

will be new technical director; and Dorothy Zwick has been named assistant comptroller.

### COOLIDGE REPORTS CONSTRUCTION

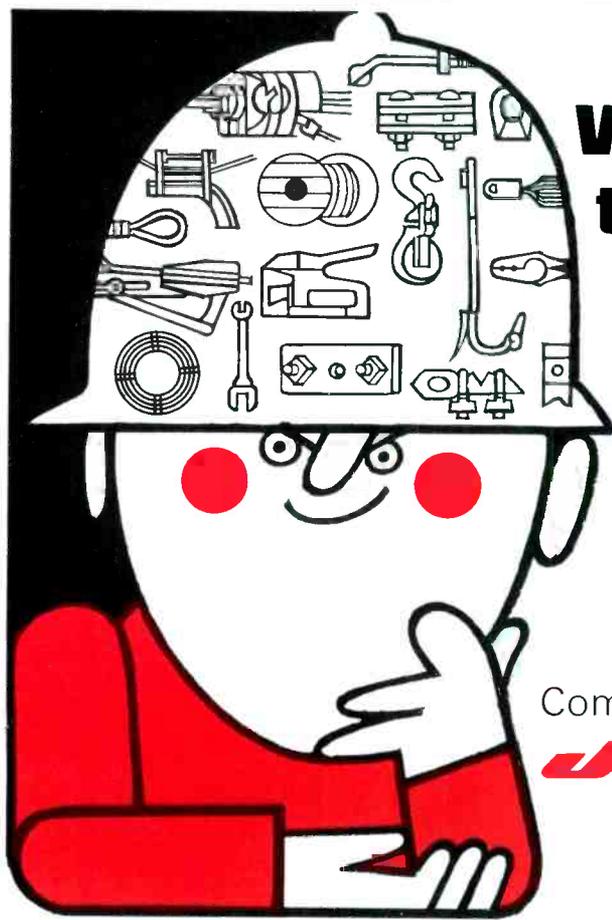
Vern L. Coolidge, of Coolidge and Associates, reports that the Hattiesburg, Miss. firm has nearly 300 miles of cable plant construction under its supervision. The consulting firm has been serving the southern states for one year, specializing in CATV services. Coolidge also announced the addition of a Mooney airplane to assist in covering the expanding area served by the firm.

### DELTA FORMS U.S. SUBSIDIARY

Sydney Wellum, president of Delta Electric Ltd., Toronto, has announced the formation of a wholly owned U. S. subsidiary, Kenmore Electronics, Inc. The new organization, which will begin production early this year, will manufacture CATV equipment. Joining the firm as eastern regional sales manager is Jerry Conn, who was formerly with Craftsman Electronics.

### WYCKOFF JOINS KAISER-COX

Donald Wyckoff has been named director of MSO and telephone sales for Kaiser-Cox Corporation, Phoenix. Be-



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and have been ever since the industry was founded practically in our backyard. We pioneered in supplying the earliest cable systems and have continued supplying CATV construction throughout the industry's rapid growth.

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we tried this antenna and, gentlemen, it was  
says Bill Daniels about**

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William L. Ross  
vice president-engineering

December 1, 1965

Mr. Thomas D. Smith  
Scientific-Atlanta, Inc.  
Box 13654  
Atlanta, Georgia 30324

Dear Mr. Smith

I wish to commend you and your associates for the development of the quadrate channeler antenna array which we had installed on our tower in Monroe, Louisiana.

As you know, this was a test installation and one which I considered an almost impossible situation with respect to co-channel interference.

Our tower in Monroe is located 103 air miles from the Channel 3, Shreveport, Louisiana tower, and for all practical purposes at 180°, 109 air miles from the Channel 3, Jackson, Mississippi tower. Both stations operate at maximum power. Because of higher terrain between our facility and the Shreveport tower we obtained at the 500 foot level on our tower an approximate signal ratio of three to one more signal from the Jackson station. Obviously the conventional antenna arrays could not produce a usable signal with that ratio. However, the quadrate channeler array did just that because of its extremely high gain and front to back ratio.

We are so pleased with the results that we are now installing four more quadrate channeler arrays in Monroe and have one on order for Parsons, Kansas.

Again, I wish to congratulate you and your staff for this contribution which is so beneficial to all the CATV industry.

Very truly yours,



William L. Ross  
Vice President - Engineering

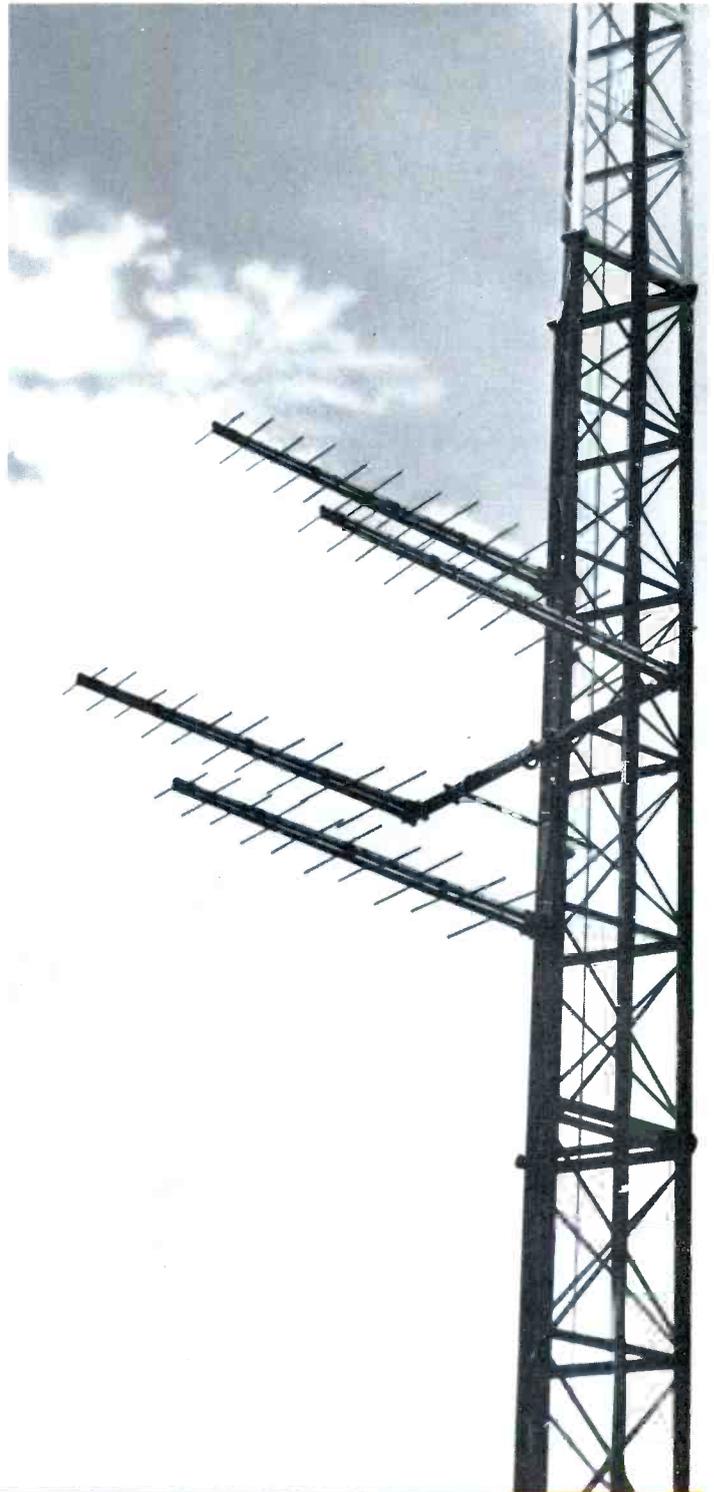
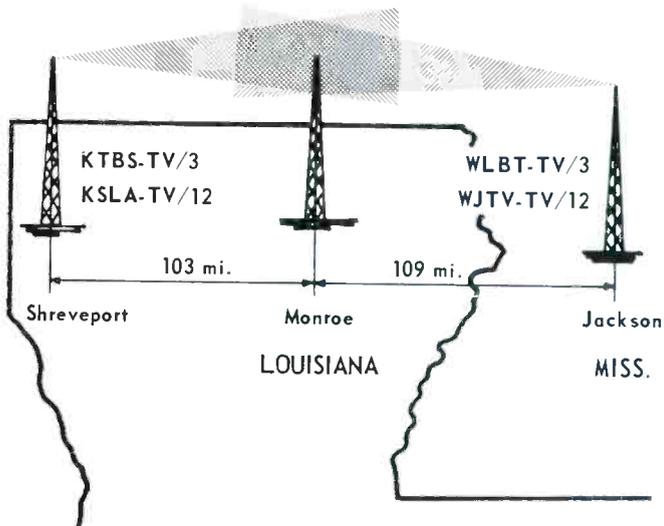
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Local service available in U.S.A. and Canada from 33 sales-mobiles and 5 warehouses.

**fantastic..."**

## **Scientific-Atlanta's new "Quadrate Channeler"**



Bill Daniels said it better than we could. He was addressing the Illinois-Indiana CATV association, 15-16 November, 1965. Other system owners and engineers are expressing similar sentiments.

Daniels was talking about the problem shown in the diagram above and described in Bill Ross' letter at the left. Now Cablevision subscribers in Monroe, La., receive two channels 3 and two channels 12—with no interference.

QUADRATE CHANNELER Models QCS-2 and QCS-7 did the job. They did it simply, efficiently, reliably, and saved a bundle of money on microwave.

QUADRATE CHANNELER Master Antenna System is the common-sense approach to eliminate co-channel interference and ghost problems. No other antenna gives you all these benefits:

- Very low Sidelobe Level
- Very High Front-to-Back Ratio
- High Gain
- Low VSWR
- Wide Bandwidth
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- Complete Packaged Assembly

ALL QUADRATE CHANNELER Antennas carry this guarantee: Consult us about your antenna problem. We will tell you frankly whether QUADRATE CHANNELER will solve it. If, based on our recommendation, you install our antenna and are not entirely satisfied with its performance, return it within 30 days. The full purchase price will be refunded.

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Here Are Just A Few Reasons Why So Many CATV Owners Are Specifying ROHN Towers:

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**COMPLETENESS** — The line is complete for every need. All accessories, lighting, and microwave reflectors are available from ONE reliable source. Entire job can be "turn-key" production if desired.

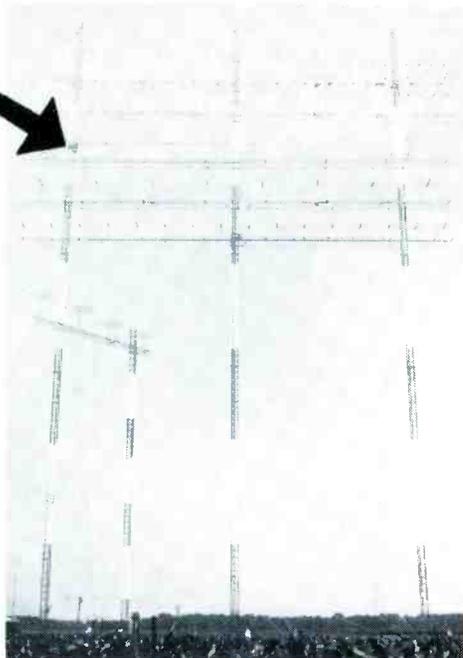
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## ■ TECHNICAL SALES SPECIALIST

Responsible for territorial sales carrier and microwave systems, CATV and ETV, components and turn key systems. Prefer E.E. degree or 5 years technical sales experience with telephone or CATV industry.

## ■ FIELD ENGINEER

Supervise sub-contract installations, carrier, CATV, ETV and outside telephone plant installations; act as liaison with public utilities, contractors and turn key supplier. Requires 5 years outside plant engineering or construction for utilities.

## ■ SYSTEMS ENGINEER

To design telephone transmission, CATV, ETV, and CCTV systems; ability to interpret signal survey data and evaluate industrial electronic equipment. EE degree preferred and 2 years experience microwave, carrier, ETV or CATV system design.

Please send resume including salary requirements to:

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fore joining the Kaiser-Cox staff Wyckoff was with Ameco, Inc. in contract and MSO sales. In his present position he will be working in sales with multiple systems owners and the telephone companies — Bell Telephone and the independents as well.

### LOMAX NAMED MANAGER

The CATV Systems Division of Jerrold Electronics has announced the appointment of *Howard Lomax* as



*Mr. Lomax*

manager of the newly - formed Northeast Region according to *Jerry Hastings*, CATV systems division manager. The Northeast Region includes New England, New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Virginia and eastern Kentucky.

Lomax was previously technical director of CATV Systems Division. He joined the division in 1954 as a field engineer. Subsequently, he served as an applications engineer and a sales engineer for CATV systems. In 1964, Mr. Lomax was named technical director, a post he held until his recent appointment.

### ENTRON APPOINTS REGIONAL MANAGER

Entron, Inc., has announced the appointment of *Robert L. Taylor* as sales manager of the recently-opened Dallas regional office.



*Mr. Taylor*

Taylor, who will be responsible for Entron's sales in the southwestern region, has had experience in systems engineering for all phases of turnkey jobs, as well as in engineering sales.

The appointment was announced by *Edward P. Whitney*, vice president and general sales manager of Entron.

### SYSTEMS CONSTRUCTION ADDS 600 MILES

*Robert Cowart*, vice president of Systems Construction Company, Dallas, Texas, has estimated that his company will be building over 600 miles of systems in the near future. Based on a report which scheduled projected CATV construction within the next few months, Cowart's statement noted that Systems Construction will use as the prime source of materials Viking aluminum sheath cable and the new Viking "Goldline Series" equipment.

# SYSTEM DEPRECIATION

By Dick Gamble

It has been said that "all machinery is on an irresistible march to the junk heap". We all know from experience that this is a true statement. Depreciation stems from the fact that everything built by man will sooner or later become useless to its owner. He may keep it so long that it wears out. He may find something else that does the job better. The purpose for which he acquired it may be accomplished. Whatever the reason, he will eventually cease to need it and will scrap it or sell it. Moreover, property costs money, and when the property is gone, the money is gone. This process of erosion of investment is the central concept of depreciation.

A simple example of this investment erosion is the case of a truck driver who invested his entire capital in a truck. He then operated his truck on various hauling jobs at a price which just paid him small wages plus his out-of-pocket expenses. Several years later when the truck was worn out and he did not have the money to purchase a replacement, he finally realized that he had been living on his capital exactly as if he had placed it in the bank and withdrawn it month by month until it was depleted.

In the same way, big business has its problems of conservation of capital. Several years ago a rather large corporation conducted a study of its depreciation rates which it had been using in its accounting. As a result of this study, it was concluded that the past depreciation charges had been some eighty million dollars too low. Consequently, an entry was made reducing the company's earned surplus account by that amount.

Even before assets reach the junk heap, their value decreases. The causes of this erosion of investment are many. They may be inherent in the property itself, as in the case of wear and tear and deterioration due to use or passage of time. Or they may be external circumstances such as obsolescence when a superior amplifier or cable becomes available; inadequacy when a system must be converted from low band to high band; or the termination of legal rights, as when a franchise expires. The determination of the causes is important in determining the time period over which depreciation is sustained; but whatever the causes, and however long they may take, depreciation still continues and the investment will ultimately be used up.

It is evident, too, that some of the causes of depreciation operate not only on tangible property subject to physical wear and tear, but also on certain types of intangible property that represent the cost of acquiring legal rights of limited duration. Examples are franchise costs, covenants not to compete, patents, etc. which are granted by law only for a limited term of years.

Dick Gamble is financial vice president and treasurer of National Trans-Video, Inc. He is a graduate of Texas Technological College, and holds a B.S. in Electrical Engineering and a M.B.A. in Accounting. Prior to joining National Trans-Video, he was associated with Delhi-Taylor Oil Corp. for 11½ years, where he served as assistant treasurer. Before that he worked with the Arthur Anderson Public Accounting firm.

Nearly all business decisions called for by the decline in value of assets relate in some way to the conservation of invested capital. For purposes of illustration, these decisions may be classified as follows:

1. Determination and distribution of profits
2. Determination of income tax liability
3. Comparison of the relative economy of alternatives
4. Establishing rates and connect charges
5. Valuation for various purposes, such as purchase, sale, consolidation, insurance and returns to assessors for general property taxes.

Depreciation in the broad sense of erosion of investment is a simple fact of nature. It occurs only over a period of time, however, and for the purpose of accounting and all functions that accounting serves, the cost of depreciation must be taken into consideration whether annually, quarterly, or monthly. In a somewhat narrower sense, therefore, the term "depreciation" is used to mean the portion of the total erosion of investment allocated to a particular period of time. This allocation is unavoidably arbitrary no matter how much care is expended in determining it.

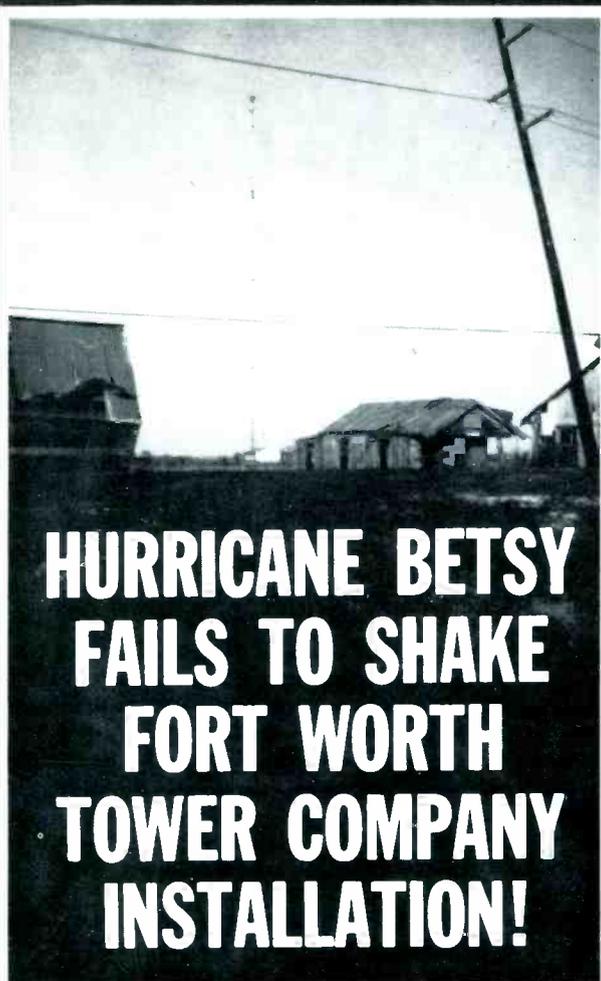
Depreciation accounting, under presently accepted accounting principles, is nothing more than a process of allocation. This means that the loss of investment in an asset must be spread over the period of its usefulness in accordance with some rational plan. Depreciation does not involve valuation, and may not be determined by an appraisal at the end of each year. Consequently, the annual depreciation allowance does not necessarily represent the decline in value during the year. Herein lies the reason why there are three basic areas which make depreciation difficult and such a controversial subject.

The first of these difficulties results from the almost unavoidable lack of precision in fixing the period of usefulness. Income tax administrators and public utility regulatory bodies, as well as many accountants and engineers have devoted vast efforts toward the measurement of the periods of usefulness for various types of assets, as a step toward the most accurate possible determination of income. Yet there is still an inherent lack of precision and certainty in any depreciation allowance based on a single year.

The near impossibility of accurately predicting useful lives for individual assets or even average life for a group of identical assets, was one of the reasons for the Treasury's adoption in 1962 of Revenue Procedure 62-21 establishing somewhat arbitrary lives to be applied to large groups of diverse assets.

The second problem dealing with depreciation, once the period of usefulness has been resolved, is to decide upon the most accurate and realistic method of allocation. Broadly speaking, methods of depreciation may be classified under four headings:

1. Equally to each year. (Straight-Line)
2. More to the earlier years than to the later years. (Declining balance and sum of the years digit)
3. More to the later years of useful life than the earlier. (Retirement method, replacement method and various interest methods)



## HURRICANE BETSY FAILS TO SHAKE FORT WORTH TOWER COMPANY INSTALLATION!

"personnel are already on the job salvaging as much of the many miles of plant as possible. The tower, installed by Fort Worth Tower Company remained intact despite 170 mile winds and a tremendous tidal wave which destroyed the chain-link fence at the base, and actually blew the paint off the tower"

*An on-site inspection report by Jim Davidson, president of DAVCO Electronics Corporation, the firm who is rebuilding the cable television system at Buras, Louisiana. The system was almost completely destroyed by Hurricane Betsy.*

Your Fort Worth Tower installation will probably never have to prove itself in a hurricane but isn't it assuring to know that it could. You can't do better than to specify towers designed, manufactured and erected by FORT WORTH TOWER COMPANY for every communications purpose. For COMPLETE information WRITE — PHONE — WIRE.



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#### 4. Measure useful life in terms of output rather than years. (Unit of production and job)

The third great difficulty in depreciation practice is that the depreciation allowance has to function simultaneously as a measure of true costs (cost of service function) and as a recovery of investment (financial function). The rapid recovery of cost which is desirable from a financial point of view tends to distort the cost picture, for investment may be recovered long before the usefulness of the property is ended. Conversely, efforts to measure costs with maximum accuracy may delay recovery of investment and in the case of business reverses may even prevent recovery by deferring it to a period when revenues have fallen off severely.

Until recent years it was the almost universal practice, not only in the CATV industry but all industries, to write off property over a fairly short period. It was quite common to find property fully depreciated on the books when it still had years of use ahead. From the point of view of cost accounting and net income measurement, however, every year of use should bear a portion of the cost write-off; otherwise, the income of the early years will be too low and the income of later years too high. Until 1962, there was strong pressure from the income tax authorities to establish the principle that depreciation should be spread over the entire useful life of an asset. The resulting stretch-out of depreciation allowances was the greatest single source of controversy in the administration of tax depreciation policy. Since 1962, the Treasury has permitted the use of markedly shorter lives than before, thus increasing depreciation allowances and accelerating capital recovery. This is done without abandoning the principle of spreading depreciation over the full service life. The difference is that whereas a taxpayer was usually compelled in the past to use a comparatively long life until he conclusively proved his right to a shorter one, he will now be permitted to use a comparatively short one until it becomes obvious that in actual practice he uses his assets, on the average, for a longer period.

Since depreciation is the allocation of the investment in fixed assets, it can only be determined by the manner in which these assets are grouped. Generally, some parts of any given accounting system are better organized than other parts. One of the worst parts of any accounting system is likely to be that portion of the system devoted to fixed capital records and depreciation. There are a few notable exceptions and conditions have improved in recent years. Nevertheless, most companies' fixed asset accounting records could be greatly improved.

The principles on which assets are grouped for accounting purposes depend entirely on the individual company's needs and desires. As a general rule, the decision is arrived at by balancing the need for detailed and specific information against the trouble and expense of maintaining detailed accounting records. It is permissible for tax purposes to group all of the assets of a business into a single account. Such a practice simplifies the accounting for depreciation to the maximum degree, but at the cost of accuracy and detail in the depreciation information obtained. A somewhat more detailed accounting practice is to classify assets according to function, as for example CATV plant, buildings, automotive equipment, shop and test equipment, etc. Corporations operating in a number of states may need or wish to maintain separate accounts for the assets in each state. Also accounts may be kept for separate systems within a state. Accounts classified on one of these principles could be further subdivided according to the year of acquisition.

Since National Trans-Video owns CATV systems in numerous states, and in several cases more than one system with-

(Continued on page 33)



**AMECO, INC.** 2949 West Osborn Road • P. O. Box 11326 • Phoenix, Arizona 85017 • Phone (602) 262-5500

# AMECO "TOTAL" CATV CAPABILITY



# AMECO IS YOUR KEY



The ability  
to anticipate and  
fulfill the needs  
of the  
CATV industry  
has made  
**ameco**  
the leader in  
Cable Television

## TOTAL SERVICE — TOTAL CATV

Ameco, Inc. with more than \$13 million dollars in assets, has the capability to provide the total products and services required to build, rebuild, or expand CATV systems. Now listed on the American Stock Exchange, Ameco is out-pacing every other CATV manufacturer. Ameco has five buildings with an over-all capacity of 100,000 square feet. Since 1962, Ameco has produced over 78,000 solid-state amplifiers. More than 10,000 Ameco 70 Series amplifiers are in use in CATV systems throughout the U. S. And, 80% of the CATV systems in the United States and Canada rely in whole or in part on Ameco equipment.

Ameco sales have increased dramatically. In 1961, sales totaled \$500,000. In 1965, sales rose to the \$10,000,000 mark. Currently, sales are running more than \$2,000,000 per month.

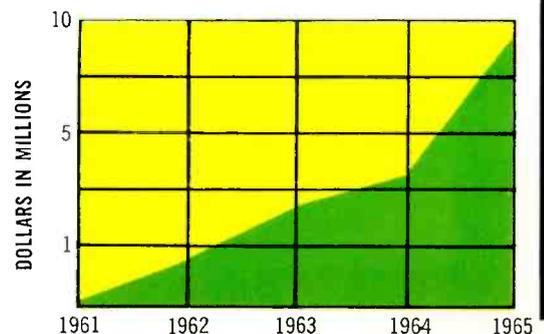
Ameco services enable you to provide your customers with the best cable television viewing available in the United States today. Two of Ameco's services are now pacing the industry.

The Ameco Acceptance Corporation offers financing for new system construction and rebuilds. AAC has established an unlimited line of credit and will tailor financing to meet your individual system requirements.

Co-ax Construction Company has built more than 7,500 miles of turnkey plant. This Ameco subsidiary utilizes its own construction personnel and can handle any size construction job throughout the nation.

Ameco has the people, products, resources, and knowledge to serve all your CATV requirements. **When quality counts — count on Ameco!**

SALES

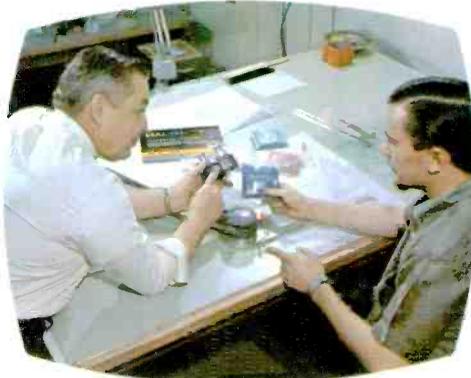


**AMECO, INC., A CATV PIONEER WITH OVER 14 YEARS**

# TO QUALITY CATV!



*Executive Planning*



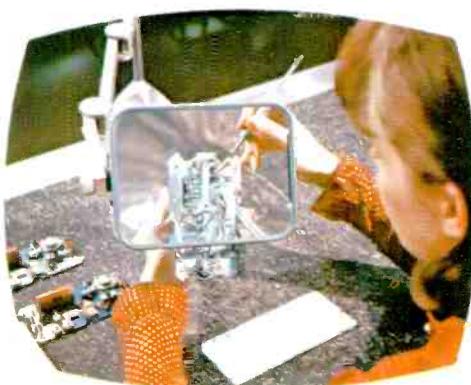
*Plastic Research*



*Customer Finance*



*Management Institute*



*Quality Control*



*Technical School*



*Research Engineering*



*Environmental testing*



*System Design*



*Test and Alignment*



*Construction*



*Salesmobile Service*

**EXPERIENCE IN EVERY PHASE OF CABLE TELEVISION**



**AMECO, INC.** 2949 West Osborn Road • P. O. Box 11326 • Phoenix, Arizona 85017 • Phone (602) 262-5500

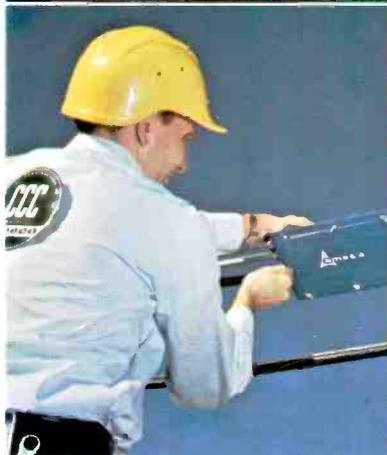


**GROWTH IS A MEASURE OF SUCCESS.** From 1956 to 1965 Ameco's overall plant size was increased from 38,000 square feet to over 100,000 square feet.

**Engineering Research & Development** Engineering is the keystone of any CATV system. Ameco's engineers are experts in all phases of engineering: construction and installation, signal surveys, system layout, head-end alignment. Their goal: the most effective products possible, realistically priced, designed with precision, efficiently produced.



**Construction** Coax Construction Co., newly formed subsidiary of Ameco, Inc., is staffed with experienced CATV construction personnel. CCC offers system owners a complete turnkey package, or, qualified assistance on any construction problem.



**Financing** Ameco's "custom finance plans" enable you to obtain finances with terms tailored to your particular needs. Headed by Dick Peterson, Ameco's finance subsidiary offers the personnel, experience and backing to assist you in building a new system or rebuilding an old one.



**Sales Service** Regional warehouses are located in major cities; 10 contract sales representatives, and 23 CATV sales engineers, are located strategically throughout the U. S. and Canada. This coordinated sales-service program assures you and your customers of consistent, continuous system performance.

**LOOKING AHEAD** We've come a long way in CATV, but the future promises even more, especially in the field of public service. CATV will shine as color TV becomes more readily available. Educational TV will benefit from CATV service. Weather channels will multiply, news and information services will become readily available to subscribers.

Ameco has all the necessary qualifications — plus the vision and ingenuity to anticipate and fulfill the ever growing needs of CATV.

**When Quality Counts — Count on Ameco!**



(Continued from page 28)

in a state, the following are the classifications used for the plant and equipment and equipment accounts:

Asset	General Ledger	System Number	Class Number
CATV Plant	311	xxxx	
Class:			
Cable & Strand			001
Pole Hardware			002
Connect Materials			003
Amplifiers			004
Tower and Antennas			005
Headend			006
Weather Station			007
Local Origination			008
Labor — Company			009
Labor — Contract			010
Other Costs			011
Buildings	321	xxxx	
Leasehold Improvements	322	xxxx	
Automotive Equipment	323	xxxx	
Office Equipment	324	xxxx	
Shop and Test Equipment	325	xxxx	

This example is not intended to be the only method of maintaining the cost records for a CATV company, but an example of how one company has determined what information is needed and what grouping will supply that information. By way of explanation, only dollar amounts are entered in the general ledger with the detail maintained in the plant ledger. In turn, the plant ledger accumulates the cost of each system by the various group classifications. The manufacturer, model and quantity in addition to dollar amounts are maintained in the cable, amplifier, tower, headend and local origination accounts. Thus the accounting function can furnish management with total cost of any system, as well as the quantity, by type of expenditure.

In addition to the aforementioned asset accounts maintained in the general ledger, there is a depreciation reserve account for each. Each depreciation reserve account has the same 40 0series number corresponding to the 300 series asset accounts. For example, the reserve account corresponding to the "311 CATV plant account" would be "411 Reserve for Depreciation—CATV Plant". The reserve account is also subdivided by system. No attempt is made to accumulate the reserve by group classification.

The principles on which the assets are grouped for internal accounting and public reporting purposes may or may not be the same as for tax purposes. There is no requirement that tax depreciation conform to the accounting in the books and financial statements. In the past, most CATV operators were primarily concerned with securing maximum tax deductions and, therefore, conformed their books to their tax practices. Today most group owners are primarily concerned with measuring depreciation as accurately as possible in an effort to determine their true cost of service, and, in all likelihood, these companies conform their tax returns to their books. Among some large corporations it is common to keep separate records and procedures for the two purposes.

The principles on which assets are grouped, however, may have a very important effect on the amount and timing of the tax depreciation allowance. It follows that assets should be grouped first of all in the way which will yield the most accurate measurement of depreciation possible, or in the way which will yield the maximum tax deductions, as the case may be. The information thus derived can then be classified and summarized in whatever manner is most useful to management.

This paper has touched only on a very small portion of the

accounting problems a company may face in determining its depreciation policy. There are many phases of depreciation which time does not allow us to explore, such as advantages and disadvantages of the various methods of computing depreciation, the restoration of depreciation under section 1245, change in rates, guideline lives and reserve ratio tests, basis, useful life, salvage and many, many more. In fact, there have been thousands of papers, articles and books published on the subject and speeches by the tens of thousands; but when all is said and done, the choice of a depreciation method, grouping principles or what have you, depends first of all on whether the company is seeking maximum depreciation deductions for tax purposes or is primarily concerned with securing the most realistic measurement of depreciation as an expense of its operations. Companies able to maintain two sets of records can have both since there is no requirement that book and tax depreciation be the same. Companies desiring, and in some cases compelled by prohibitive costs, to maintain only one set of records have the more difficult problem of weighing the advantages of maximum tax deductions against the possibility of distorting their own conclusions as to profit and loss.

The CATV industry is a growing industry; no longer a child, but an alert and active teenager. As time goes by and it grows to a mature adult, it will be faced with many problems such as the threat of regulation or even actual regulation by the state and federal regulatory commissions. It is only through our joint effort and planning ahead that we the accounting profession can and must establish standards and procedures as they apply to the accounting for and depreciation of fixed assets. These standards and procedures must stand severe cross-examination by regulatory commissions and the Internal Revenue Service and still be recognized as generally accepted accounting procedures for the CATV industry. □

## Mail this coupon today!

**TV & COMMUNICATIONS Magazine**

P.O. BOX 63992 • OKLAHOMA CITY, OKLAHOMA 73106

Gentlemen:

As a perceptive member of the CATV industry I want to be fully informed on all important developments throughout the year. Please start my subscription to TV & COMMUNICATIONS, the monthly CATV magazine which provides complete coverage of vital industry news, as well as absorbing articles on all phases of CATV management and engineering.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/STATE \_\_\_\_\_

1 year, \$5.00  2 years, \$9.00  3 years, \$12.00  
(outside North American Continent, add \$2.00 per year)  Renewal

## TV & Communications



Prather reports that he sold more than 200 color TV sets in the month of September alone—far in excess of any previous month. Another retailer said that the advent of cable TV had given

him a better than 100% increase in color set sales, "due to the fact that the customers know that they will be guaranteed perfect color reception by cable." The people definitely understand

that CATV will bring them better pictures, he said.

Perhaps, the biggest booster of the cable system was Sears, which did a tremendous job tying in with the cable system opening. Sears ran a substantial number of full page ads plus a direct mail campaign.



FIGURE 4

To reach the general public Mark Weber turned to publicity. He sent releases to radio and TV stations, as well as newspapers, maintaining close press and radio contact at all times.

#### PROMOTION

The promotion campaign took a number of forms. First, was the door-to-door distribution executed by Reuben H. Donnelly Co. Every home in Harrisburg received an envelope containing a booklet explaining what CATV would mean to them in the City of Harrisburg; a letter inviting them to sign up; and a reply envelope urging them to do it now. The closing paragraph said, "Remember you cannot lose; money back if not satisfied! Be among the first to enjoy the greatest variety; the sharpest, clearest pictures and the best color reception to be seen anywhere. This is a limited offer. You save \$20 by accepting the pre-opening special. Use the enclosed envelope. Reserve space for 11 new windows around the world: Mail your \$5 check or money order today!"

The door-to-door distribution took about three weeks and paid off handsomely. Not only were many subscriptions sold directly but the distribution served to alert every resident in Harrisburg to the coming of the CATV system. It paved the way for future sales through ads, dealer programs and the telephone campaign.

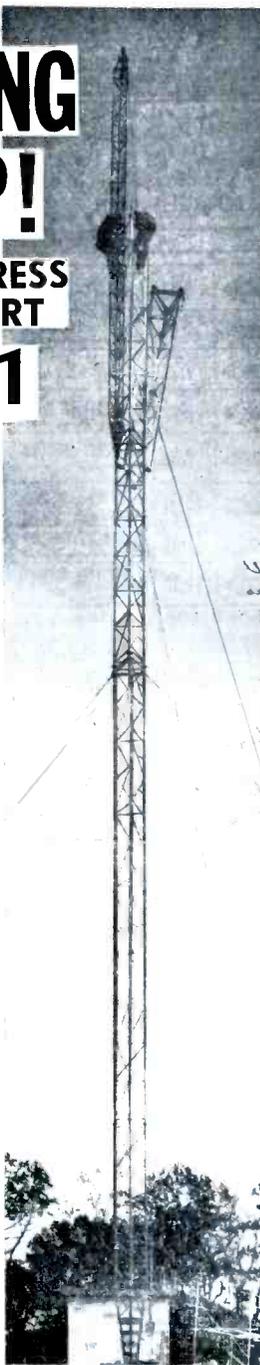
The telephone campaign turned customers who had been pre-conditioned by the door-to-door distribution and the ads into actual subscribers. Mark Weber had from 2 to 4 girls calling steadily. He found that 28% of the people called agreed to subscribe to the system. A mail follow-up was sent to every one who agreed to subscribe. And Mark planned an in-person follow-up for those who failed to send in their \$5 checks. The telephone girls were paid a salary plus 50¢ for each person who agreed to subscribe.

Other promotional items included bumper stickers and free balloons for

# GOING UP!

## PROGRESS REPORT

### # 1



At 4 p.m. on Tuesday, Nov. 8th, the first of the twin antenna masts was finished and guyed down with 1" cable.

The system's "Head End" building is now completed and painted. Amplifiers are installed. Six antennas are installed on the first antenna mast. Readings are being taken to determine settings for maximum signal strength.

150,000 ft. of the newest type of aluminum cable has been strung and 110 amplifiers and extenders have been installed along the line.

No effort is being spared to make this the finest system of this type in the country.

**21 DAYS TO GO**

**OPENING DATE DEC. 13th**

We urge you to place your order now in order to **SAVE \$20**

INSTALLATION PRICE IS NOW JUST **\$5**  
Regular price after opening **\$25**

SEE YOUR LOCAL TV DEALER OR STOP IN OUR OFFICES

## Perfect TV

INC.

329 MARKET ST., HBG. — PH. 238-2593  
— OR —  
607 RADNOR ST., HBG. — PH. 234-3367

FIGURE 2

# 10

## DAYS TO GO!

STILL ONLY **\$5** FOR A CABLE INSTALLATION

**SIGN UP NOW AND SAVE \$20**  
Regular price after opening \$25

## Perfect TV

INC.

329 MARKET ST., HBG. — PH. 238-2593  
— OR —  
607 RADNOR ST., HBG. — PH. 234-3367

**DON'T DELAY!** OR **MAIL THIS COUPON TODAY**

- See Your TV Dealer
- Stop in at One of Our Locations

GENTLEMEN:

Enclosed is my check for the Special Pre-Opening Installation charge of \$5. I understand that if I am not completely satisfied, THE MONEY WILL BE REFUNDED.

NAME .....

ADDRESS .....

CITY ..... STATE .....

SEND TO: PERFECT TV INC.  
P.O. BOX 3345  
Harrisburg, Pa. 17105

BN 12/1

FIGURE 3

the kiddies. Another important attention getter was a contest. Mark filled an old television picture tube with pennies and placed it in the window of his Market Street store. He then offered a prize for those who guessed closest to the number of pennies in the tube.

The prizes were all donated for their publicity value. First prize was a glamorous tropical vacation for two—6 all expense paid days in San Juan, Puerto Rico. This was donated by Swenson Travel Service of Harrisburg. Second prize was a color TV console; third prize a stereo sound system.

The culmination of the promotional campaign was a second door-to-door distribution by Reuben H. Donnelly Co. This time "magic keys" were dis-

tributed along with invitations to attend the Perfect TV grand opening ceremonies. Recipients of the keys were told that they could try them in a treasure chest at the opening; if their key fit into the lock they would win a prize.

All in all, the pre-opening campaign cost approximately \$50,000. It brought in over 11,500 subscribers which, when added to the original 1500 subscribers, gave the Harrisburg system a total of over 13,000 by mid-December. Box A shows the cumulative number of subscribers on a day-by-day basis.

A combination of management know-how and experience plus hard work proved that CATV can be a success in a large city with good local TV reception. □

### HARRISBURG SUBSCRIPTION RECORD

Date	Dealers	+130 Office	Phone	Mail	Totals	
					Daily	Cumulative
10-25		191			191	321
10-26		93			93	414
10-27		68			68	482
10-28		70			70	552
10-29		47			47	599
10-30		36			36	635
11-1	16	89			105	740
11-2		40			40	780
11-3	72	36		1	109	889
11-4	24	42		5	71	960
11-5	15	67	4	6	92	1052
11-6		36	1	9	46	1098
11-7				5	5	1103
11-8	34	46		11	91	1194
11-9	35	32	3	31	101	1295
11-10	60	41		48	149	1444
11-11	33	44	3	84	164	1608
11-12	74	61	37	99	271	1879
11-13	2	31	31	95	159	2038
11-15		67	40	90	197	2235
11-16	62	26	44	99	231	2466
11-17	42	51	59	72	224	2690
11-18	52	44	76	84	256	2946
11-19		70	51	86	207	3153
11-20	67	32	52	66	217	3370
11-22	57	60	62	113	292	3662
11-23	85	53	60	184	382	4044
11-24	84	92	37	117	330	4374
11-26	28	92	34	158	312	4686
11-27		96	31	118	245	4931
11-29	81	101	41	120	343	5274
11-30	138	107	29	172	446	5720
12-1	47	104	18	132	301	6021
12-2	73	85	64	148	370	6391
12-3	56	78	40	219	393	6784
12-4		81	23	179	283	7067
12-6	130	115	58	214	517	7584
12-7	121	116	40	307	584	8168
12-8	92	129	46	233	500	8668
12-9	59	146	45	263	513	9181
12-10		145		339	484	9665
12-11	454	614	23	360	1451	11,116
12-13		16		376	392	11,508
12-14	136	14		102	252	11,760
12-15	138	6		22	166	11,926
TOTALS:	2367	3740	1052	4767	11,926	11,926

### HARRISBURG CONSTRUCTION RECORD

What does it take to wire an entire city the size of Harrisburg, plus 17 surrounding communities—and to do it in only a few months? A lot of hard work. The Jerrold Corporation began planning the Harrisburg system more than a year ago. At that time, a comprehensive system layout was made. Jerrold engineers then "walked the poles." Based on this survey they then made a detailed strand map. The next important step was to apply for the use of these poles, which were owned by the Pennsylvania Power and Light Company and the Pennsylvania Bell Telephone Company.

The poles also had to be rearranged, since television cables must be at least one foot above the telephone wires and at least 40 inches below the secondary electric lines.

The next step was to trim the trees along the route of the cable. For this purpose, Jerrold hired the Aspludth Company through their offices in Harrisburg.

At the same time, it was again necessary to "walk the poles." This time it was done by a three man team; one man from Jerrold, one man from the Pennsylvania Power & Light Company, and one man from the Pennsylvania Bell Telephone Company.

Pole rearrangements posed one of the earliest problems of the Harrisburg system. The utility companies were short-handed, therefore, progress was slow. This delay made it appear impossible to complete the system in time.

With the cooperation of the utility companies Jerrold finally overcame this obstacle. Each week-end, the utility companies assigned as many as 70 men to the job of pole rearrangement. The pace was increased, and system construction proceeded on schedule. Once the poles were ready, actual system construction could then get underway.

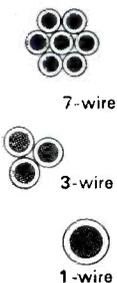
Under Kip Fletcher, Jerrold construction crews have reached a peak average as high as 14 miles a day. And Kip is presently developing methods with which he hopes to hit 20 miles per day. □

# WORRIED?

*Afraid that the messenger supporting your expensive CATV cables is being weakened by HIDDEN CORROSION?*



**Stop Worrying—Start Using ALUMOWELD®—the long-life messenger**



Alumoweld® messenger will last as long as your CATV cables. Completely compatible with aluminum-sheathed cables, each wire consists of a thick cladding of pure, ductile aluminum—no less than 10% of the radius—permanently welded to the steel core. This protective jacket is thicker than that provided by any other aluminum-coated and any zinc-coated steel wire.

Alumoweld stays strong because there's no place for hidden corrosion to start. That's why

it's used all over the world for supporting cables. Once you install Alumoweld, your messenger worries are over. Because of its permanent strength, it will always keep your CATV cables up in the air. For complete information on Alumoweld messenger, write us today.

*World Leader In Bimetallic Wire*

**COPPERWELD STEEL COMPANY**  
WIRE AND CABLE DIVISION, Glassport, Pa.  
For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

**ALUMOWELD® CATV MESSENGER**

**FAST SHIPMENTS** from our warehouse stocks in New York, Chicago, Pittsburgh, Memphis, Reno—and from warehouses of leading distributors.

YOUR SALES EFFORTS SHOULD INCLUDE

# THE LADY OF THE HOUSE

By Edith L. Johnson  
Director of Public Relations  
Kaiser-Cox Corporation



"It's a man's world." This statement has been repeated by men and women alike over and over again since time began, and it is unquestionably true in many situations. However, in the buyer's market the exact opposite is correct. Women buy 75% of all goods purchased in the United States and they own 65% of the wealth.

As the old saying goes, "women control the purse strings," but those of us in the field of communications should take note of something else on which they exert considerable control. It's that dial on the television set.



Edith L. Johnson

When the purse string control is added to control of the TV dial, two plus two no longer makes four. It adds up to a dozen or more good reasons why cable television should gear a great deal of their advertising to the woman.

A woman is quality conscious and is educated from every angle on how to get the most for her money. Here cable television has an immediate advantage. Use it.

Advertising directed effectively to the woman probably should first direct attention to some item with which the female "head of the house" is very familiar and something where quality is of vital importance. It could be furniture or even personal clothing. Whatever it is, the stress should be on the importance of top quality buying. It is a simple matter from there to tie in the advantages of cable television, emphasizing the finer quality picture and the higher quality entertainment available because of the wide program selection. This, at the same time, emphasizes her second greatest interest, — getting the most for her money.

The lady of the house will certainly be happy to learn cable TV will bring her nine or ten stations instead of one,

two or three, whatever the case may be. The emphasis here, in appealing to the woman, should be not only the variety angle, but the very evident fact that she is getting much more for her money.

This is the time to go into detail and prove the quality again, enlarging on the combination of more variety with quality an important part of the variety.

The modern woman is interested in something more than a coffee klatch with the gal next door. Many women, who are confined to their homes because of small children, have a burning desire to improve their minds, to take special courses, and to become more knowledgeable with regard to current events. Educational TV, provided through cable television, offers a wonderful source of stimulation for the woman who wants more education but can't go back to school. She may want to learn Spanish or even to improve her English or she may simply be interested in becoming a more efficient housewife.

Educational TV offers her these courses in her own living room, a fact that should be stressed extensively in advertising. Details of the type of courses offered should be given repeatedly. Human interest stories of women who have benefited by this type of service in other communities will add a personal note to the advertising program. True life stories always make interesting reading and have special appeal to women.

Programs that are of special value and interest to children should be spelled out in detail. Mothers are particularly eager to bring into the home anything that will benefit the younger set. This has been proved continually in the sale of encyclopedias, books of knowledge and other informational material for children.

The time/weather service is a feature that can never be stressed too much, particularly for the woman who must spend a great deal of time at home. The reliable weather service tells her, in the confines of her own living room, the various temperatures

throughout the day, making it easy for her to decide on proper clothing for the children and the kind of food to prepare for dinner.

Women, as a rule, are deeply concerned with community problems and are eager to fill some of their free time with worthwhile community projects. Cable television offers endless opportunities in promoting civic projects through closed circuit TV. Here again, some human interest stories would add a great deal to the advertising directed particularly to the woman and mother. There are numerous stories to be used.

Of special interest to the woman is the fact that cable TV puts an end to unsightly antennas on the roof and requires no hole drilling in walls or ceiling.

FM music is another advantage that especially appeals to the housewife. Ironing, dusting, cleaning, washing — all the normal household chores move along much faster when she can listen to the soothing strains of good music.

While enlisting the interest of your woman buyers by means of variety don't overlook a woman's interest in sports. Remember that it will mean a great deal to her to know that she can see her favorite sports in her own living room with a wide selection to choose from.

Advertising, whether it be through the newspapers, by direct mail, by word of mouth or all three, needs as much human interest as possible.

This can be accomplished from stories of actual experiences, photographs, clever artwork and just good down-to-earth informational material. All avenues of approach are important when a new system is going in and even more important, as time goes on and the system wants to keep old customers and add new ones.

Appealing to all buyers is essential, of course, but too often some segment of the buying public is neglected. Be sure this is not the case when YOU advertise. And above all, when you plan that next advertising program, be sure of one thing — never underestimate the power of a woman. □





**Will springtime's picture**



## fade come fall?

### Not with Sealmetic<sup>®</sup>—the flexible, moisture-proof cable

Sealmetic Coaxial is the flexible CATV cable that stabilizes attenuation by eliminating moisture penetration.

The old-fashioned solution to CATV-moisture problems was a cable so stiff and unwieldy that it was a real nuisance to install.

Sealmetic Coaxial changes all that. It's as flexible as corrugated sheath copper, as moisture-proof as aluminum. It's easy to install—and it gives clear bright TV pictures for years longer than any other cable because Anaconda has licked the

moisture problem with a sheath that is hermetically sealed and bonded to the jacket.

New Sealmetic Coaxial is designed for CATV, tested for CATV, manufactured for CATV service to Anaconda's uniquely rigid standards. You should know more about new Sealmetic Coaxial, and you can, very easily. Just contact your Anaconda man, or write to Anaconda Wire and Cable Company, Department EFL, 605 Third Avenue, New York, N. Y. 10016. ©Registered Trademark Design Patents Applied For



ASK THE  MAN FROM  
**ANACONDA**<sup>®</sup>  
ABOUT SEALMETIC COAXIAL

# CAPITALIZATION OF START-UP COSTS

By C. H. Wright

## BACKGROUND

Financial management and the financial press in reporting on corporate operations give prominence to net earnings per share. Over the years, despite the attack by some accounting authorities, net earnings per share have provided a common denominator for comparing results of one company with that of another and the relationship to market values for the securities of the respective companies. This statistical figure also is of importance to companies marketing securities as underwriters invariably compare price earning relationships of the securities to be sold with other securities. It is, therefore, essential that appropriate and sound accounting techniques be adopted to realistically state earnings and to not unduly penalize new CATV companies. Further, the cash flow theory and other analytical techniques are too sophisticated for the general investing public. It is with these factors in mind that my company, co-operating with our auditors, investigated the pro-

C. H. Wright is president of Spencer-Kennedy Laboratories, Inc. having been with that firm for three and one-half years. A graduate of the University of Pennsylvania, Mr. Wright holds a B.S. in Economics and is a Certified Public Accountant in New York State. Prior to joining SKL, he served as assistant controller for General Dynamics Corp. Previous to that, he was assistant to the vice president of radio and television manufacturing of Apco Manufacturing Corp., managing accountant for Arthur Young and Company, and, before serving in World War II, he was with Irving Trust Company of New York.

priety of and the methods of capitalizing start-up costs.

## THEORY

The life of a business enterprise can be divided into three phases:

First, the organization stage with its problems of providing funds, acquiring property, and organization for pursuing the business purpose;

Second, the development period, embracing product development, acquisition of additional financing, and product promotion. This period is characterized by heavy expenditures, inadequate revenues and operating losses. This start-up period may last several months to one or more years.

Third, the period of maturity, the company either grows or passes by the wayside.

We are concerned with the first two stages. In the first stage, primary efforts are organization, the raising of funds, generally there is no income and statements show only financial position.

The initial stage makes way for the operating period, the expansion of the capital base, and generally accepted principles of accounting begin to take their place in the scheme of financial thinking. One of these principles is often neglected by accountants at this time. They become zealous in charging costs to revenues, and over-conservative. This principle: revenues and costs shall be allocated among accounting periods so as to most clearly reflect income. The corporation that is dependent on the investing public for capital is often unduly penalized because the public looks at the per share net.

All expenses incurred to develop a business enterprise are significant (given good judgment) and the fact that they cannot be specifically identified with physical units does not invalidate their economic usefulness and

contribution to the future success of the enterprise, nor does their lack of specific identification undermine their asset value.

There are many precedents for the practice of deferring costs during the construction and development stages. Among these are:

The practice of utilities in inventorying certain costs during construction — interest is only one such example.

Chain stores generally defer costs of newly opened markets for a period of a month or two.

Finance companies capitalize the losses of newly opened offices for periods up to three years.

We have also the example of oil and mining industries which defer drilling and mine preparation cost.

Such examples charted the course for a specific policy on start-up cost deferment.

The pragmatic questions: what costs; how long; and how amortized.

## WHAT COSTS

Our chart of accounts divides operating expense into three broad categories: namely, system operating expenses; selling, administrative and general expenses; depreciation and amortization. The first group includes payroll for engineers and technicians, tower rentals, pole rental, and other items of services directly attributable to the system. The second category, includes payrolls relating to the operation of the office, sales promotion, other corporate expenses as legal fees, audit expenses, etc. The last category is clear.

Our policy of deferment did not attempt to specifically identify the individual costs to be deferred. We did divide the costs into two pools, those attributable to construction and those concerned with other aspects of enterprise development. System expenses were transferred to plant accounts and

other posts net of any income to franchise development.

This seemed the most practical method. The attempt to specifically identify cause and effect of individual costs only resulted in endless hours of fruitless discussion and rationalization. We did not attempt to decide which expenditures had future usefulness and which didn't. If we decided to make the expenditure, it was for future use.

### HOW LONG

As stated above, once we decided to put the foregoing tenets into actual practice we needed to establish clear bench marks for their application. These bench marks must be clearly identified in time and amounts.

As a guide, we returned to our three stages in the life of an enterprise. We, therefore, defined them as follows:

### THE CONSTRUCTION PERIOD

We actually called this the pre-operating period. The period ended on the first day of the month following the month in which the first revenue producing subscriber was hooked-on. This coincided with the date we commenced depreciation of plant—the date the asset was first put into commercial use.

Using the first day of a month eliminated the allocation of costs among days within the month and gave a clear historical date.

### THE DEVELOPMENT STAGE

The development stage was defined as a period of one year from the end of the pre-operating date or at the point the system reached 16% of its potential, whichever came first.

I have been asked many times why 16% and why 12 months. There is no one good answer to this question. We know now that other companies are using a development period of 24 months or 25% of the existing potential homes in the service area.

Likely we were influenced by the usual conservative attitude among accountants, and that this was a new theory to us. In any event, we deferred as franchise development costs the excess of all expenses over revenues.

### THE AMORTIZATION PERIOD

The amortization period begins on the first day of the 13th month following the development date or the month in which we first reached the 16%.

We selected 36 months for the time over which the development costs should be amortized. This selection empirical, appeared to us to be conservative and I still believe a long period might lead to abuses.

In our deliberations, we were influenced, in part, by report market

values for CATV properties. We reasoned that a portion of the purchase price, in excess of plant values, could be attributed to the development of the franchise. Further there was precedent for carrying such values as balance sheet items not only in the CATV industry, but in the broadcasting industry and other.

### EXAMPLE

I have constructed the figure shown presenting condensed operating statements and balance sheets during the various stages so as to demonstrate how we handled our accounts. As stated, we gave earlier consideration to

XYZ CABLE COMPANY						
OPERATIONS	Construction Development			Operating		Profit and Loss
	Stage	Stage	Cumulative	Stage	Cumulative	
Income	\$ 4	\$2.0	\$ 2.4	\$3.4	\$ 5.8	\$3.4
Operating Cost:						
System	5.2	1.7	6.9	5.2	12.1	5.2
Selling, administrative	4.9	2.0	6.9	2.3	9.2	2.3
Depreciation		1.6	1.6	1.5	3.2	1.6
Amortization				2	2	2
Total	10.1	5.3	14.5	9.3	24.7	9.3
Profit—(loss) before adjustment	(9.7)	(3.3)	(13.0)	(5.9)	(18.9)	(5.9)
Credit for construction	5.2		5.2		5.2	
Credit for development	4.5	3.3	7.8		7.8	
Adjusted profit—(loss)				(5.9)	(5.9)	5.9
<b>BALANCE SHEETS</b>						
<b>Assets:</b>						
Other	3.5		5.3		7.2	
Franchise development	4.5		7.8		7.6	
Plant:						
Regular	205.0		208.4		213.4	
Construction	5.2		5.2		5.2	
Total	211.2		213.6		218.6	
Reserve depreciation			1.6		3.2	
Net	211.2		212.0		215.4	
	219.2		225.1		230.2	
Liabilities	169.2		175.1		186.1	
Capital	50.0		50.0		50.0	
Surplus (deficit)					(5.9)	
	219.2		225.1		230.2	

trying to detail specific costs to be deferred; we ultimately arrived at net pools of costs as the most practical method. As you can see, during the construction period, we deferred the system costs as plant and the excess

of selling and administrative expenses over revenues as development. During the development stage, all excess of expenses were deferred; and during the operating stage, none were deferred and we amortized 1/36th of the franchise development.

A further problem was presentation for published financial statements. We decided that account accumulations during the construction and development stage and at the point the operating stage began would be reversed so that operating statements would show only the income and expense from the operating date forward.

### OTHER PROBLEMS

There remain two other matters; these relate to a major extension to an existing system and the tax treatment to be given the costs deferred. We define a major extension as being approximately equal to 20% or more of the original mileage. We asked the system manager to keep a detailed analysis of the percentage of time consumed by himself, the chief engineer, and the technical people in connection with the extension; and these percentages were related to the total costs incurred during the construction period and appropriate amounts were transferred to either construction and/or development.

For tax purposes, these costs have been charged against revenue and as a tax deduction. For published statements, the differences between tax and book income must be adjusted for the tax affect. □

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# THE FCC AND CONGRESS

A speech by NCTA President Frederick W. Ford before the NCTA financial seminar, January 27, 1966 in New York City.



The origin and growth of CATV is an impatient indictment by the American public of the lack of diversity and picture quality of television programs. Despite these shortcomings, more than 2,000,000 American homes in 1,600 cities and towns, not including countless apartment buildings have demonstrated that they will pay a monthly charge for a better antenna to remedy these glaring defects in our national television system. Hundreds more each month are swelling their ranks. This is occurring in these communities and in some of the 1300 other cities and towns where CATV franchises are being considered and granted like your own city of New York.

The Supreme Court of the United States in 1933<sup>1</sup> in construing a provision of the Radio Act of 1927 stated, "that the Congress declared that the people of all the zones 'are entitled to equality of radio broadcasting service, both of transmission and reception' . . ."<sup>2</sup> It is in the area of equality of reception that CATV is primarily concerned and makes its greatest contribution. CATV is a part of the television industry complex and of necessity must be concerned with its relationship to the Congress and the Federal Communications Commission. It appears desirable, therefore, that we review the CATV industry's relationship with the Congress and the Commission in terms of future regulation of the industry.

CATV merely provides a better antenna in order to foster and promote the competition among broadcast stations for the attention of the public. CATV itself does not compete with broadcasting stations. If it is proposed to administratively alter this concept of free competition, in my view additional legislation is indispensable. If the government, without additional leg-

islation, can directly regulate community antennas in a selected city to stop the reception by the public of the signals of distant stations on the theory of economic impact on television stations it can regulate privately-owned antennas for the same reason. This would constitute direct regulation of reception which to my knowledge does not come within Commission powers.

Although the earliest CATV commercial system was constructed in 1950, it was not until 1957 that friction began to develop between CATV systems and the television stations located in the same or nearby communities. This friction was centered around making available signals of the local station on the CATV system and the duplication of its programs. More recently this conflict has centered around the importation of distant signals. In 1958, the Commission decided the Frontier Broadcasting case in which it determined that CATV was not a common carrier.<sup>3</sup> At the same time the Commission embarked upon an investigation of the CATV industry which resulted in its 1959 report.<sup>4</sup> This report found that CATV could not be regulated by the Commission as a common carrier or as a broadcasting station; that the impact of the CATV industry on television could not be demonstrated in any particularity; and that it did not have "plenary power" to regulate any and all enterprises which happened to be connected with one of the many aspects of communications. CATV continued to grow and continued to request and be granted the use of microwave facilities. The Commission has completed a proceeding in which it has established a separate service called CARS, meaning Community Antenna Relay Service.<sup>5</sup> Approximately one-fifth of the CATV systems in the United States now employ some form of microwave facilities to relay signals from a distant antenna to their head-end for distribution to their customers.

During the same period in which the Commission was conducting its in-

quiry, the Congress entered upon an investigation of the CATV industry in which the so-called, "Cox Report"<sup>6</sup> was prepared. The Commission then recommended legislation having as its point the requirement of consent by a broadcaster for the distribution of its signals by a CATV system.<sup>7</sup> After extensive hearings by the Senate Interstate and Foreign Commerce Committee this bill<sup>8</sup> was rewritten by the Committee<sup>9</sup> and in 1960 came to the floor of the Senate, where it was defeated by one vote. This bill would have authorized the Commission to license CATV systems, impose various conditions on the origination of programs similar to those contained in the Communications Act relating to broadcasting and limited the Commission's authority in certain respects to systems in one station markets.

Thereafter, when I was Chairman of the Commission I suggested a bill<sup>10</sup> which was endorsed by the Commission and submitted to the Congress in 1961. No legislative action was taken on this bill in Committee, and there has been no action by the Congress since.

H.R. 7715 was introduced by Congressman Harris on April 28, 1965, five days after the release of the Commission's First Report and Order<sup>11</sup> adopting rules for the regulation of microwave-fed CATV systems. Hearings were held on this bill in May and June of 1965, which have not yet been completed.<sup>12</sup>

The First Report and Order issued on April 23, 1965, and a Notice of Inquiry of Proposed Rulemaking to regulate CATV systems not using microwave facilities<sup>13</sup> was the outcome of proceedings instituted on December 14, 1962. The central point in the First Report and Order is that CATV systems, at the request of the broadcast stations concerned, must not duplicate television stations' programs 15 days before and after the time of the broadcast and must carry the local and nearby stations on its system. We anticipate

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that if the Commission does take action in the pending rulemaking proceeding,<sup>14</sup> it will carry out its intention to make the same rules applicable to so-called off-the-air systems that are presently applicable to microwave-fed systems. This proceeding has other features which may form the basis for additional rulemaking.

Following the release of the First Report and Order, the Midwest Video Corporation instituted an action in the United States Circuit Court of Appeals for the Eighth Circuit in St. Louis for the purpose of challenging the procedures that the Commission followed and the arbitrary character of the rules it adopted. Oral argument before the Court has been held in this proceeding and the case is now ripe for decision. We are expecting a decision by the Court in the near future.

In the event the Commission undertakes to assert authority without legislation at its scheduled meeting on February 10, 1966, or shortly thereafter, imposing the same rules on off-the-air systems, undoubtedly a challenge will be made of these rules as to the Commission's basic jurisdiction to interfere with the reception by the public of broadcast signals. At the present time, unlike the Interstate Commerce Commission, the Commission has no statutory responsibility for the economic health of broadcasting or with free competition between interference-free broadcast signals. Thus, the Commission undoubtedly will be challenged in the courts at each step they may take to regulate this industry without specific congressional authority.

The community antenna television industry favors legislation and favors a grant of authority to the Commission to regulate the industry, but we do not believe that the Commission has this authority now. Even if it did have the bare bones authority to impose certain negative controls on off-the-air CATV systems, it does not have sufficient authority to embark upon an affirmative regulatory program to integrate CATV with the television broadcast system.

Thus, if you look at the history of broadcasting you can see that our relationship with the Congress and with the Federal Communications Commission parallels the experience of the broadcasters. The decisions of the Circuit Court of Appeals for the District of Columbia Circuit and of other courts in the United States are replete with challenges by the broadcasting industry, to the exercise of authority by the Department of Commerce, by the Federal Radio Commission, and by the Federal Communications Commission. I doubt that there are many of you who

would remember the mandamus issued to the Secretary of Commerce some 40 years ago when he denied a radio license without sufficient legislative standards and the networks' opposition to the Chain Broadcasting rules, which are two examples of such challenges. There are numerous cases dealing with the manner in which the Commission has exercised its jurisdiction. In some instances, the industry has been highly successful in restraining the Commission, in others the Commission's authority and the exercise of it has been sustained.

We do not know what the history of our relationship with the Commission will be in the future, but undoubtedly in the years to come there will be as many court decisions involving the community antenna television industry as there have been in the broadcasting industry. For example, we believe that if the Commission is even partially right the Communications Act pre-empted the field of CATV there is no area for regulation of the industry by the States, except to the very limited degree that broadcasting is regulated, such as zoning laws or other exercise of police powers which are not an undue burden on interstate commerce. The attempts by the Commission in the First Report and Order to confer upon the States jurisdiction to regulate certain areas is beyond their authority and raises serious legal questions.<sup>15</sup>

It is, therefore, apparent that an extensive area of dispute exists concerning the Commission's authority, as was the case before the Congress acted to adopt as a temporary measure the Federal Radio Act of 1927, until a statutory scheme of regulation could be devised. We believe that the Congress will recognize the existing situation and will again consider legislation to regulate CATV.

The broadcasters and the community antenna industry have undertaken on several occasions to arrive at an agreement on a position as to how the industry should be regulated.

The points involved are the duplication of programs, the origination of programs and the importation of distant signals into the service area in which the CATV system is located. There is a great deal of agreement between the two industries and as you know more than two hundred broadcasters<sup>16</sup> are now engaged in rendering CATV service as well as more than 200 newspapers. The points of disagreement, however, have prevented an understanding and no negotiations have been held for several months. The Association is and has always been ready to resume those negotiations at any given time

with the broadcasters, engage in discussions with the government or any other interested parties to the end that an appropriate solution to the problems presented here today may be found.

In our system of government there is a built-in conflict between the Executive, Judicial and Legislative branches. Out of this conflict has grown this great government that we have today. The same thing is true of the conflict between industry and the government. Broadcasting left to its own devices and excesses may have ruined itself. On the other hand, without the opposition of the broadcasting industry to the Commission's encroachment on their freedoms, perhaps the Commission in its excesses would have crippled the broadcasting industry. Out of the conflict between the two, however, with the courts refereeing and the Congress enacting statutes, has grown the greatest broadcasting system in the world.

We believe that we too are now engaged for the first time in this conflict between the regulator and the regulated. We believe that the Congress should mark out the ground rules on which this friendly battle can continue. Out of this will emerge a superior system which will, in fact, carry out the basic concept of our national policy on communications: that is, providing to all of our people an equality of television broadcast service, if not of transmission, then certainly of reception.

The principal reason, aside from the lack of statutory authority, for our opposition to the Commission's exercise of jurisdiction is our belief that it has failed to properly prepare itself and its staff for assuming the responsibility for the CATV industry that its claim of jurisdiction would thrust upon it.

Throughout the entire history of the Commission—when they were faced, as they are here, with major new technological developments in the communications industry, or with the need for determining the impact of economic facts and projections upon the well-being or future growth of the industry—they have always heretofore conducted extensive factfinding investigations and inquiries and have held *en banc* hearings during which there were presented meaningful and tested data and opinions and testimony. Through this process, the Commission was able to reach valid and informed judgments, establishing regulations for the future of an entire industry.

In every major policy problem which has confronted the Commission, that I recall, such procedures have been used. In some instances, such as

the network study and the UHF problem, special appropriations have been made by the Congress for this work, and reports were rendered by the Commission to Congress as a basis for guidance. In other instances, the Commission used its regular staff, such as in the color television hearings, frequency allocation proceedings, and the program policy inquiry.

In this new and evolutionary development that may affect our whole system of television distribution, no factfinding investigation has as yet been held. No valid, meaningful data have been considered or tested by the staff and the Commission cross-examination. The Commission cannot rely on the parties to develop all of the facts, because only the government has the power to require the production and marshaling of complete information. It is our view that the Commission's action of regulating CATV before adequately investigating that industry was faulty procedure.

Moreover, no individual employees or staff section exists which has as its primary responsibility the duty of becoming expert in CATV or in performing the basic regulatory functions. Instead, the staff responsibility has been assigned to the Broadcast Bureau which one would reasonably expect to be and in fact is sympathetic towards the maintenance and protection of its "baby"—the television station licensee. The regulation of CATV, with its unique problems which do not fit into the regulatory concepts of the established television industry, requires a fresh regulatory approach. Such a new approach would more assuredly be provided by an independent staff section which would afford the Commission with the means to develop full and unbiased information on the CATV industry. This would assist it in the formulation of appropriate regulatory policies to deal with the new economic and technical relationships in the broadcasting industry. A separate staff for CATV would be of invaluable assistance to the Commission in resolving the principal problem which confronts both the broadcasters and CATV operators—an adjustment between the two which will accomplish the purpose of gaining a diversity of signals to the population in concentrated areas and at the same time not deprive the rural areas of service.

This is the formula the Commission has used over the years in broadcasting. They have done a good job. It is reasonable to predict that if the Commission follows the same formula with CATV they will do an equally good job with this industry. We are convinced, however, that a prerequisite to such

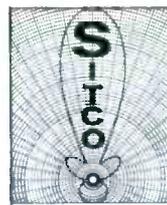
success will be the determination by the individual Commissioners to become fully informed on what CATV is, its capabilities and the benefits that it can provide to the public. Some six million people watch television by way of CATV and this is living proof that it does render an extremely valuable service, which the Commission has, in fact, recognized.

Let me turn now to some of the critical points in our relationship with the Commission.

The degree to which delayed duplication of programming is imposed will increase the need of CATV to originate programs and to bring in distant signals of independent stations if the demand of the public for clear picture quality and a diversity of signals is to be satisfied.

The vast majority of the CATV industry is not interested in either originations of programs to be offered as an additional service at the same small monthly charge or in pay television programs charged for on a per-program basis. I should add parenthetically that the only pay-TV system (programs paid for on a per-program basis) in the country is an experimental television station authorization in Hartford, Connecticut. If pay-TV is ever developed broadcasters have gone much further than CATV, and are in a position to bring pay television to the country long before CATV operators could reconstruct their systems to provide such service. CATV operators are interested in signals received off-the-air and in the so-called "distant station". (That is, one that does not place a Grade B signal over the community in which the CATV system is located.) There is nothing really magic about WABC, WNBC, WCBS in New York which permits them to distribute their programs throughout the United States which is not possessed by WPIX and the other three independent stations in New York, the four independents in Los Angeles, WGN in Chicago, or other independent stations. Therefore, to the extent that the Commissions blacks out signals, either now or in the future, and may control the reception of off-the-air signals via CATV, the public will demand more distant independent stations and locally originated programs by CATV.

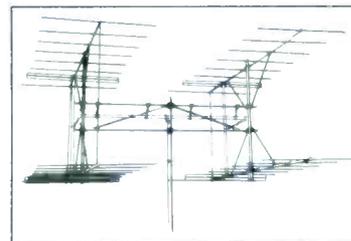
It has been my observation in almost 20 years that I have been involved in the broadcasting industry that the Commission regulatory-wise is at least three or four years behind industry and when it finally moves to close a regulatory gap, it frequently in the process opens a door "wide enough to drive a truck through." This is not always by accident. It is some of these actions



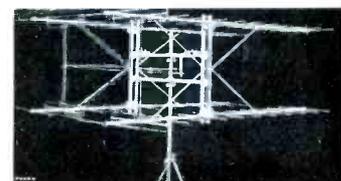
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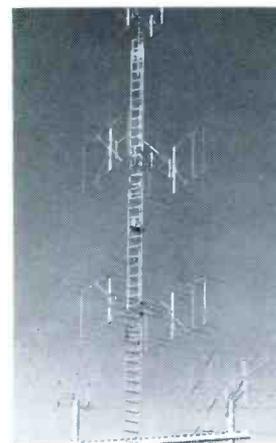
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that the Commission has taken over vigorous objections of the broadcasting industry which has ultimately forced the industry to new efforts to improve its service by driving through those open doors. Likewise here, the Commission may take actions in the years to come which perhaps will change the character of CATV, and it too will be forced to new efforts to improve its service and drive through those open doors. To the extent that the Commission obtains authority and may require the industry to exhibit an interest in the origination of programming or limit the bringing in of cer-

tain distant independent signals it may force the CATV industry perhaps to a nationwide cable network. Such a development could very well result in CATV being paid by the advertiser for carrying programs just like television stations, instead of carrying them free and suffering outrageous charges of piracy and other intemperate and inappropriate epithets in place of the thanks they are due for their efforts. The CATV customer is perhaps among the most desirable for advertisers to reach. He pays for a superior antenna and is more likely to watch the advertisers programs.

As we march down the years, I am sure that the industry will change its concepts and its services will grow and improve. To the extent that the government moves, the industry will exercise its resourcefulness and ingenuity to expand its services. Although we may suffer minor setbacks which appear to be restraining, I do not believe that it is possible for either the broadcasting industry or the government—nor will they want—to contain this vigorous young growth industry and deprive the people or the increasing diversity of service that they demand. Thus, I believe that the government must design, under a new authority of the Congress, an integrated regulatory program which in effect will accomplish the purposes of the Communications Act, i.e. "... to make available, so far as possible, to all the people of the United States a rapid, efficient, Nation-wide, and world-wide wire and radio communication service. . . ."<sup>17</sup>

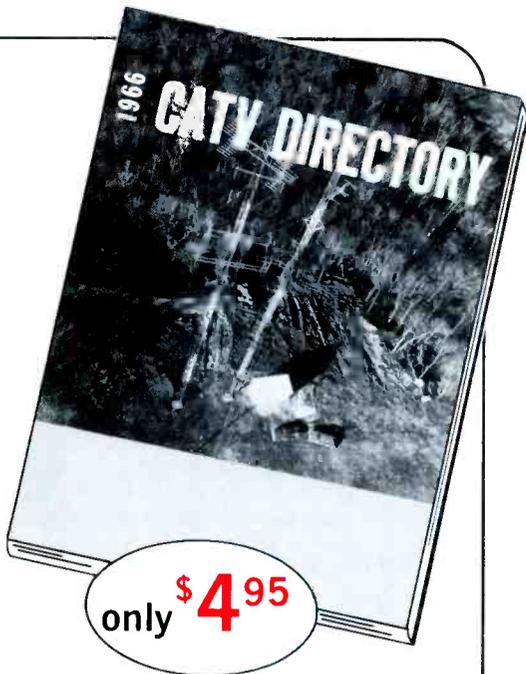
As you know we are now engaged in a massive effort to bring about such legislation, but our purpose is not to prevent the Commission from acquiring jurisdiction; it is to foster such legislation and establish legislative standards for the exercise of that jurisdiction, equitably and in a manner which is fair to the CATV industry, but, most importantly, fair to the public.

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### FOOTNOTES

- 1 Federal Radio Commission v. Nelson Brothers Co., 289 U.S. 266 (1933)
- 2 The corresponding provision Sec. 307(b) of the Communications Act has been construed to the same effect.
- 3 Frontier Broadcasting Co. v. Laramie Community TV Company, 24 F.C.C. 151(1958). This same question is now pending and is ready for decision in the United States Court of Appeals for the District of Columbia Circuit in the case of Philadelphia Television Broadcasting Co. et al v. F.C.C. (Docket No. 19,577).
- 4 Report and Order on CATV systems, etc. (Docket No. 12443), Pike & Fischer Reg. 1573 (1959).
- 5 FCC Public Notice October 13, 1965 (Docket No. 15586)
- 6 Staff Report prepared for the Committee on Interstate and Foreign Commerce of the United States Senate (85th Cong. 2d Sess. 1959).
- 7 1959 Report, 91-99 supra n. 8.
- 8 S. 1801, 86th Cong., 1st Sess. (1959)
- 9 S. 2653, 86th Cong., 1st Sess.
- 10 S. 1044, H.R. 6840, 87th Cong., 1st Sess. (1961)
- 11 F.C.C. Docket No. 14895, and Docket No. 15233
- 12 Hearings before the Subcommittee on Communications and Power of the Committee on Interstate and Foreign Commerce, House of Representatives, May 1965 (Serial No. 89-16).
- 13 F.C.C. Docket No. 15971
- 14 In its Notice of Proposed Rulemaking the Commission stated in paragraph 68:  
"After study of the comments, the Commission may, by subsequent order, specify a number of days for the presentation of oral argument on these important matters. It is also contemplated that oral testimony may be solicited, and appropriate orders specifying the nature and time may be issued at a later date. After comments have been received, the Commission may well spin-off portions of the rule making for early decision, since other portions may require lengthy consideration."
- 15 See Harvard Law Review, Vol. 79, No. 2 (Dec. 1965)
- 16 Television Digest, Dec. 20, 1965
- 17 Sec. 1, Communications Act of 1934, as amended.

# Meeting the Regulatory Challenge

By Phil D. Cook

Mobilized by reports that the Federal Communications Commission plans to announce complete jurisdiction over CATV following a February 10 meeting, the NCTA Board of Directors met January 9 in emergency session in Washington, D. C. Following the meeting, the NCTA coordinated a telephone canvassing of virtually every cable system in the country. The result was a record attendance at ten emergency regional meetings held across the nation on January 10 & 11. At the same time, many CATV manufacturers and industry leaders, also alarmed by the reports, initiated an aggressive campaign to energize individual cable system operators and their subscribers. Several manufacturers produced fact-sheets and publicity programs for use by individual cable systems.

Thus, armed with the advice, press kits and advertising materials supplied to them by the manufacturers and the NCTA, cable system operators returned from the special meetings to their systems to spark a nation-wide publicity and letter campaign.

Ralph Shepler's Tygart Valley Cable in Elkins, W. Va., following the NCTA's advice, employed a type of campaign which proved successful across the country. On January 18, Shepler placed a 1/3 page advertisement in a local paper on the issue of CATV regulation. Readers were instructed to clip the ad, sign and mail it to Rep. Staggers, Chairman of the House Interstate and Foreign Commerce Committee. By January 24, a tremendous number of the advertisements had been received at his office.

Another outstanding example of the action taken by system operators is that of Centre Video of State College Pennsylvania. Coordinated by Barash Advertising of State College, this campaign produced impressive results. After three days, according to Mrs. Sy Barash, "Centre Video had generated over 10,300 letters and another 2,000 letters had been generated from their outlying systems. "We expect", she continued, "that an additional 2,000 to 4,000 letters will be added in the clean-up campaign as well as the separate campaign for personal letters among friends, suppliers, stock holders and others."

The campaign was carried to the

public by almost every available means of communications. In the local newspaper, for example, two full pages were employed to show the subscribers what effects FCC rulings would have on their own television viewing. And, Centre Video's regular "program schedule" in the same newspaper carried the message, "Don't let the FCC censor your TV!!"

Adding to the impact of the advertising, the Editor of the Centre Daily Times officially announced his support of CATV.

In addition to the newspaper publicity and advertising, Barash Advertising carried out an intense radio spot campaign and a complete door-to-door canvass of all homes in the cable area. Mrs. Barash said, "We had included in our advertising schedule a saturation spot campaign for the two TV stations that cover most of the markets served by our clients. It is indeed interesting to note that both TV stations refused to run our advertising . . . mostly on the grounds that it was too controversial."

Not only did hundreds of newspapers come to the defense of CATV but several city councils were reported to have taken some positive steps. The city council of Jackson, Minnesota, for example, issued a plea of protest to the impending action by the FCC. Their resolution asked the Congress to adopt a resolution compelling the FCC to submit proposed legislation to Congress so that it may decide communications policy rather than have the FCC do it by order.

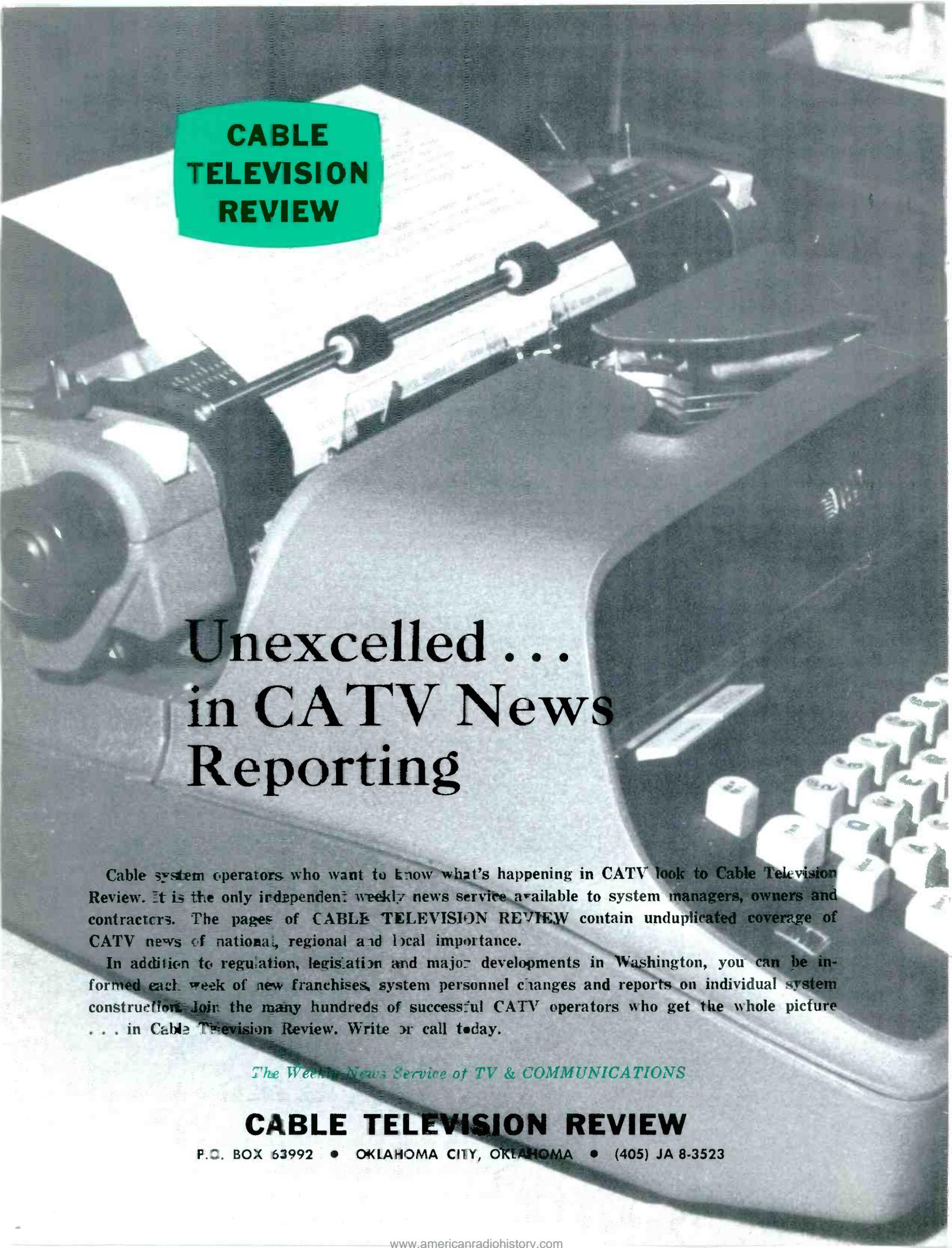
The council also took it upon itself to circulate a series of form letters to the citizens addressed to the Congressmen asking for support in this legislation. "The situation has come to a point," said Mayor Forrest D. Mariner, "where the FCC wants to tell us what we can see and when we can see it."

The council of Watsontown Boro, Milton, Pa. unanimously approved a motion to send a telegram to Congressman George Rhodes urgently requesting Congressional examination of the proposed FCC action limiting services now provided by the CATV.

An editorial in the Wellsville, N. Y. Reporter phrased it this way: "Owners of certain television stations, mostly the

**7 Station Programming on 5 TV Channels**  
**CABLE FEATURE: "The War Lover" S. McQueen . . . 9:00 p.m.**  
**CABLE EXCLUSIVE: Dean Martin Show . . . 4c, 6c . . . 10:00 p.m.**

Thursday, Jan. 20 (p.m.)	David Bruce . . . 4c	10:30 Space Man's Great Adventure . . . 4c
6:00 News . . . 4c	1:00 Gidget . . . 4c	11:00 Warner Bros. 22.2.3.4.5
6:30 Sports . . . 4c	Moved to the 7th . . . 4c	11:30 Warner Bros. 22.2.3.4.5
6:30 Regional News . . . 4c	6:00 The Double Life of Henry . . . 4c	12:00 Warner Bros. 22.2.3.4.5
Weather . . . 4c	6:30 The Double Life of Henry . . . 4c	12:30 Warner Bros. 22.2.3.4.5
6:30 News . . . 4c	7:00 The Double Life of Henry . . . 4c	1:00 Warner Bros. 22.2.3.4.5
6:30 Weather . . . 4c	7:30 The Double Life of Henry . . . 4c	1:30 Warner Bros. 22.2.3.4.5
6:30 News . . . 4c	8:00 The Double Life of Henry . . . 4c	2:00 Warner Bros. 22.2.3.4.5
6:30 Weather . . . 4c	8:30 The Double Life of Henry . . . 4c	2:30 Warner Bros. 22.2.3.4.5
6:30 News . . . 4c	9:00 The Double Life of Henry . . . 4c	3:00 Warner Bros. 22.2.3.4.5
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**CABLE  
TELEVISION  
REVIEW**

# Unexcelled . . . in CATV News Reporting

Cable system operators who want to know what's happening in CATV look to Cable Television Review. It is the only independent weekly news service available to system managers, owners and contractors. The pages of CABLE TELEVISION REVIEW contain unduplicated coverage of CATV news of national, regional and local importance.

In addition to regulation, legislation and major developments in Washington, you can be informed each week of new franchises, system personnel changes and reports on individual system construction. Join the many hundreds of successful CATV operators who get the whole picture . . . in Cable Television Review. Write or call today.

*The Weekly News Service of TV & COMMUNICATIONS*

## **CABLE TELEVISION REVIEW**

P.O. BOX 63992 • OKLAHOMA CITY, OKLAHOMA • (405) JA 8-3523

February 1966

# CATV TECHNICIAN



PHOTOGRAPH COURTESY OF VIDEO TOWERS, INC.

- Understanding DB's
- System Reliability
- Newest CATV Products

LEVELS IN CATV SYSTEMS:

# DECIBELS AND DBMV

By Ken Simons  
Jerrold Electronics

As the television signal progresses through a CATV system from the antenna through miles of cable and dozens of amplifiers, it undergoes many changes in power level before it is finally delivered to the subscriber's receiver. The power is very low at the beginning of the system coming out of the antenna with a power level in the neighborhood of 0.0000000001 watt and increasing to around 0.0001 watt at the output of the distribution amplifiers. The wide range of power levels and all those zeroes (especially when you start doing calculations) make this a pretty cumbersome method to work with. There's a much better one, however, which utilizes elements known as decibels (abbreviated "db") and decibel-millivolts (or "dbmv"). Restating the unwieldy quantities we used above in this method's terms, the antenna power would be expressed simply as ".30 dbmv" and the amplifier output's as "+40 dbmv."

## THE BEL AND THE DECIBEL

When telephones were first put into use it was discovered that the longer the wires between two phones, the weaker the signal arriving at the receiving end became. The convenient and obvious method for expressing how much the signal has weakened was to do it terms of a length of "standard" cable.

As time went by the telephone people made further discovery that 10 miles of the standard cable reduced the signal power by a factor of approximately 10 times. They set up this amount of attenuation (decrease), namely 10 to 1 power loss, as a unit. They called it a "bel," inspired by the name of their company's famous founder.

Mathematically, they defined the bel in logarithmic terms since it described signal attenuation in logarithmic rather than simply linear terms. The formula is:

Loss (in bels) =  $\log_{10} \frac{\text{input power}}{\text{output power}}$   
 Since  $\log_{10} 10 = 1$  (in other words,  $10^1 = 10$ ), a power loss of 10 times, resulting in a level 1/10th its original amount means a loss of one bel.

Just as a farad was discovered to be too large for practical use, so that most capacitors are measured in micro- or micromicro-farads, the bel was found

to be too clumsy. The unit which came into use was the one-tenth-of-a-bel or "decibel" (abbreviated "db"). Adjusting our formula to read in decibels, we find that:

$$\text{Loss in decibels} = 10 \log_{10} \frac{\text{input power}}{\text{output power}}$$

A decibel then was the attenuation caused by a mile of the standard phone cable. The important feature to remember about a db is that it is an expression of a ratio between two levels — an input and an output. We've originally stated this as a ratio between two power levels, but it can be used for voltage or current levels as well. Assuming the input and output impedances are the same, we can convert the formula directly:

$$\text{Since Power} = \frac{E^2}{R} \quad \text{input power} = \frac{(\text{input voltage})^2}{(\text{output voltage})^2}$$

We know that  $\log_{10} (\text{any number})^2 = 2 \log_{10} (\text{that number})$ . For example,

$$\log_{10} (27)^2 = 2 \log_{10} 27$$

So

$$\log_{10} \frac{(\text{input voltage})^2}{(\text{output voltage})^2} = 2 \log_{10} \frac{\text{input voltage}}{\text{output voltage}}$$

And since Loss in

$$\text{db} = 10 \log_{10} \frac{\text{input power}}{\text{output power}} = 10 \log_{10} \frac{(\text{input voltage})^2}{(\text{output voltage})^2}$$

Then Loss in

$$\text{db} = 10 (2 \log_{10} \frac{\text{input voltage}}{\text{output voltage}}) = 20 \log_{10} \frac{\text{input voltage}}{\text{output voltage}}$$

and similarly for current ratios

How this works out for a range of voltage and power ratios can be seen in the following table.

(The two voltages must be measured at the same impedance level.)

TABLE B

Input power	Loss in db	Input voltage
Output power	Output power	Output power
10,000,000,000	100	100,000
100,000,000	80	10,000
1,000,000	60	1,000
10,000	40	100
100	20	10
1	0	1

The db can also be used to express gain, the opposite of loss. The formula becomes:

$$\text{Gain in db} = 10 \log_{10} \frac{\text{output power}}{\text{input power}}$$

or, for voltage:

$$\text{Gain (in db)} = 20 \log_{10} \frac{\text{output voltage}}{\text{input voltage}}$$

and again, similarly for current.

So we come to the aspect of our "decibel-ology" of greatest interest in

CATV system operation, the decibel-millivolt.

## THE DBMV

Power levels at various points in a CATV system are of primary importance, forming the technical basis of system operation. The antenna output must be high enough to provide noise-free pictures. The amplifier output must be held to optimum level for minimum system noise and cross-mod. To express levels (as contrasted with power ratios), a standard reference level is needed so the db ratio of the power at any point in the system to this standard level can be computed. Early in the history of CATV systems the power corresponding to an RMS voltage of 1 millivolt across 75 ohms was chosen as the reference. This is approximately the input required for a noise-free picture in an ordinary receiver, so its use provides db levels indicating approximately how much attenuation is allowable between the point in question and the receiver.

The level at any point in the system expressed in db's above the 1 millivolt/75 ohm standard is said to be the level in decibel-millivolts or dbmv. In other words Voltage level (in dbmv) =  $20 \log_{10} \text{voltage in millivolts at that point standard level (1 millivolt)}$

when the voltage is measured at the 75ohm impedance level. Simplified, this reads:

$$\text{dbmv} = 20 \log_{10} (\text{voltage in millivolts}) \text{ at } 75 \text{ ohms impedance}$$

Since 1 millivolt across 75 ohms represents a power of:

$$P = \frac{E^2}{R} = \frac{(0.001)^2}{75} = 0.000,000,0133$$

$$\text{watts} = 0.0133 \text{ microwatts}$$

the corresponding power expression is:

$$\text{level (DBMV)} = 10 \log_{10} \frac{\text{measured power}}{0.0133 \text{ microwatts}}$$

The following chart shows the voltage levels in a 75 ohm system corresponding to various DBMV levels:

RMS voltage	DBMV
Across 75 ohms	
1 volt	+60
100 millivolts	+40
10 millivolts	+20
1 millivolts	0
100 microvolts	-20
10 microvolts	-40
1 microvolt	-60

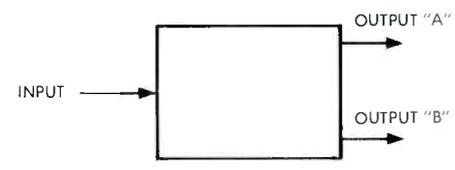
The voltages corresponding to 1 DBMV steps between -20 and +20

shown below:  
+Scale

Voltage Millivolts	DBMV	Voltage Millivolts	DBMV
10.00	+20	1.000	0
8.91	+19	0.891	-1
7.94	+18	0.794	-2
7.08	+17	0.708	-3
6.31	+16	0.631	-4
5.62	+15	0.562	-5
5.01	+14	0.501	-6
4.47	+13	0.447	-7
3.98	+12	0.398	-8
3.55	+11	0.355	-9
3.16	+10	0.316	-10
2.82	+9	0.282	-11
2.51	+8	0.251	-12
2.24	+7	0.224	-13
2.00	+6	0.200	-14
1.78	+5	0.178	-15
1.59	+4	0.159	-16
1.41	+3	0.141	-17
1.26	+2	0.126	-18
1.12	+1	0.112	-19
1.00		0.100	-20

**"POWER-SPLIT" DB RELATIONSHIPS WITH APPLICATION ANALYSIS OF SPLITTERS, TAPS AND REFLECTION LOSSES**

In CATV systems several devices are used which have the function of dividing the signal between two paths. A splitter divides energy between two outgoing cables; a directional coupler diverts a minor signal to one line, with a major signal going to another; a tap diverts a very small part of the signal energy to the customer's drop line, passing almost all of it down the feeder. All of these devices are designed to have a minimum of internal loss, so that their performance can be estimated with reasonable accuracy by assuming that all of the energy divides between the outputs.



Assuming no loss in the splitter:  
input power =  
output power "A" + output power "B"  
dividing through by the input power (to get power ratios)  
$$\frac{\text{Power "A"}}{\text{Power in}} + \frac{\text{Power "B"}}{\text{Power in}} = 1$$

This establishes a relation between the first ratio and the second so that if one is known the other can be calculated. The table shown on the following page shows the db ratio of P<sup>B</sup> to P<sup>in</sup> given ratios of P<sup>A</sup> to P<sup>in</sup> in db steps,

and given them P<sup>A</sup> + P<sup>B</sup> = P<sup>in</sup>: The relation is plotted on a chart on the page after that.

**APPLICATION OF "POWER SPLIT" DATA TO ANALYSIS OF SPLITTERS AND TAPS**

**EQUAL SPLITTER:**  
When a lossless splitter divides the input equally between two outputs, each of the output legs receives one-half the power, corresponding to a loss of 3 db. If the chart (or the table) is entered at "loss to B equals 3 db" it will be found that "loss to A also equals 3 db."

**UNEQUAL SPLITTER, DIRECTIONAL COUPLER OR TAP:**

Example: A directional coupler has 12 db loss to the minor leg, what is the minimum loss in the other leg? Reference to the chart or table shows a loss of 4.28 db.

Example: What is the minimum trunk-line insertion loss of a tap with 24 db tap loss? Opposite 24 db loss for output "B" find 0.02 db for output "A".

Note: The "power split" relation does not apply to non-directional taps which include a back-match resistor.

**APPLICATION OF POWER-SPLIT DATA TO REFLECTION PROBLEMS**

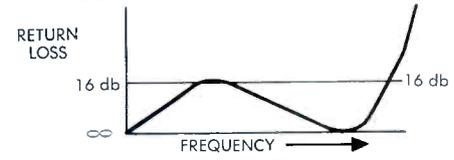
When a lossless device having mismatch is introduced between a previously matched source and load, the power-split curve can be used to find the resulting transmission loss.



A commonly used measure of reflection in CATV equipment and cables is the "return loss", the db ratio of input power to reflected power. When the device is lossless, the sum of the output power and the reflected power must equal the input power. Thus the "power-split" curve can be used to find the transmission loss  $\frac{P_{in}}{P_{out}}$  when the return loss  $\frac{P_{in}}{P_{out}}$  is known.

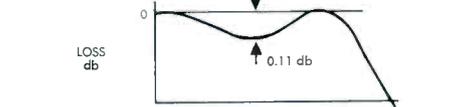
Example: A filter has the Impedance Match shown:

What is its insertion loss, if there are no internal losses?



Loss at minimums, where return loss is infinite, is 0.

Loss at maximums, where return loss is 16 db, is 0.11 db (from power split curve) so transmission curve is approximately:

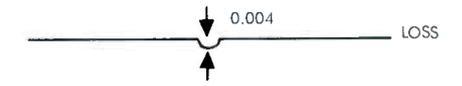


Example: A cable has the return loss spike shown:



What loss in transmission is caused? (assuming it is due only to the mismatch at the input terminal).

With a 20 db return loss spike the transmission loss (from curve) is 0.04 db:



**DB RATIOS FOR P<sup>N</sup> = P<sup>A</sup> + P<sup>B</sup>**

$\frac{P_{IN}}{P_B}$ in db	$\frac{P_{IN}}{P_A}$ in db
P = 10 log <sub>10</sub> $\frac{P_{IN}}{P_B}$	P = 10 log <sub>10</sub> $\frac{P_{IN}}{P_A}$

1	6.868
2	4.330
3	3.021
4	2.205
5	1.651
6	1.256
7	0.966
8	0.750
9	0.584
10	0.4575
11	0.3593
12	0.2831
13	0.2232
14	0.1764
15	0.1395
16	0.1104
17	0.0873
18	0.0692
19	0.0551
20	.0436
21	.0346
22	.0275
23	.0219
24	.0174
25	.0138
26	.0109
27	.00869
28	.00689
29	.00547
30	.00434
31	.00345
32	.00274
33	.00218
34	.00173
35	.00137
36	.00109
37	.000866
38	.000688
39	.000547

# SYSTEM RELIABILITY

R. L. COWART

*System Construction Company*

These days we find ourselves building more and more systems into areas that already have available to them strong high quality, highly reliable, local off-the-air signals. In order for a system to compete under these conditions, the system must be engineered in such a fashion that it can successfully compete in terms of the same quality, reliability and performance as these off-the-air signals. The preliminary determinants of quality are signal-to-noise ratio, cross modulation and ghosts. Most people in the industry are familiar with these terms as a result of the industry schools which outline and detail methods of qualitative determination. A fourth, extremely important, factor is reliability—a subject which has been, and still is frequently ignored. The purpose of this article is to acquaint you with the basics of reliability and to point out some methods by which present system reliability can be improved.

Many studies have been made in the past both by military and commercial interests in the pursuit of those factors that control and influence reliability. In almost every case explored the most highly reliable system was the simplest system. I am sure you will all agree from your own experience that this is the case. The military answer for increased reliability is redundancy. This means having almost two complete sets of basic equipment, one ready to take over the function of the first, should it fail. The commercial solution to reliability is primarily by increasing the reliability of the components and increasing the size, weight and mass of the device. This is more or less the brute force approach.

In CATV, neither of these two standard approaches is really available to us, because of the unusual demands we make of the device. In transistorized equipment we compromise everything for the sake of a lower noise figure or increased output capability. We are pushing the upper limits of the State of the Art. We can't use redundancy because of cost. We can't use higher reliable components because highly reliable, high performance transistors are

not available yet. We must achieve our reliability in the method in which we construct our systems, and in the method in which we utilize the manufacturer's product.

Most manufacturers today design equipment that is inherently reliable. In many, many cases that we have examined, we find that this inherent reliability of the device is lost in its application.

Reliability in electronics systems is generally considered to mean the length of time between events that render the system incapable of performing its designed function. In industry, exhaustive and extremely expensive studies are made to determine and assign quantitative values for the time between failure. This period is often referred to as mean time between failure or MTBF. In CATV these numbers are not available but the principle guiding the establishment of these numbers is available and it is this principle that we will concern this discussion.

If all of the components of an electronics system are considered to be functionally in series and if the failure of any components in this series chain results in a system failure then the overall system reliability can be expressed by a very simple formula. This formula states that the overall system reliability, designated by the symbol "R", is equal to the reliability of each of the series components raised to the power of the number of those components that are in series.

$$R = r^n$$

Where

r = mean reliability (probability function) of each component.

n = number of components in series.

This expression demonstrates something that you know intuitively to be true. In other words, the longer your trunk line in a system the greater the probability of failure of a component of the trunk. Conversely, the shorter the line the less chance of failure. The formula also allows us to show mathematically that, given two different am-

plifiers, if twice as many amplifiers are used in a system of Type "A" as are Type "B" and Type "B" has half the reliability of Type "A" then the overall reliability of the system is exactly the same, because there are twice as many pieces used but the reliability of each piece is twice as great. You intuitively know that the statement is correct.

The formula also shows that the high reliability system would have few parts and each part in itself should have the highest possible reliability. Towards accomplishing this end, we customarily use, in large systems, extremely low loss cable such as 3/4" aluminum and the highest possible db spacing between amplifiers because in our trunk system the highest reliability component is the cable; secondly, would undoubtedly be the connector; thirdly, the accessory items, splitters, directional couplers, etc.; and lastly with least reliability is the amplifier itself due to the large number of components. Our major significant contribution to reliability of that trunk segment would be to decrease, by whatever means we could, the cable loss, utilize wide amplifier spacing, etc., to decrease the number of amplifiers functionally in series. In our efforts to increase the reliability of that trunk segment we would attempt to reduce the total number of objects with less reliability than the cable to a minimum. This would mean we would reduce the number of splices, if possible, by care in our construction; we would reduce the number of splitters, directional couplers, equalizers and other objects inserted in the lines and try and make as much of the line as we could sheer cable: because, of course, the cable is the most highly reliable item of our components.

The same reasoning establishes a guide line in the design of equipment and has prompted most major manufacturers to abandon the practice of using splitters to generate inputs to associated distribution equipment and to instead build into the trunk amplifier chassis a fixed directional coupler to provide the input to distribution. When this is done we eliminate a jumper and several connectors that we used to use to ac-

comply with this. The same reasoning dictates that in transistorized equipment the equipment should be mounted without equipment enclosures. That means not with the use of an equipment cabinet. When an equipment cabinet is used the signal must pass through a bulkhead connector, a mating connector internally in the cabinet, a jumper, and finally through another connector on the end of the jumper and into the amplifier chassis. The same thing is true on the output of the amplifier. When this is done there are five additional elements functionally in series with the signal between the two ends of the trunk cable. Although connectors have inherently high reliability, by removing the eight connector assemblies from the line and replacing them with two direct entry connectors, we have thus improved the reliability of each amplifier station four times. You intuitively know that the reliability of the first configuration is far less than the direct entry type connector permanently mounted to the amplifier chassis as in strand mounted equipment.

In an operating system when you examine at the end of the year, the maintenance that has been given to the system, you find some rather curious things. You find first of all that

many of your system outages were not caused by any inherent failure of the amplifier itself. You find that they were caused by such unrelated things as power failures; by cars breaking off power poles; by trees falling across distribution and trunk cables; by the failure of fuses on hot days; by lightning strikes; and by employee carelessness in leaving amplifiers disconnected, etc. Another important point that gains in significance as we move into the area of transistorized system construction with many, many amplifiers dependant on a single power supply is that extreme caution should be used in selecting the location for the power supply. I am sure that many have had an experience where a certain amplifier in your system continually caused you trouble because of failure of secondary voltage delivered by the power company. We have seen amplifiers installed and taking power from power company transformers that were already seriously over-loaded. Few of you have given any thought to requesting the power company to provide you with your own transformer, which need not be very large, to assure yourself of a non-interrupted source of power. The cost is very low and the reward in terms of increased reliability is great. These points again illustrate the fact that in system design, a system should be

engineered in such a fashion so that the absolute minimum of active elements of the system are in cascade. Ideally, a system would be arranged in the manner of a wheel; with the center of the wheel the point of signal origination and of radial lines from the wheel hub to the outlying distribution areas. Although this is obviously impractical in most cases, an attempt to accomplish this type of construction can be made by the adoption and usage of extremely low loss master trunk cables as a backbone of the system. This new configuration will resemble somewhat the skeleton of a fish; with the master trunk cable being the backbone of the skeleton and distribution at right angles to this master trunk but in much, much smaller segments.

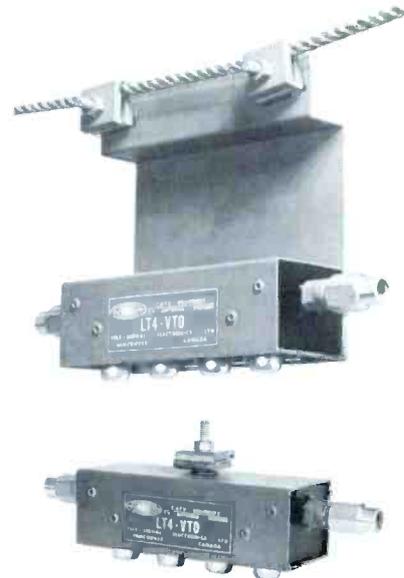
In summary, let's recap the major points that we have established. *A system gains RELIABILITY by SIMPLICITY.* This means that when you make your new layouts, look at them carefully to determine if you have taken the shortest route, if you have arranged your construction to utilize a minimum of connectors and splices, see if your power feeds come from a reliable source and make sure that you are utilizing as fully as possible the reliability delivered to you by the manufacturers. □

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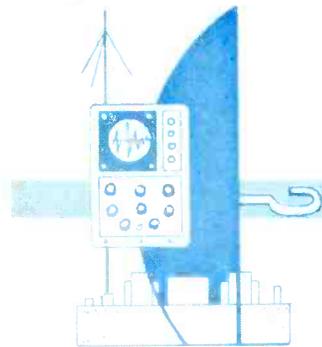
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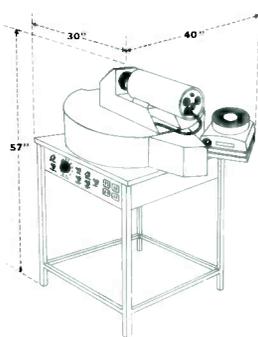
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# PRODUCT REVIEW

## VIKING INTRODUCES "WEATHERAMA"

Viking Industries is now manufacturing and accepting orders on their new "Weatherama" that provides a 24 hour continuous service of time and weather information. The "Weatherama" consists of a camera that focuses upon ten gauges that report the date, time, rainfall, relative humidity, an automatic multiple slide projector, wind velocity, wind direction, barometric pressure, tempera-



ture and a weather forecast card slot that can also be used for limited live telecasting. A feature of the "WEATHERAMA" is that the camera focuses on each gauge for a period of 4.8 seconds with a re-focusing time requirement for the next gauge of 1.2 seconds for a total of 6 seconds. Therefore, the time clock gauge is televised every 60 seconds to assure accurate time keeping. For additional information write to **Viking Industries, 830 Monroe Street, Hoboken, New Jersey 07030.**

## NEW AMECO PCG

Ameco is now offering a new pilot carrier generator, supplying a constant level for automatic gain control amplifiers employing the pilot carrier concept.

Completely transistorized, the PCG for all-band systems is said to be shipped from the factory ready for use without internal adjustment. Only operating controls are a power on-off switch and an output generator level control with a 25 db range. The PCG is rack mounted, with shielding to avoid interference with operation of

other head-end equipment. For details contact **Ameco, Inc., 2949 West Osborn Road, Phoenix, Arizona.**

## NEW "S" WIRE GRIPS

Two new TV "S" Wire Grips for dead-ending CATV house drops on pole, tap and house connections have been announced by the Pruzan Company. Both grips are identical in design, with one being constructed of stainless steel and the other of aluminum.



These new TV "S" Wire Grips are said to distribute a gentle grip over four inches of cable. Wire remains straight and unknicked, and no "creep" allowance is required. Grip is never tighter than required by the existing load, and does not tighten even after years of use according to the distributor.

Both TV "S" Wire Grips were specially designed for the Pruzan Co. by The Smith Company and the Pruzan Company is exclusive national distributor of the TV "S" Wire Grip. Free samples of the TV "S" Wire Grips may be obtained from the **Pruzan Co., 1963 - 1st Ave., So., Seattle, Washington 98134.**

## STEEL BUILDINGS

Steffen Body Company of Sioux City, Iowa, has introduced Perma-Porta, permanent but portable buildings, for housing and safeguarding communications and other valuable equipment. Perma-Porta is built in five standard factory sizes, from 8'x8'x8' high to 8'x16'x8' high plus other specified sizes to fit the need. The Perma-Porta is said to be specially undercoated for world wide weather protection. On site installation of building consists of clamping building to concrete piers. Basic wiring and receptacles are installed at factory. Heavy steel door is completely weatherstripped. Complete building details upon request in free 6 page brochure from **Steffen Body Co., 612-23 West Seventh St., Sioux City, Iowa.**

(Letters continued)

choice in the subscriber's home. In fact, CATV audiences will be the deciding factor in keeping a lot of marginal new UHF operation on the air.

We genuinely respect your views, and the efforts of all of the Commissioners to protect the public interest. We do respectfully suggest, however, that a traditional concern for the broadcast establishment has equated protection of the public interest with protection of the broadcasters' happy status quo! The FCC's idea of "integration of CATV into the total television system" would actually place CATV operators helplessly under the control of individual station owners. This is the first time since it was created in 1934 that the Commission has worked so hard at getting protection for individuals or companies whose need for protective regulation is purely speculative. Apparently, all you have to go on is opinion—and our opinion is the CATV systems aren't hurting anything — except the feelings of certain broadcasters and antenna manufacturers who still haven't gotten their first cable franchise.

## SUBSCRIBER COMMENTS

Dear Stan:

The Cable TV operators of Illinois and Indiana are in accord with the suggestions of Bill Daniels. Incidentally, you will note that we are the "Illinois-Indiana Cable Television Association". At the November formation of our Association, our by-laws, as adopted, noted the name change.

Let me compliment your fine magazine on what I feel to be one of the very outstanding cover pages that I have seen to date.

Phil Hays  
President, I-ICTA

Dear Sirs:

As a subscriber to your publication, I am in receipt of a supplement to your January issue titled CATV SYSTEM CASH-FLOW PROJECTION.

I would appreciate twelve additional copies.

L. R. Schultz  
Stromberg-Carlson Corp.  
Burlingame, California

Gentlemen:

I wish to express my approval of the CATV Technician Section appearing in your magazine. It's well presented and I think it is very interesting. Keep up the good work.

Francisco Vielma  
Rio Grande TV Cable Co.  
Eagle Pass, Texas

Letters may be addressed to:  
Editor, TV & Communications,  
P.O. Box 63992, Oklahoma City,  
Oklahoma 73106

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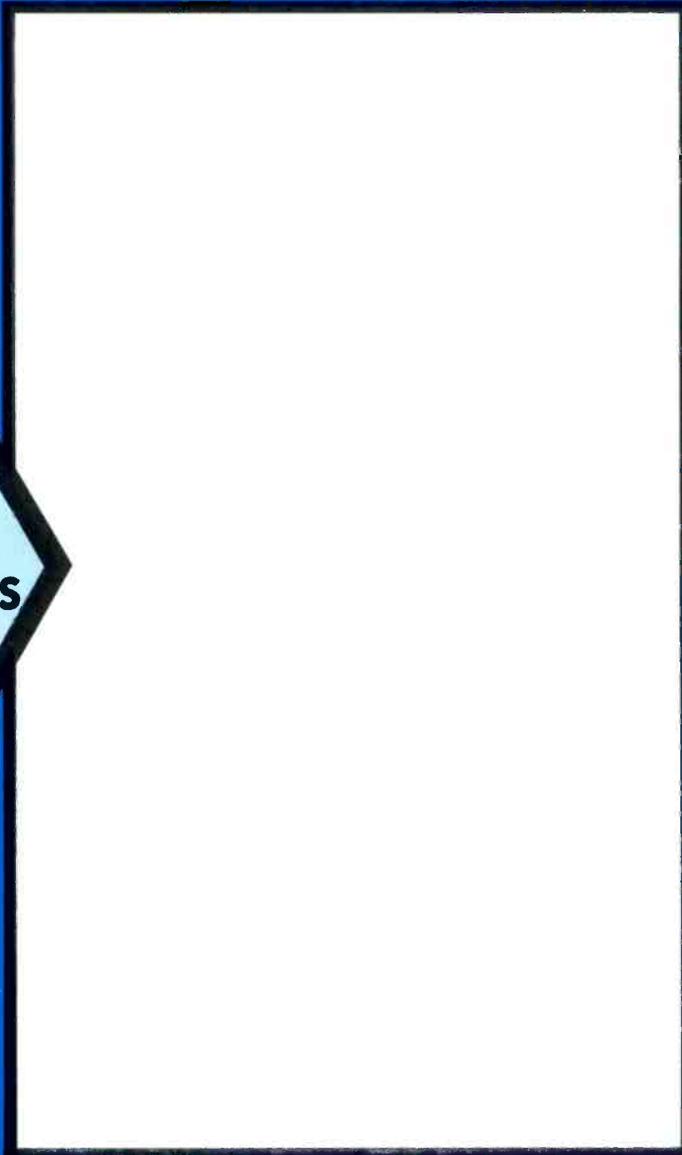
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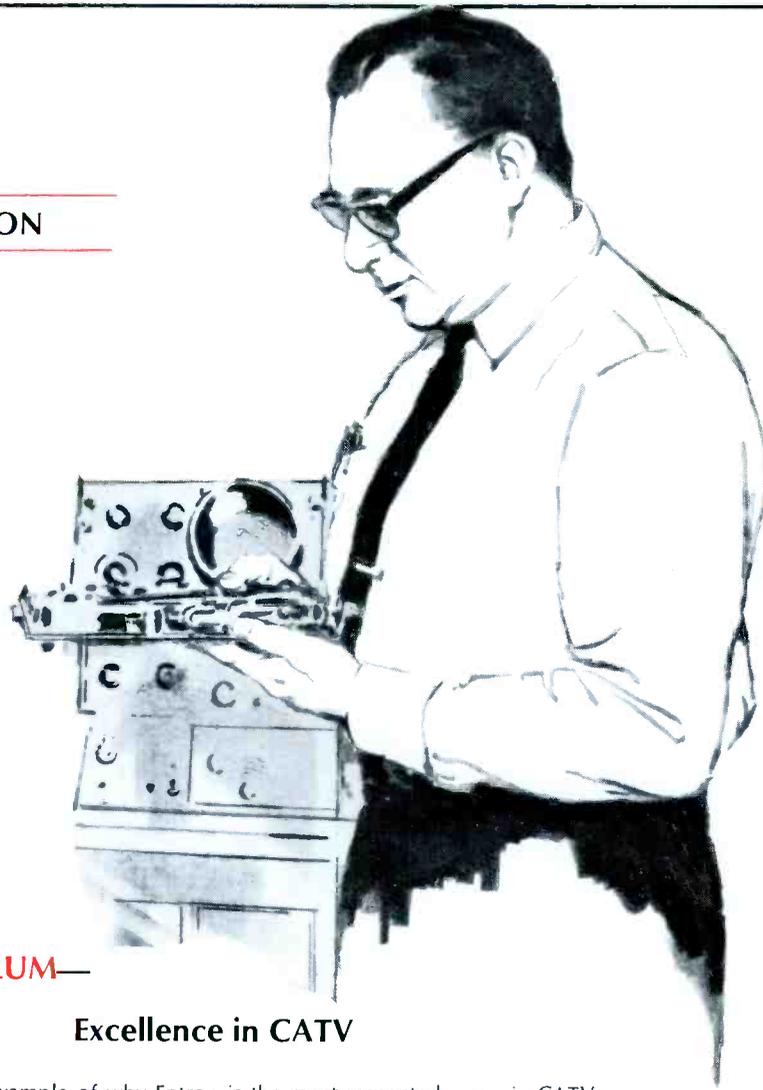
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● **This is HEINZ BLUM—**

### Excellence in CATV

Heinz Blum is a prime example of why Entron is the most respected name in CATV.

As Vice President and head of engineering and research and development for the company since 1953, Heinz is respected throughout the industry for his keen perception and imaginative approach to CATV engineering requirements.

Before coming to the U.S. and joining Entron 12 years ago, he worked as a production development engineer in Australia. Earlier, he operated his own engineering office in Berlin for four years. Heinz is a graduate of the noted Gauss Engineering School in Berlin. He is a member of the Institute of Electronic and Electrical Engineers, and the Institute of Motion Picture and Television Engineers.

Heinz is a recognized authority on television distribution. Many basic designs now standard throughout the industry were conceived and developed by him. And there will be many more to come . . . from Heinz Blum, and his colleagues . . . and Entron, the leader.

**entron**

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**CATV** and **ENTRON** have grown up together!

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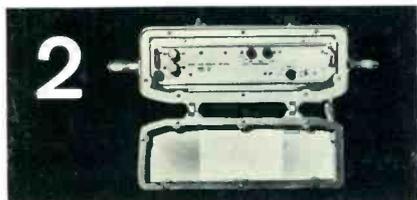
# 13 Reasons Why The **viking** SOLID STATE AMPLIFIERS Are Best!

Although the number "13" has always been considered a "bad omen", Viking is so confident that its new "GOLDLINE SERIES" of high level modular solid state CATV amplifiers represents the most advanced engineering concept of solid state design, that we challenge fate and present only 13 reasons (out of the innumerable reasons that can be stated) to show why you should THINK VIKING when you THINK SOLID STATE.

Here are the 13 reasons why you will now consider number "13" to be the luckiest number in CATV.



**1** "Push-Pull" construction allows one man to replace the internal amplifier unit within seconds without unsoldering wires nor disturbing cable fittings.



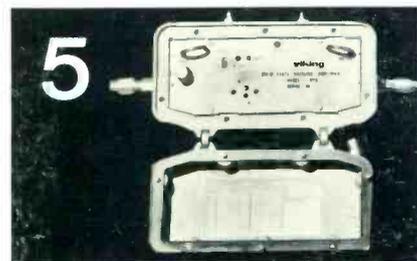
**2** Two piece hinged housing with seal-on gasket and captive screws permits easy accessibility to all controls and test points.



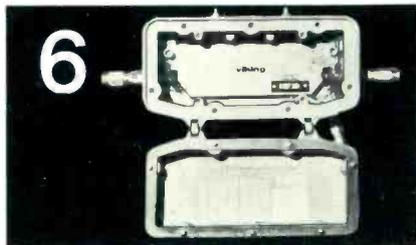
**3** Inline amplifier die-cast aluminum housing provides complete weather and moisture proof enclosure with "VIK-O-PROCESS" protection for salt air regions.



**4** Greater cascability allows a 12 channel system bigger than 60 mainline amplifiers in series or better than 1400db of cable can be built for a signal-to-noise ratio in excess of 40db.



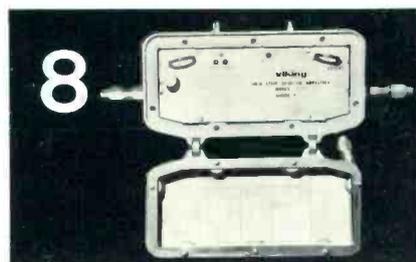
**5** Amplifiers designed with lowest noise figures, 10db maximum and highest output capability, 51dbmv.



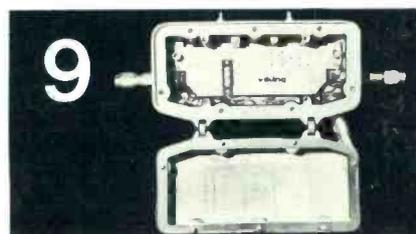
**6** Mainline amplifier AGC circuit compensates for thermal changes in the cable with no extra cost or insertion loss.



**7** Only AGC amplifiers available with separate high and low band plug-in pads and full-wave power supply.



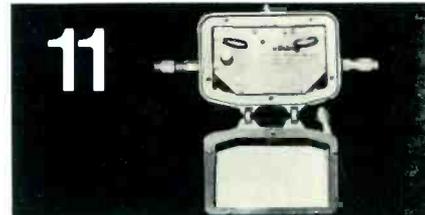
**8** Lightning and surge protection beyond 10,000 volts.



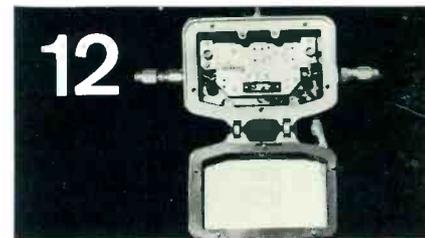
**9** Both RF and AC power feed through bridger amplifier locations where internal amplifier unit is removed from amplifier housing.



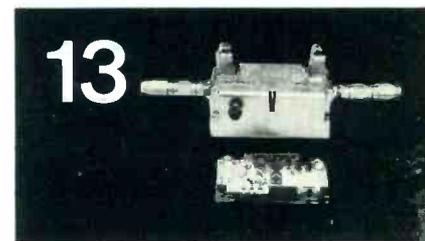
**10** All silicon RF transistors in sockets and heat-sunk.



**11** Built-in external -10db output directional tap for powering associated bridging or line extender amplifier and external easy to service fuses.



**12** All input and output connectors are of the revolutionary new Viking "Super Match" true 75 ohm series.



**13** "Super Match" connectors permit full one inch engagement of cable conductor into spring finger contact area of connector body allowing for maximum thermal contraction of the conductor during extreme temperature variances — No more conductor "pull-out" problems.

Phone or write for your free brochure on Viking's new "GOLDLINE SERIES" of solid state amplifiers



**viking**