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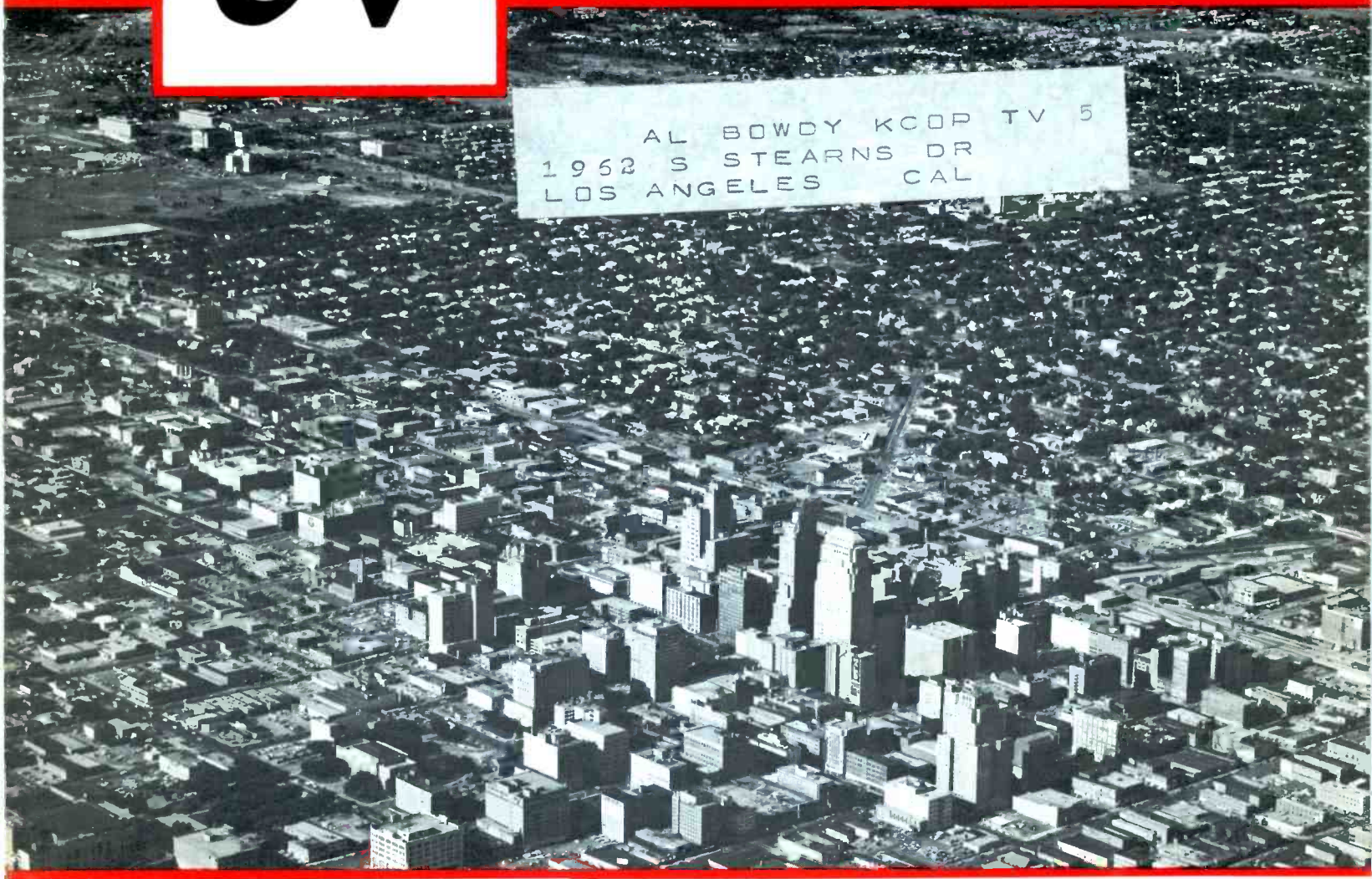

The Professional Television Journal

IN THIS ISSUE

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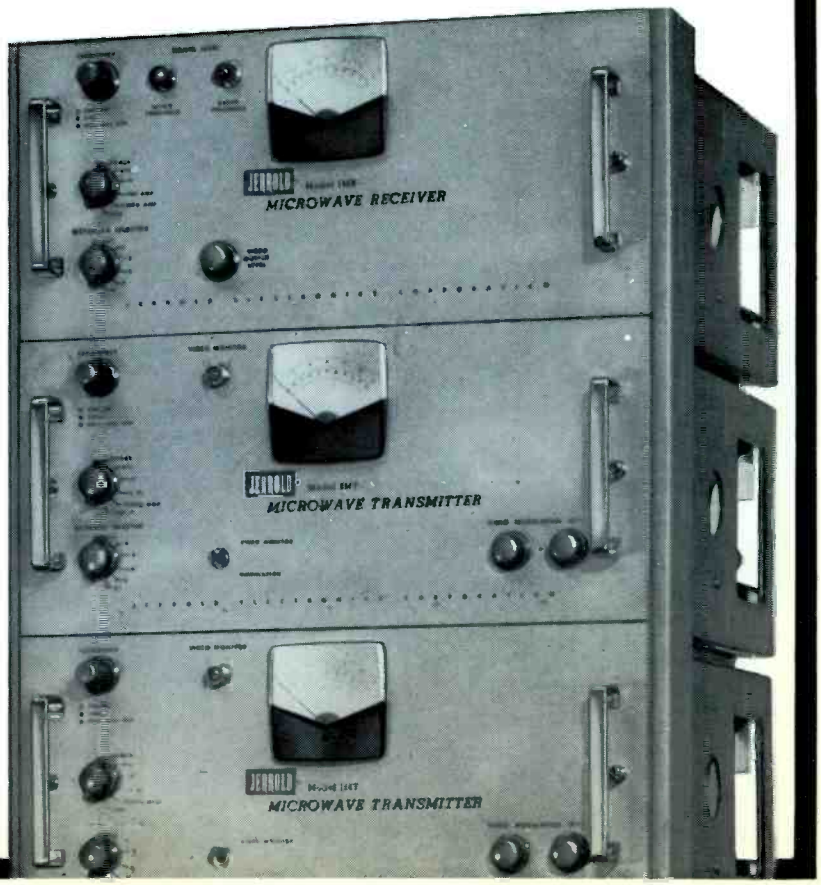


Channel 1

CANADA TO BYPASS COLOR TELEVISION FOR THE TIME BEING

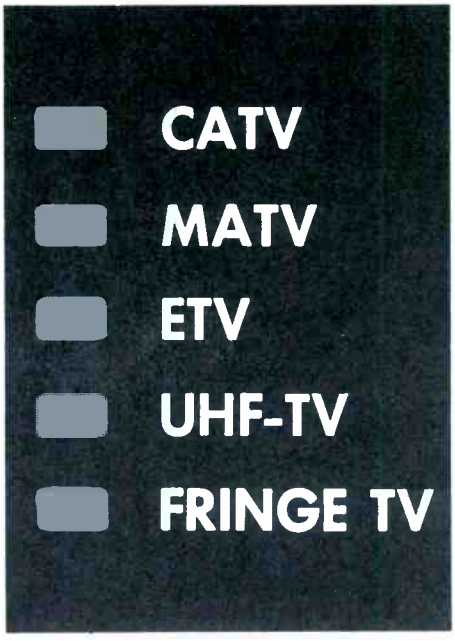
In a recent Board of Broadcast Governors Announcement, dated January 30, 1963, the following statement regarding the present and future of color television was made.

"The Board devoted its first full day of the January public hearing to the presentation of briefs, and examination of witnesses, on the subject of colour television for Canada. The public examination of the topic came about largely through representations of the Electronic Industries Association of Canada that it be given such a forum to state its views.

Board members reviewed the evidence at an **in camera** meeting and came to the conclusion that the time had not yet arrived when the Board could recommend that colour TV begin in Canada, nor could the Board see the future clearly enough to fix any forward target dates either for the setting of colour standards by the Department of Transport, or for permission to licensees to telecast in colour.

Some suggestions were made at the public hearing that the Board set up an industry-wide committee to study the question and make recommendations. The Board has active committees with public and private broadcasters, with advertisers and advertising agencies, and with the Department of Transport. It will continue to keep in touch with the manufacturers as well.

There was general acceptance at the public hearing by witnesses, and by the Board members themselves, that colour television will come to Canada and be welcomed by all interested parties, including the viewers. However, because of the great costs involved, and the absence of appreciable public demand, neither the C.B.C. nor CTV networks wanted the introduction of colour now. Despite the fact that colour programs from the U.S. could be seen in about one million Canadian homes now, only an estimated 4,500 colour sets are in use



in Canada today. That is the size of public demand, partly due to the high cost of TV colour sets. The cheapest price in Canada today is about $750 per set. Even in the U.S., where sets are cheaper, there are only a million or slightly more Colour TV sets in use, against 54, 000,000 black and whites sets, and only NBC of the three U.S. networks, is doing an extensive amount of colour programming.

The Board looks forward to the time when colour may be introduced to Canadian TV but it wants the time and cost factors to be favourable to reasonable success. It is the feeling of the Board that no colour should be introduced at this time, but the B.B.G. will keep an extremely close watch on the situation and act quickly if and when conditions are right."

PRODELIN ANNOUNCES NEW WEST COAST FACILITY

San Carlos, California is the location selected by Prodelin, Inc., designer and manufacturer of antennas and transmission line systems, for a new facility designed to better serve it's customers in the Western half of the United States.

Opened to business Feb. 4, this new plant will provide marketing and manufacturing services to the thirteen western states, including Alaska and Hawaii.

V. L. "Lee" Tennant, Jr., has been named General Manager of the Prodelin, Inc. newly created Pacific Division. Mr. Tennant brings to the position, three years of experience with Prodelin. He has formerly held the positions of Sales Engineer, and Regional Sales Manager in the Midwest, and just prior to being named to this position, was Manager — Government and Industrial Sales at headquarters in Hightown.

Mr. Tennant has named Mr. Robert Boydston to the position of Regional Application Engineer with headquarters at Newport Beach, Calif. Mr. Boydston will continue to serve his customers in the Southern half of the Pacific Division, according to Mr. Tennant.

Also announced, was the appointment of Mr. Charles Hiatt as Regional Application Engineer with headquarters at the new San Carlos office. Mr. Hiatt, formerly with Maydwell & Hartzell, has represented Prodelin products for 14 years. In his new position, he will continue to serve his customers in the Northern half of the Pacific Division.

The new plant is located at 901 American Street, in San Carlos, California. The telephone number is 593-8277, Area Code 415.

The opening of this new facility replaces Prodelin's West Coast distributorship arrangement with Maydwell & Hartzell, Inc.

MARCH 1963
VOLUME 4 — NUMBER 3

TELEVISION HORIZONS

PUBLISHED MONTHLY BY HORIZONS PUBLICATIONS
Post Office Box 1557 • Oklahoma City 1, Oklahoma

EDITORIAL

". . . we, as suppliers serving both the CATV as well as the telephone industries, have watched with considerable interest the growth of both industries, but have continued to be amazed at the apparent disregard of the telephone industry for the existance of cable TV systems, except when joint pole agreements happen to enter their mutual spheres of operations.

While we had carefully listened for any signs of interest to be expressed by telephone people, particularly the independent telephone operators, at each of the conventions and regional meetings that we attended, it was not until the last year or so that discussions pertaining to ETV and CATV hit the agenda of those telephone meetings where we were present. And whenever some article concerning television made the prints in the several industry publications, it seemed that they invariably omitted even the slightest mention of CATV as though it were either too insignificant to be worthy of recognition or on the other hand, something too delicate to put into the prints.

Those of us who take an active part in CATV know only too well of the great interest expressed in ETV. Yet, if you read this attached article, published in the January 19th issue of Telephony (an outstanding publication serving the telephone industry in the United States), it can only lead you to a conclusion that there are no doubt many people who still are of the opinion that the Bell System is the only basic means of communication in this country and that no one else is doing anything of consequence in the communication field.

It indicates to us that there is a great opportunity to educate vast multitudes of our population, many of them occupying important jobs politically, in commerce and industry, and perhaps as important as any, in science and education.

I always enjoy noting these various articles with a great deal of mixed emotion since our own personal and business activities are not directly affected by them. It would be interesting to note the reactions of people and groups who are strongly affected by these comments."

Jack Pruzan
Jack Pruzan Company
1963 First Avenue South
Seattle 4, Washington

Dear Jack:

We feel the same way you do. I wonder how many other people in the CATV industry have taken note of this?

The Editor

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DEPARTMENTS

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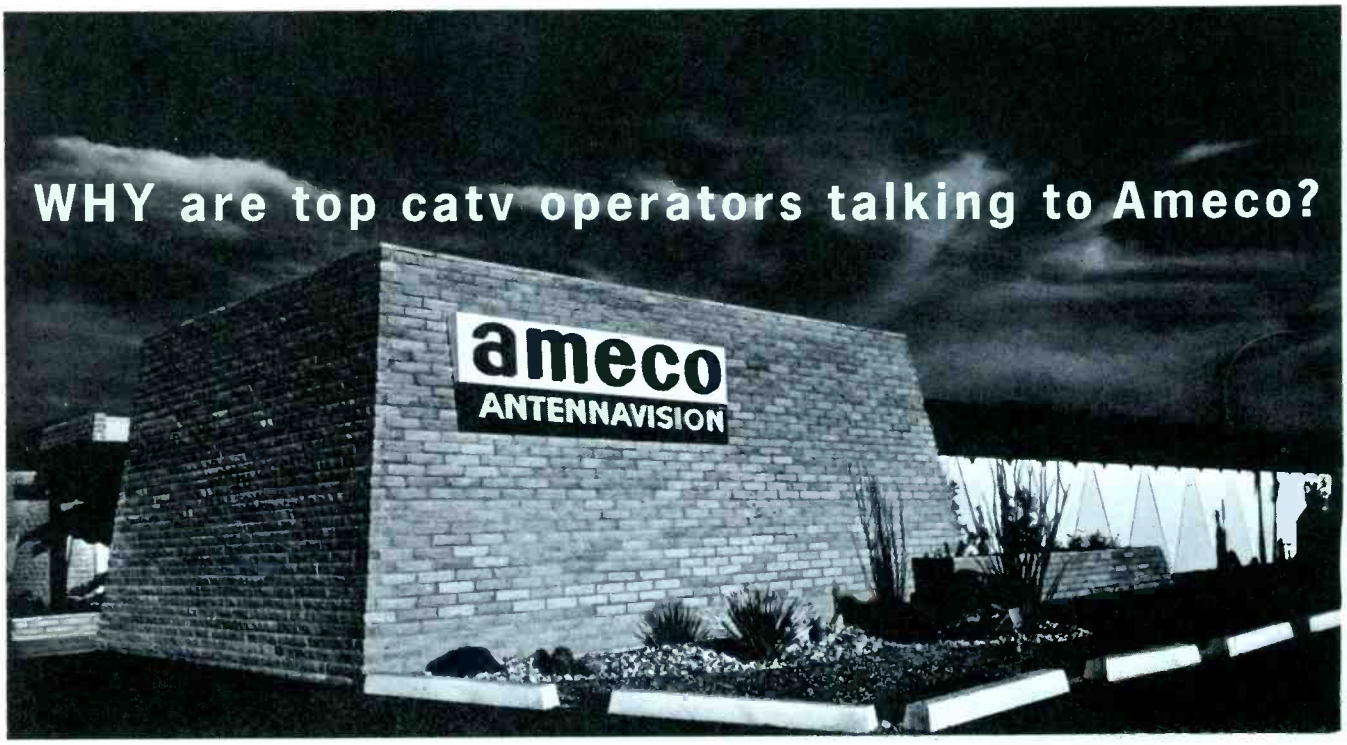

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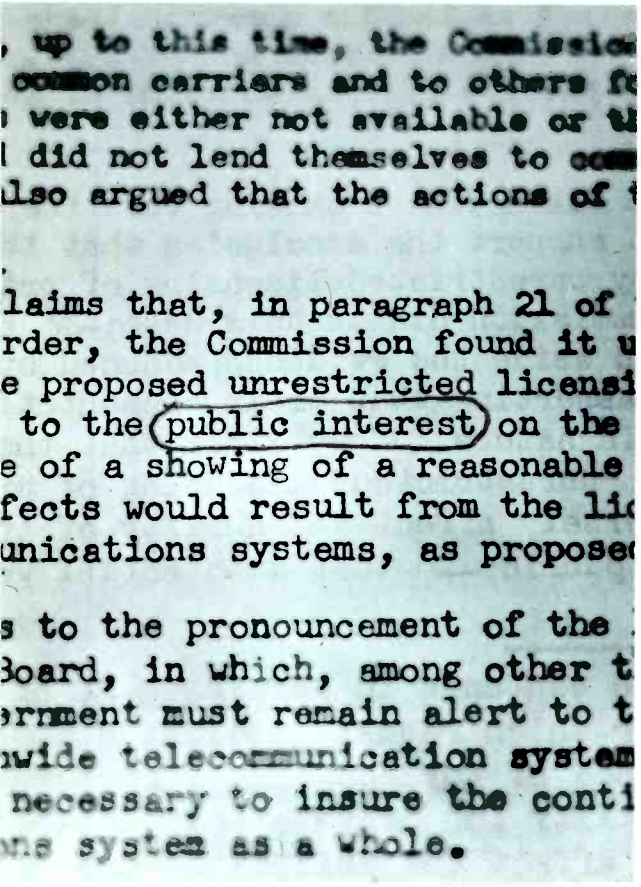

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IN THE PUBLIC

by Charles Wigutow
TVH Contributing Editor

Most everyone in the broadcasting and allied fields today knows exactly what the implications are, of the term public interest. This rather well known term has been used time and time again by the Federal Communications Commission in a majority of their actions and dockets.

It isn't by chance that the Federal Communications Commission came by this terminology, it was based on pure necessity.

To understand the necessity for maintaining all of the Federal Communications Commission actions on the basis of public interest, one would have to go back a number of years, in fact, back to the time when the air waves were originally opened to the broadcasters. Frankly, the air waves at that time were given up to utter confusion. Back in these very early days the stations went so far as to sit on each others frequencies or they shifted frequency and power at will for competitive advantage. The very obvious result of these actions was a very jumbled series of electronic squeals and howls emerging from the listener's speakers. The most natural thing then was for the listeners to completely turn away from radio, which quite a large number did.

The department that was charged with the responsibility of overseeing radio at that time was the Department of Commerce.

As a result of the early day broadcaster's tactics this regulatory body decided it would be best to throw in the sponge. Shortly thereafter, both political leaders and responsible broadcasters asked for legislation that would provide enough control over the medium to allow it to progress and grow in an orderly manner. The outcome of this was the formation of the Federal Radio Commission and subsequently it came into being in 1927.

Here again was the same problem that now faces our modern day broadcasters, that is there simply was a limited range of available frequencies and all the applicants for commercial station licenses could not be accommodated. This made it a necessity that the Federal Radio Commission set up a series of standards that could be used as a guideline for judging the merits of those who were competing for a frequency assignment. This left the Commission to ask itself what would happen when would-be broadcasters were equally technically competent and financially responsible. How then does one make the decision without being charged with favoritism.

"The history of the community antenna industry reveals the development of an entirely new industry in the best American tradition. In the very early days of television only very limited service was available in metropolitan areas and virtually no service in rural areas and small cities and towns more than 50 miles from the few major metropolitan areas. The Federal Communications Commission had imposed a so-called "freeze" on the licensing of television stations because of technical problems. This freeze lasted for several years and would have restricted the benefits of this dramatic new medium of mass communications to a few privileged urban areas were it not for the ingenuity of the small American businessman and the insistent demand by the public for the pleasure and educational benefits of television throughout the hinterland."*

*(Excerpt from an address by the Honorable Oren Harris, chairman, Interstate and Foreign Commerce Committee of the House of Representatives of the United States, at the Shoreham Hotel, Washington, D. C., on June 19, 1962, to the National Community Television Association, VIP luncheon, 11th annual convention.)

INTEREST

It followed then that if the public had an interest in keeping the air from being fouled by uncontrollable interference it also had the additional right to judge which of the competitors offered the best use of a radio outlet in the interest of the public. As the year 1934 rolled around the Federal Communications Commission was formed and grew out of the seven-year old Federal Radio Commission. The new FCC then followed many of the policies established by the Federal Radio Commission. It was charged with making electronic communications available to as many people as possible. It had powers to set up engineering yardsticks; it could prescribe the qualifications required of ownership and operation; it had disciplinary powers; and could grant or revoke licenses. All of this was given to the Federal Communications Commission by Congress and in detailing these responibilities and duties to the FCC the expression that broadcasting conformed to the public interest, convenience and necessity came to be a by-word.

In the same year of 1934 the National Association of Broadcasters said before the House Interstate Commission that it was the manifest duty of the licensing authority " . . . to determine whether or not the applicant is rendering or can render an adequate public service." The NAB went even further in this same statement by saying that such service should include among other programs, those that would be devoted to educational, religious "similar activities concerned with human betterment." The act which brought the FCC into being left program content in the hands of the broadcasters. It was felt that to do otherwise would be treading on the dangerous ground of censorship and possible violation of the First Amendment, right to free speech.

To understand the basis of public interest, one must have an understanding of the principles underlying democracy. The most fundamental of these is freedom of access to all sources of information. The voting citizen requires a free flow of information so he can make intelligent decisions on candidates and issues. The experiment we know as democracy operates successfully on a twin set of freedoms, the right of unhindered learning and the right to expression. This is the meaning of the First Amendment and undoubtedly the guide applied by the Federal Communications Commission in its decisions on public interest.

By sheer technical advantage residents of the larger cities would seem to be favored in the availability of information because of the greater variety of news sources such as more broadcasting stations, more newspapers, and publications in general. The fact that these facilities existed in abundance in the large cities and did not in the smaller cities was, of course, nobody's fault since the larger cities afforded more economic support for, consequently, more operations of this type. A lot of the smaller towns, although not afforded the information sources on a large scale, did however have generally a single paper of their own whether it be a daily or a weekly and an AM broadcasting station although some of the very small towns were not afforded this luxury. In the smaller communities it stands to reason that if it were not for the spread of the metropolitan newspapers and the magazines into the more distant and remote locations public expression in most cases would have been limited to a single publisher's voice. No judgment is intended of how good or bad this voice might be. Rather, the question that should be asked is, has there been a presentation of competing viewpoints? Is the local outlook in perspective to national needs?

In this modern age the place of television in the home has given important meaning to these questions. Ninety-percent of all the dwelling units in the United States are now equipped with television. The average viewing time is five to six hours a day. No one can argue the fact that the American people, by and large, depend upon the television receiver for a good portion of their entertainment, information, and news. With the increasing attention being accorded documentaries, social, and political matters, television is now occupying a more significant place. However, for all our modern conveniences and trends the many-fold advantage of television is still not being afforded many of the very small communities. This is where the community antenna television systems have played a very important rôle.

Where the community antenna television system has gone into a TV-less community they have been responsible in many instances for changing the balance in favor of many small communities over metropolitan areas. Towns with populations less than 10,000 or 20,000 receive now as many television programs as cities with millions of residents such as in New York or Los Angeles. Philadelphia, for example, with a population of two-and-one-half million people at this writing has only three stations. Literally hundreds of community systems in much less populated places make four, five, and more stations available. This factor is certainly a boon to any small community and contributes much to community development.

For the small community the full variety of network programming plus the nearby local television outlet are usually on tap for the subscribers to the community antenna television system. Here, the monopoly of opinion if it ever existed, has been completely outmoded by the techniques of community systems. The advantages of multi-channel television are very real in the small community because it allows all of the country to come into any living room and thusly keep alive an awareness of one's own community as belonging to the greater community of the United States.

Isn't that in the public interest?

"A franchise is usually levied as a means to insure the proper operation or continuance of services for the public good."

The Franchise Problem

—John H. Westman,
Oklahoma City, Oklahoma—

The word franchise, as generally depicted in accepted dictionaries, denotes a particular right granted by legally constituted bodies to an individual or groups of individuals engaged in commercial enterprise. The word itself is far from new and its applied meaning has been a functional part of city life for many decades. However, a franchise is usually granted only in specific cases where public property is involved and a need exists for some measure of protection to hold a city harmless from damage claims resulting from violations of good engineering practices, malicious damage, and accidental damage.

All of the foregoing is certainly an idealistic description of the word franchise and how it applies. Where community antenna television systems are concerned, the franchise is a relatively new thing. Where CATV operators have been operating for some period of time, or where a new system is contemplated, the introduction of a franchise has usually come as a result of the urging of parties who for perhaps some civic minded reason have decided that the city should be afforded a measure of protection. In all rights, this is certainly a commendable point of view but in some cases the granting of a franchise has been on a basis of harassment rather than on a basis of interest in protecting a city.

Now, sometimes the harassment is a result of personal misunderstandings but the more general case usually involves parties or elements whose sole interest is to gain control of the involved CATV system. It need not be said that the parties usually are those who could beneficially profit from gaining some form of local control over a local CATV system.

In some cases the attempts to impose a franchise upon a CATV operation has been prompted by local broadcasters who fear that the CATV system may be affording them unfair competition, a point which to date has not been proved in courts of law. Sometimes these elements seeking local legislation have been traced back to radio broadcasters who fear that a system may somewhat infringe upon their type of operation, another point which has never been substantiated in courts of law. One of the most common cases is where a new CATV system or proposed CATV system, seeking a franchise in a specific community, has been thwarted by the local theatre owners that fear the advent of television in their area would detract considerably from their theatre business. There is certainly no need to deny the impact that television has on local theatre operation but this was something that the theatre owners faced when the television broadcasting stations came into areas throughout the United States. At that time the city councils had absolutely no say-so as to whether or not a television station had the right to locate in a particular community. Consequently, the theatre owners had no local recourse to stop the television station from going on-the-air in their specific community but with community antenna television systems the local theatre owners have looked toward the city councils for relief, believing in part that the CATV system was something that should be regulated by the local government since it depended upon the use of coaxial cables that had to be installed on poles throughout the city.

One very recent case points out the influence that the theatre owners have in some communities. This case was one where the theatre owner also occupied a high position in the community. A part of the reason was, of course, the interest that person had in his own theatre enterprise plus the fact that there was some personal animosity. Nevertheless, the city council was persuaded that a franchise was necessary on the basis that the city needed some protection in case of accident and were not assured that the CATV system operators had sufficient insurance or any at all. Further, the city council justified their thinking on the basis of a letter that was received from the Attorney General of the state involved.

This particular case was one where the CATV system was not a new or proposed system but an existing system. In fact, the system had been in service and operational for over ten years and had paid license and tax fees as any other business. In the early days of this system's operation, the community was so elated at having this type of service that no license or tax fees were charged at all. The city council, however, decided that the CATV operator should obtain a franchise and assure the city that he was conducting his business in a safe manner and had the necessary insurance, at least this was the impression gained from a member of the city council.

As to the particular system itself, the system had not in the past exhibited that it was not capable of safely providing its service without causing malicious damage or accidental damage or continuing with good engineering practices. The system in fact

had carried a great number of community announcements, several civil defense programs, local entertainment, and an emergency warning system which was well designed and set up on a 24 hour basis so that the public could be notified of any impending emergency. Several well-spaced remote control units made this type of operation feasible. But, let's look a bit at what this CATV system had done as a matter of fulfilling its function in protecting the community from damage or damage claims. The system itself had a $500,000 insurance policy with a hold-harmless clause protecting the city and the people who owned the poles. In past performance the CATV system had, over a 10 year period, never been involved in a major accident and only two minor accidents had occurred involving a service truck.

Just what the city council had in mind was certainly confusing since in their franchise proposal they had asked or planned on reducing the rates by a substantial amount, an amount which made the difference between keeping the system up-to-date and efficient and one that was just eeking by. In essence this part of the franchise gave the city a means or precedence to control the rates. Their basis for the rate reduction was not known since they had not at any time investigated the local CATV company to find out what the rate schedules were or why they were based on the figures currently in use nor did they consult anybody else who could give them an expert opinion as to what types of cable, what kind of insulation and the other aspects. This specific city council had apparently received some advice from unqualified individuals and imposed such things as asking that the cables be maintained at a 20 foot height and also that the cables would have to be more heavily insulated where they went under high voltage cables of the power company.

The result of the action by the city council caused concern throughout the community. It also caused the local CATV people to seek an injunction from the courts in order to protect their rights. As soon as the city council had learned of the injunction they took a vote on the matter and elected to fight the case in court. The fact that the council voted on a 3-3 basis, 3 council members for and 3 opposed, was interesting but more interesting was the fact that the local mayor untied the deadlock so that the city had to fight the case in court. This is but one instance in many that CATV operators have faced where cities have imposed franchises especially upon the operators of already existing systems.

Another problem that has arisen recently has been one where a new proposed system seeking a franchise in a city became the victim of misinformation. The source of this misinformation was traced to the city retail and wholesale merchants dealing in the sale and service of TV receivers and parts. They objected strongly to having a CATV system in the community, enough so that information was forwarded to the city council saying that the community system would be hanging unsightly cables and that the way progress was being made in the electronics field the transmission of signals over coaxial cable was apparently becoming obsolete. Here surely the reference must have been to the Laser which right now is tremendously expensive and in the foreseeable future will never be very cheap. Another fact is that intervening objects in the way (buildings, etc.) offer somewhat of a problem in propagating the light beams from the Laser. But, there are so many technical ramifications in the use of Lasers this certainly could not be the so-called device that will obsolete coaxial cable. And the story can actually go on-and-on with the trials and tribulations of the many CATV operators who have been caught in the middle of franchise battles.

Actually, the franchise concept is being exercised more for the protection of people than the apparent protection of the city. The right of city governments to regulate in any form, the operation and rates, or set forth technical qualifications for a CATV system are totally without justification since the city does not have the right to regulate this type of operation, other than to save the city harmless from damage.

Most always in situations where a franchise has been opposed by CATV operators there have been some complicated circumstances involved and little relief other than going through the courts which seems to be the most logical solution, certainly not the most desirable. A few times, the prompt submission of documentary material to members of the city council has served to persuade the members of the council that a franchise is not a desirable nor entirely legal thing where the city council it attempting to regulate any phase of the CATV systems operation. In many of these cases, it is probably a good thing or the best thing to contact the NCTA for the proper advice on the way to proceed.

Generally, to date most franchise arrangements have been equitable and designed along lines only to protect the city from damages and in those few cases where restrictions on the operation or control of the operation of a CATV system has been imposed, this has generally gone to the courts to be decided in a proper manner and the success of the court cases in favor of the CATV operators has been encouraging. One very clear decision came on June 4, 1959 when the U. S. District Court, District of Minnesota, First Division, enjoined a city in Minnesota from attempting to impose a non-duplication agreement upon a CATV system.

Another favorable point is the fact that a community antenna television system has been ruled as a private business. This is sometime a helpful point in discussing a franchise matter with any representative of a city. It has been noted in the past that some communities have the thought or idea that CATV systems are a public utility and this has been clearly defined by a number of court actions which have ruled that the community antenna television system is a private business much as the broadcast stations, theatres and newspapers are and do not fall in the public utilities category in the legal sense.

However, if you should run into any problems in securing a franchise, a reasonable franchise, most always these situations have been worked out. In cases where restrictions have been imposed upon a CATV system a number of operators have chosen to take the matter to the courts and have been highly successful in obtaining injunctions against the cities involved. The latter method, of course, is not the most preferred since a reconciliation or agreement or understanding with the city council would serve by far to be the least time consuming and least costly. It is quite true that the idea of franchises is probably not compatible to some CATV operators but by the same token bear in mind that cities must be held harmless when and if any city property is being used, as a natural protection to the taxpayer which involves everybody.

"I'm going to wait

—Russ Miller, Managing Editor, Television Horizons—

In the year of 1954, television took a sudden technological upswing. This was due, as most may recall, to the introduction of color techniques, mostly via network. Not all of the stations at that time took advantage of color, some for financial reasons and some felt that it would perhaps be best to sit back and wait a while to see how color would spread.

Now in 1963, color is becoming more popular but it is still only in its infancy. Most of the commercial television stations in the larger markets are employing network color and using color film cameras. Some of the very large facilities in dense population areas are even using color studio cameras but color has not spread in the manner that most hoped it would. Why? This is certainly an often asked question and the answers have come from a variety of sources, including the networks using color and those that are not.

The consumer is, of course, the only infallible judge as to whether a product will or will not succeed. In the case of color, the buyer of luxury products seems to have leaned more towards purchasing a family boat, a new home, and other desirable merchandise except for color television. Many a survey has been conducted in an earnest effort to determine just exactly why. Here, some of the answers have been quite straightforward and to the point. "I don't think it is perfected yet;" "It's way too expensive and we will wait until mass production brings the price down," "I saw one at ..... Television Company and the programs frankly are not worth the cost;" "We had an awful lot of trouble with the standard set we have now and I don't think I could afford the upkeep on a color television receiver." Varied answers, aren't they? These are all typical of the public's current feeling toward color.

Where does the ultimate answer lie that will cause a severe reversal of the consumers' opinion? Probably the answer is complicated enough that it will take only time and the cooperation of all those who are deeply involved in the color television field.

Right at this stage of color television, there are few receivers in each community. However, there are enough that anyone engaged in the community antenna television field has from time to time heard from owners of the sets. Perhaps the inquiries were devoted to asking when a certain station or two would be added to the system or on the other hand perhaps the inquiry was in regard to color problems.

Looking at color problems can give one room for considerable head-scratching. First off, there is always the thought that the broadcaster might be at fault. This could always be a possibility since the

Heart of the transmission process is this unit, the Colorplexer.

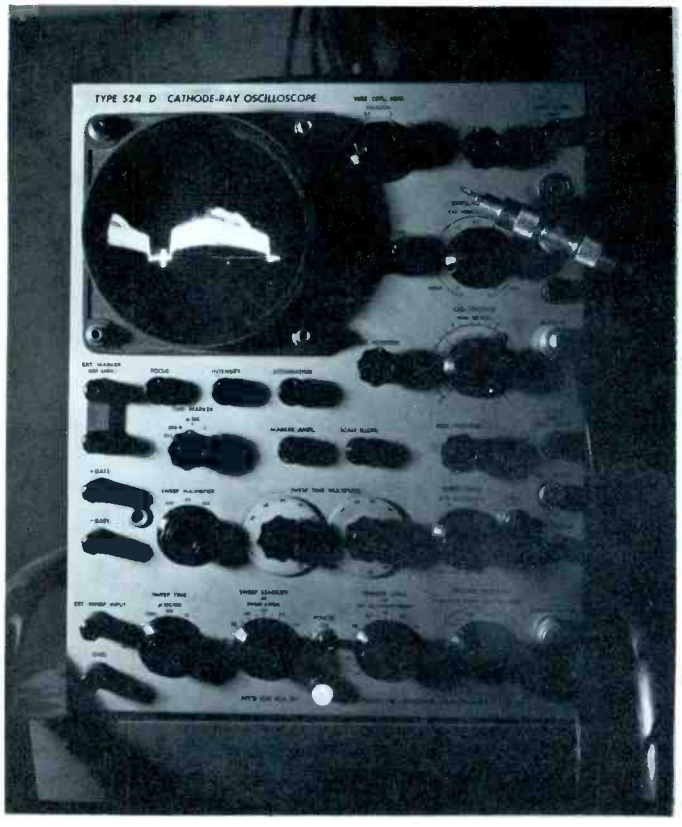
color process is thought to be highly complex and requiring a maze of equipment. This is partly true inasmuch as the color process is complex but does not require as overwhelming an array of equipment as imagined. But, when the head of the engineering staff of a well-known television station was asked about the transmission problems involved in getting color signal to the consumer, his answer was this: "Fortunately, color equipment is highly reliable as far as components are concerned, the only difference between color operation as far as the operation of the television station is concerned technically, is you need to take more pains with your color equipment. Everything needs to be more precise than in black-and-white."

He then went on to explain that in everyday operation of color equipment, little trouble, if any is experienced. This explanation is certainly quite true and the same one a number of broadcasters have related. As far as the television stations are concerned, color transmission offers no problems other than increasing the amount of care and attention that is necessary to insure uninterrupted operation.

The base theory of color television is at best very difficult to relate to anyone but an out-and-out engineer. Suffice to say, that the composite video resembles any ordinary black-and-white signal **except** for the addition of a sub-carrier. This sub-

until it's perfected"

carrier is referred to as the color burst and has a mean center frequency of 3.58 Mc. The commercial television stations all use what is commonly referred to as a Colorplexer. In this equipment the color sub-carrier is modulated with the color components from the cameras, either live or film. Modulation of the sub-carrier is a two-fold accomplishment. It is modulated in phase, which determines the color hue, and it is modulated in amplitude which governs the depth or intensity of the color. This sub-carrier is then carried on and impressed upon the video through interlace, and becomes a part of the monochrome signal. Another component is also added at this time, this is the color syncronizing burst which triggers the color receiver.



Oscilloscope presentation of video waveform showing color burst on most negative going portion of display.

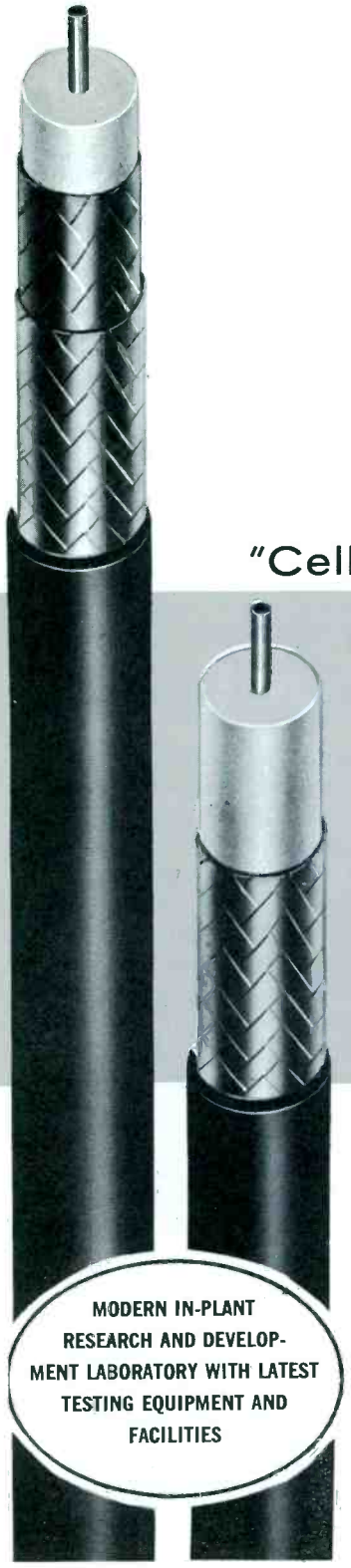
It would seem that color telecasting is a standard process nowadays and its intricacies and problems are only minimal. What happens, though, when a color signal leaves the transmitting antenna? At short ranges almost no difficulty is encountered as long as the receiving antenna is within the line-of-sight of the transmitting antenna. However, the receiving antenna must be more carefully oriented than in black-and-white reception. This is necessary so that the arrival of the electromagnetic signal will be in such a phase relationship that the burst cannot be canceled out by reflections. At distance, the problem of color reception is just that, a problem. The reasons behind this are sound and involve the old ghost producing factor, namely multi-path reception. Where with black-and-white a ghosting effect produces only picture distortion or smear, the color burst is on the other hand attenuated by phase cancellation which in turn can cause red to disappear and perhaps green substituted. This is most recognizably an intolerable situation as far as the television viewer is concerned and most assuredly would cause or incur the wrath of the viewer. The signal level is also a very important factor at distance since the color sets are more susceptable to noise impulses, for instance ignition noise. If sufficiently strong signals are not available and any noise of a random nature is present, the effect upon the colors themselves is rather distracting. The actual effect upon the circuits in the color receiver is one that will cause the appearance of random flashes of color.

Several very important considerations are necessary whenever color signals are carried over a community antenna television system. First of all, the system must be well-maintained. This goes back in part to the same problems that a television broadcasting station must face. However, the cable system has different problems than the broadcaster. Such things as the cable tilt have effect upon the color signal and other things like bad matches or poor isolation contribute to overall degradation of the color signals. More overall care of cable and equipment is absolutely necessary to maintain the color quality to the same reference as the transmitting station does.

As long as a good signal is available to a CATV system there is no reason why a color signal cannot be carried if a number of precautions are observed. Reflections anywhere on the cable are accumulative as far as phase distortion of the color components is concerned. If the proper matches are made to various pieces of equipment, depending upon how the system is laid out, this will go a long ways toward the proper transmission of the signals. Compensation for the cable tilt is something that must be watched and corrected. By modern techniques there are a number of ways in which this can be accomplished.

Continued on Page 16

COAXIAL CABLES



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OUR MAN IN EUROPE

GORDON J. KING
Assoc. Brit. I.R.E.
Brixham, Devon, England

My past reports have considered systems and techniques which are pretty well fully established here in Great Britain. These represent a diversity of design and application, and from the waves and ripples that these past systems have created emerges a somewhat more consistent pattern for European CATV systems of the future.

In spite of the fact that there are still two basic types of system — multiwire and coaxial — the new system trend is undoubtedly towards coaxial cable. This must not be taken to indicate that multiwire relay is falling by the wayside. Indeed, this sort of relay is still very much alive, and although it may not be spreading as swiftly as its coaxial competitor it is, nevertheless, fundamentally more powerful than coaxial — area for area — once it is installed.

It may be wrong to consider coaxial relay as a competitor of multiwire, for the former provides a signal only to those viewers who cannot obtain one direct from a domestic aerial owing to shielding or interference (or lack of local station), while the latter gives a complete viewing service—that is, the signal and the set.

As an investment, therefore, multiwire relay complete with set represents a far better bet than a signal-only coaxial system. Big investors have in the past sunk large chunks of capital into coaxial systems and have watched to their horror their capital rapidly diminish, as the value of their system, when the area which was formerly almost completely without signal became "illuminated" by local BBC and ITA booster stations.

Coaxial-only investors have virtually nothing by which to hold their customers under such a state of affairs, while multiwire operators, on the other hand, can at least continue to provide their customers with a viewing service (which includes the cost of the signal and its distribution) for a cost which is usually more favourable than renting or purchasing an off-air receiver and aerial system. The multiwire boys are thus able to hold their customers despite any change in signal conditions.

It has been estimated that the margin in favour of a multiwire television system is in the order of 50 dollars per receiving unit complete as related to an off-air unit working from three domestic aerials. It is further estimated that the margin will rise in favour of multiwire to 84 dollars when the UHF system is fully launched in Great Britain (the first stage of this development is scheduled for 1964).

So far as coaxial is concerned, of course, the only difference between the cost of an off-air system as domestically installed and the relay lies in the signal. This must be taken over a period of about five years and on the one hand must include the initial plus maintenance costs of the aerials and on the other hand the installation charge and rental of the system. Usually, if a reasonable figure is given over to aerial maintenance the viewer gains just a little over the five years if connected to the system.

He should, however, gain far more in terms of programme choice, signal quality, freedom from interference and knowing that his house is not encumbered with a wind-catching and heavy aerial installation that would be likely to do untold damage in the event of it falling down.

Times are changing, though, for programme choice over here, anyway, is not so important to the veiwer as it used to be (he can get two or three programmes for free in most areas), local booster stations are being installed leaving only about 0.1 or something per cent of the populous in deep fringe where in past days coaxial CATV used to pay dividends since it used to extend to far more of the country, and because the signal field is now enhanced, domestic aerials are that much less complex than former days and the fear that may break up the house on being blown down by the wind requires somewhat more imagination than possessed by the average viewer.

MULTIWIRE SETS

Clear, then, is the reason for the swing of investors towards multiwire systems and tied sets. Multiwire sets need not be nearly so complicated as those for direct aerial use, as is forcibly revealed by the block diagram in Fig. 1. This, of course, is one of the reasons for the margins in favour of them given earlier.

The video signals are often carried at h.f. in the 5 to 10 Mc/s octave and are distributed over twin conductor circuits (a circuit for each programme). The arrangement for two programmes on the well known British Rediffusion system is shown in Fig. 2.

Known as the "tete beche" arrangement, it considerably reduces the effects of crossview due to coupling between two (or more) pairs of conductors in the cable system. The artifice holds back visible interference due to the signals of two adjacent circuits provided the crossview between the two programmes does not fall below a ratio of about 23dB.

The audio signals are sent out over the same cable pairs (Fig. 1) and are fed direct to the loudspeaker of the multiwire receiver via a matching transformer and level control, through low-pass filters which avoid attenuation of the video signals by the speaker

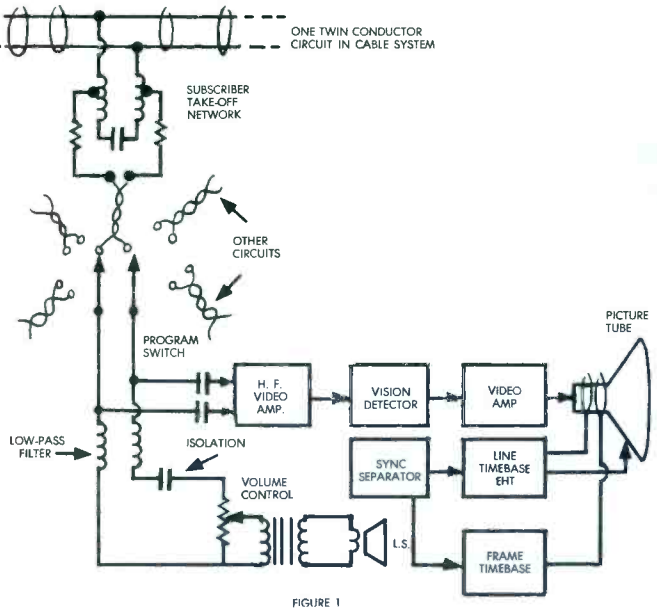

FIGURE 1

Block diagram of a multiwire receiver (basic Rediffusion), showing subscriber take-off network and audio feed to the loudspeaker.

circuits. The speakers used in the receivers are of greater sensitivity than those usually employed in "standard" receivers, and for that reason an input of about ¼-watt provides adequate "domestic" volume.

The trend in Great Britain is that organizations like Rediffusion are purchasing coaxial systems presumably later to convert to multiwire operation and tied sets.

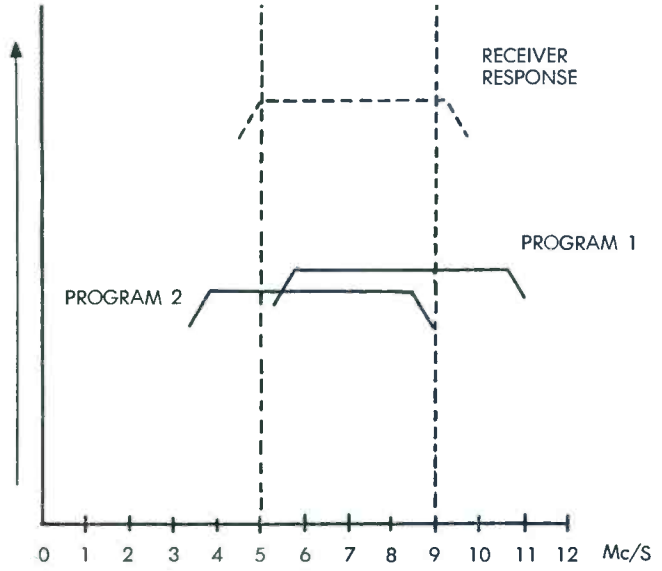

FIG. 2

This arrangement of programme distribution, called the tete beche arrangement,' relieves the problems of crossview between adjacent twin conductor circuits — see text.

THE COAXIAL TREND

Owing to the way that radio and television dealers and local Councils react to multiwire systems and tied sets, coaxial operators are currently in a better position to secure a large scale wiring franchise. Such operators, of course, are able to propagate the

fact that their systems are suitable for any type of receiver, that the choice of make and model remains with the viewer and that the dealer can trade in the normal way without fear of his business being attracted by the local multiwire relay and rental organization. This sort of propaganda goes down well with the powers that be, and in most cases "protection" is given to the local dealers, who may represent collectively large rate payers in the town.

We then read something like this: " . . . a group of television traders are seeking the support of the local Chamber of Commerce and Trade in a fight to prevent the Town Council permitting a system of wired television in the town of which the group strongly disapprove. The Council are being recommended by a committee to approve the inauguration of system "X" for the town, but the dealers say that another firm, using system "Y", would provide a superior system. They also fear that if the firm with system "X" is given the franchise the small dealers of the town would eventually be swallowed up, and that a near monopoly would be created . . . "

When the politics of relay reach this stage, the coaxial firm with system "Y" is usually granted a wiring concession. This, then, is another victory for coaxial relay. The money for the project is often obtained collectively from the dealers themselves who form a Traders' Association.

It must at this stage be recorded that certain multiwire organizations cooperate closely with local dealers in whose area they are operating a system. They allow dealers to trade in their special receivers — with normal discounts — and in some cases they also provide adaptors which allow ordinary off-air sets to be used on the multiwire network.

Nevertheless, in the existing state of the art coaxial relay is the favoured one. The solution, it seems to me, is for set manufacturers to get together and produce a receiver specifically for coaxial relay. The viewer economics of coaxial relay may then match up to those of the integrated multiwire systems and investors would be happier to promote coaxial relay in a big way.

Indeed, it seems as though this may be happening (very slowly) in Great Britain — as encouraged by the future UHF broadcasting — for several manufacturers have already proclaimed that their receivers can be used on coaxial relay circuits to receive the new 625-line CCIR programmes on unused VHF channels.

PAY-TV EXPERIMENTS GIVEN THE GREEN LIGHT

At the time of writing I have just received news that the Government — in a second White Paper on the future of broadcasting in the U-K — has given its approval for experiments with pay-TV on a controlled and limited scale. Full details are not available at this time, but many feel that wire will be the distribution medium as distinct from the ether owing to the lack of radio space and the difficulties which are already being experienced with co-channel interference.

If this comes to pass, then it will be most interesting to see whether coaxial or multiwire is the best suited for the transmissions which will have to be very carefully controlled technically. In my next report I will be able to provide greater details of this exciting new programme source which could really put television relay on the map in this country.

Continued from Page 11

Signal levels are also very important and should be maintained at fairly constant settings.

Those systems that do not have sufficient signal or those that lie in essentially mountainous terrain where reflections cannot be adequately combatted, should consider the use of microwave services. This is definitely an expensive way to improve color reception but generally an extra channel or two can be added to make it an overall desirable move.

Incidentally, the addition of a color station to a system is a good way to gain the support of local television dealers because you will afford them an aid that will help increase local sales of color sets. For the time being at least, the sale of color sets depends upon the persuasiveness of the dealers. Later on, the fact that several citizens in the community have operational color sets will determine to a great extent how well color television catches on. This will put you right in the middle of the growth process.

Up to now, most of the thoughts regarding color television have been based on ideal conditions. Unfortunately this is an idealistic point of view and not realistic. A common complaint that has been levied against color television has been **quality**, the very thing we are all concerned about. A good deal of the quality problem lies with the material, especially film. Where the networks are involved, by the time the color signals are carried over several thousand miles of coaxial cable and microwave, any material that is initially not the very best combined with the technical problems of carrying it great distances causes it to suffer sometimes and cannot be cleaned up adequately at the broadcasting end. The upshot of this is the fact that the blame may be laid in the wrong places. The consumer is normally a very critical judge and expects to see brilliant, true color. With the modern color set this is a disadvantage at the start since the colors are quite bright. In this aspect, the dealer has to be depended upon to explain the situation to the purchaser.

There are many, many systems now operating in the United States and Canada that are carrying color. This is something all systems should be capable of and will be expected by the subscribers. In almost all cases, the color quality is far better than can be obtained by an individual. However, color can and does represent more technical problems which in turn require more attention to the overall operation of a system.

This is the first of a series of articles that will be devoted to the technology of color television. In order to conduct as thorough an engineering study as possible, Television Horizons is asking that system operators in the Southwest advise us if they have systems that are now carrying color. It is our intent, to make a field trip to some of these systems in order to compile the necessary data for future articles.

---

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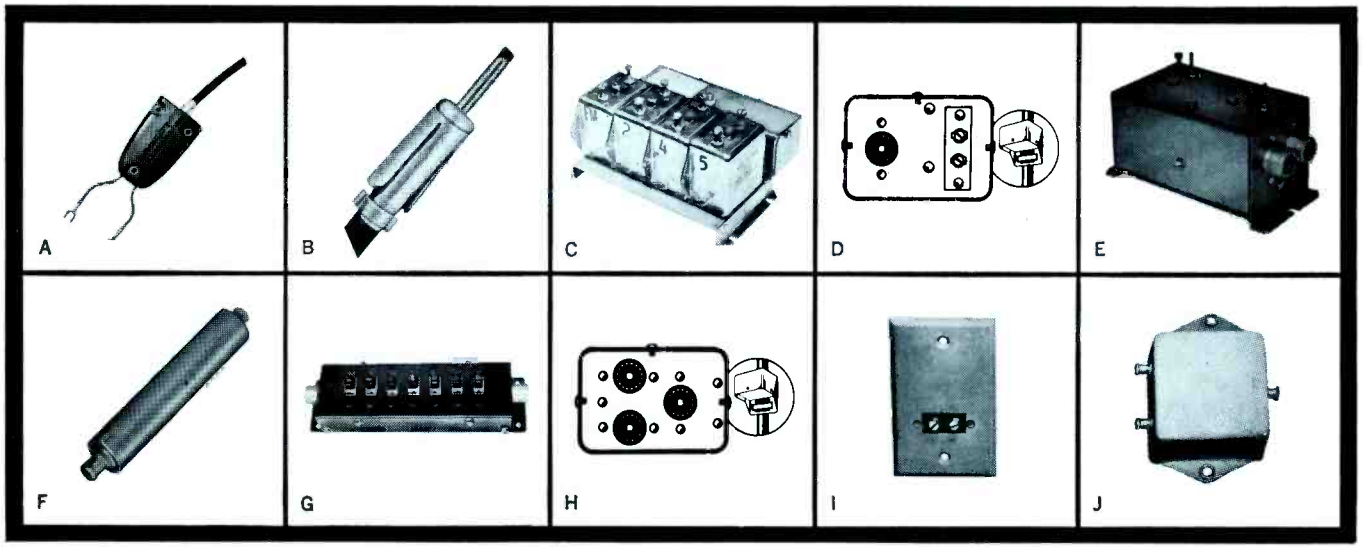

A. MATCHING TRANSFORMER, "CABLE MATCH" Save installation time. Save money with the lowest cost, quality matching transformer available. Provides exact match between 75 ohm coax and 300 ohm TV set input. Housed in high impact plastic to eliminate grounding problem with 'hot chassis' TV sets. Uses new Blonder-Tongue solderless AUTOPLUG for secure coax connection, easy disconnect. No more unbraiding coax, no more soldering. Heavy duty output leads with spade lugs for easy connection to TV set terminals.

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P-11S—Solderless UHF type male plug for RG-11/u cable
QDP—Solderless QD plug for RG-59/u
POU—Push-on UHF plug for RG-59/u
POB—Push-on Benconector plug for RG-59/u
M-73—Solderless Benconector plug for RG-59/u
M-71—Benconector plug for RG-11/u

C. FILTERED MIXERS/SPLITTERS, MODEL MX Versatile units can be used to combine TV/FM signals from several antennas; combine adjacent channels; split the signals from a broadband antenna or from a broadband amplifier and balance channel signal strength from a broadband antenna.

D. OUTDOOR BALUN, MODEL MB-b Outdoor, weather-protected balun matches 300 ohm and 75 ohm lines. Uses UHF type of SO-239 connectors for 75 ohm cable.

E. TUNABLE TRAPS, MODELS MWT-2 & MWT-3 With only these two traps, MATV installers can attenuate any undesired frequency in the entire VHF/FM band. No need to stock a great number of traps. MWT-2 covers 54-108 mc; MWT-3 covers 174-216 mc range. Further, the traps provide at least 60 db attenuation of any VHF/FM frequency with virtually no loss to desired frequencies. They can be tuned simply with an off-the-air signal and TV set for most applications. Type SO-239 connectors.

F. FIXED ATTENUATOR, MODEL FA Least expensive attenuator on market. Available with 3, 6, 10 or 20 db of attenuation. Should more attenuation be needed, it's easy enough to cascade FA's. Quick disconnect connectors make installation easy.

G. VARIABLE ATTENUATORS, MODELS SA-7 and SA-3 Model SA-7 is accurate enough for lab measurements. Installer can select any attenuation from 0 to 62 db in steps of 1 db. Can be used for all frequencies from 0 to 216 mc. The SA-7 can be temporarily connected into any portion of a MATV system to determine optimum attenuation at that point. The SA-3 is a 3 switch attenuator for any frequency from 0 to 216 mc. Selection of attenuation from 0 to 38 db is in these steps: 0, 6, 12, 18, 20, 26, 32 or 38 db.

H. OUTDOOR 2-WAY HYBRID SPLITTER/MIXER, MODEL MDC-2b High quality hybrid splitter/mixer. It can be used to split or combine any signals from 10 to 216 mc, making it suitable for sub-channel systems. Internal insertion loss is less than 0.3 db. Excellent back-match. UHF type SO-239 connectors. Weatherproof.

I. INDOOR FLUSH-MOUNTED TAPOFF, TF-731B A favorite with installers because it combines a matching transformer with a 17 db tapoff. Saves installation time—no soldering, no stripping, no unbraiding cable. 75 ohm bridged input for coax; patented stripless screws for 300 ohm output.

J. INDOOR MOUNTED SPLITTERS, TS-772 & TS-774 TS-772 (illustrated) low cost hybrid 2-way splitter can be used to split or combine RG-59/u cable. TS-774, inexpensive 4-way quasi-hybrid splitter.

These are just a few of more than hundreds of carefully engineered accessories that make TV installation more efficient and easier. For specifications or data sheets, write:

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NOTE:
This portion of Television Horizons is set aside for news of the industry as contributed by system planners and system managers. The convenient monthly reporting form, found on a perforated card in the back of TV Horizons this month, is designed to provide TVH with the data necessary to keep others informed of **your** activities during the past 30 days. Why not **make it a regular point** to fill in the card each month and drop it into the mail. There is no better way to promote industry cohesion than sharing your progress with others.

The Editor

SYSTEM NEWS

Arlington TV Co-op, Arlington, Oregon, reports that 20 new subscribers have been added to the system in the past 30 days. Ray E. Hurst, President, says they have a project underway to add 50 additional customers before long. Ray also stated that a total of $8000 in new equipment has just been purchased.

Shippen TV & Cable Company, 5 N. Fayette St., Shippensburg, Pennsylvania, is currently completing negotiations with Jerrold Electronics Corp., for a new 12-channel system according to Edgar Rosenburg.

Priv-O-Line TV Cable Company, Safford, Arizona has just installed some Ameco transistorized amplifiers, a new span of Viking cable and the first Channel Commander made by Jerrold. C. H. Haralson, owner of the system said they intend to add more new cable and more Channel Commanders within the next 30 days. The Safford system now has 420 subscribers with 18 new subscribers joining the system in the past month.

Laverne TV Cable Company, Laverne, Oklahoma is in the process of adding background music to the system. Presently the cable system is carrying devotionals at 9:30 each morning, Monday thru Friday. Dorsey Long, owner of the Laverne system is planning to add CCTV sometime in the future. An additional 20 subscribers have been connected to the system in the last 30 days.

Golden, British Columbia, Canada now has a total of 140 subscribers. The current system operates on low-band and uses Benco T-amps, CAP's; McCarter Antennas; Canada Wire coax. System potential is 280.

Cable TV Ltd., Montreal, Quebec, Canada, is now hooking up the major Montreal hotels. A new high level amplifier station using Delta and Benco equipment was just installed on the system. The staff has been increased also with the addition of an Installation Supervisor. The number of new subscribers hit the 400 mark in the past 30 days to bring the total number to 25,780. Current projects include increased closed-circuit programming.

Borill TV Cable Company, Borill, Idaho now has 110 subscribers and added one Blonder-Tongue MLA in the past month. Lloyd L. Hall, owner of the Borill system reported that two new subscribers have been added within the last 30-day period.

Pullman TV Cable Company, Pullman, Washington is currently replacing old trunk lines and will be working on the project for the next 30 days as weather permits. A total of 14 new subscribers have been added to bring the number of subscribers to 806.

TV Cable Company, Moscow, Idaho reports they are replacing old trunk lines as breaks in the winter weather will allow. Seven subscribers were connected in the last 30 days. System total is now 913.

Television Signal Service Company, Paducah, Texas is now using some new Delta pre-amps on Channels 3 and 6 also two new Jerrold amplifiers. V. L. Hutchison, manager, of the system reports that they have obtained a franchise in the City of Aspermont, Texas and plan to survey the city soon. Total number of subscribers in Paducah is now up to 418 with 11 of these being added in the last 30 days.

Television Signal Service Company, Matador, Texas just added four new all-band (B-T) line amplifiers and a new head-end for background music. Newest projects involve a complete change to all-band throughout and tests for FM reception. System now has 207 subscribers, 8 having just been added.

NEW TELEPROMPTER PLANT

Provision for future expansion to twice present size are included in plans for a new TelePrompTer Corporation plant at Cherry Hill, New Jersey, to house its Weathers Division and corporate manufacturing, engineering and technical operations.

In addition to the Weathers Division, engineering and service departments now located at 311 W. 43rd Street, New York City, will move to the new quarters early this year. The company will retain its Manhattan executive offices at 50 W. 44th Street.

Irving B. Kahn chairman and president of TelePrompTer Corporation, said the ultra-modern building, now under construction at the Cherry Hill Industrial Center adjacent to the Camden-Philadelphia Interchange on the New Jersey Turnpike, was necessitated by rapid growth of the Weathers Division since its acquisition last February.

In addition, Kahn said the company will be able to consolidate many of its manufacturing, engineering and technical functions and to place increased emphasis upon corporate engineering and research and development activities.

The new glass-and-yellow-brick building will have special provision for dust, humidity and temperature control to facilitate assembly of delicate hi-fi components and electronic equipment.

Kahn said that among projects that should be expedited by relocation of the corporate engineering department at Cherry Hill are its development of Key TV, a "participation" pay television system, and products based on a new magnetic tape handling method.

McMAHON JOINS PLASTOID

Kerwin McMahon, well known in CATV industry circles during recent years, has been appointed CATV sales representative for the Plastoid Corporation, 42-61 24th Street, Long Island City 1, New York. McMahon announced that he will be personally serving the needs of CATV systems, as well as providing the engineering facilities of Plastoid.

BILL PRICE JOINS HYDE ELECTRONICS AT PHOENIX

Hyde Electronics Co., Inc., manufacturers' representatives firm covering the Rocky Mountain states territory, announces the appointment of William F. Price to their Phoenix office in the Central Towers Building of that city.

Mr. Price has had formal training in electronics and sales, served with the U.S. Marines, and comes to Hyde Electronics from five years with Valley Electronics of Burbank, California, and two years with Bell Electronics at Phoenix, where he was manager. He will cover the Arizona and southern Nevada area for the Hyde organization.

Growing with a Great Industry

The CATV industry is now an established fact. The foresight, aggressiveness and leadership of the men who make up this dynamic new industry are responsible for its early maturity. We are greatful to them . . . to you! The rapid development of CATV has made possible the continuing growth of Daniels and Associates, as a part of this exciting business. In just five short years Daniels has handled over $32,000,000.00 in system sales — and become firmly established as the industry leader in the brokerage and system management field.

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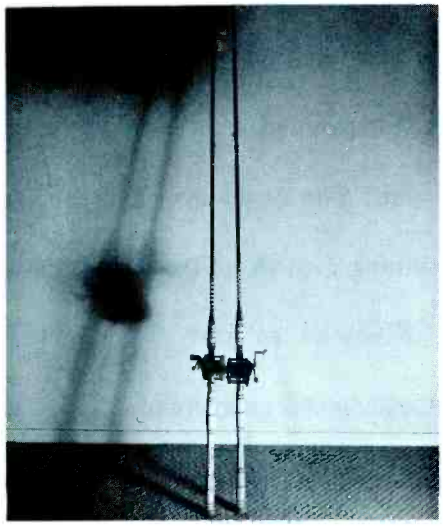
SYSTEM APPRAISALS — SYSTEM SALES — SYSTEM MANAGEMENT — NEGOTIATIONS

NCTA CONVENTION SLATED FOR JUNE

The 1963 NCTA convention is slated to be held in Seattle, Washington on June 7-14. For those who have not had the opportunity to see the fabulous Pacific Northwest, don't pass up this chance.

Also, don't pass up the opportunity to give voice to your feelings, opinions or ask the questions that are most pertinent to your operation. This years' NCTA convention should be one of the most important and contribute greatly to shaping our future.



Anyone interested? See you in Seattle.

Incidently, the Month of June is the start of the salmon fishing season and the beginning of the most beautiful part of the year for the Pacific Northwest. There is much to see and do including such things as fishing, sightseeing and lots of places to just relax. A trip to the base of huge Mount Rainier is well worth the time and effort and it is only a short drive from the heart of the City of Seattle. Going slightly South of the city will bring you to the Boeing Aircraft Company plants and a vast array of their products such as the 707, 727, B-52. If a short (5-minute) trip is made directly West of the city, you will encounter beautiful Puget Sound with all its ocean going vessels, automobile ferries and relaxing atmosphere. Also, in looking through the city itself, don't count too many calories since some of the finest eating establishments in the U.S. exist in the immediate vicinity.

Convinced that this will be a most enjoyable convention all-the-way around?

If you like them this small, you just won't find any. However, if you enjoy catching the larger variety be sure to take a fishing trip while you're at the NCTA convention in Seattle.

SCHEDULED CANADIAN HEARINGS FOR 1963

The Board of Broadcast Governors has revised the number of hearings to be held in 1963 from four to five in a recent announcement.

The following dates are set aside for public hearings:

March 26, 1963
June 4, 1963
August 27, 1963
October 22, 1963

All of the above hearings, for the remainder of this year, will be held in Ottawa.

RADIO CORPORATION OF AMERICA INTRODUCES NEW TUBE

A new Nuvistor, the 8058, has been added to RCA's line of Nuvistors. This new electron tube has an upper frequency rating to 1200 Mc making it highly applicable to UHF equipment. Several manufacturers are now using the tube in converters and preamplifiers operating in the VHF and UHF range.

MAN BITES HORSE!

This is quite a dramatic depiction of a news item. Though, by the same token it indicates that something has taken place. Without hearing about these happenings, can you think where we would be?

We would like to hear about your problems or elations, although, it won't be in the same dramatic manner as we've used above. More important, however, will be the interchange of ideas and methods for the future development of the industry. Drop us a line occasionally and let us know how you're doing or better still use the forms on the reverse side of this page.

Fill in one or both cards and mail to:

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Current project underway _____

Plans for the next 30 day period _____

_____

New equipment (Number & Type) _____

News of special interest _____

_____

ALL-CHANNEL TV RECEIVERS PROPOSAL NOW A REALITY

In a first Report and Order released by the Federal Communications Commission, it was reported that most all of the comments received favored adoption of the all-channel receiver rules. The Commission therefore concluded that the rules should be adopted in the form proposed.

Of the specific questions raised in the comments, Motorola requested an exemption from the all-channel requirements for receivers used in schools, hospitals, hotels, and similar institutions where the signal is supplied to receivers by a central antenna and distribution system.

"LATE NEWS"

The Board of Directors, NCTA, at its meeting February 14th in New Orleans, unanimously recommended and endorsed a proposal that NCTA seek federal legislation. A series of special regional meetings will be called immediately for discussion of the matter with the membership.

NEW BROADBAND ANTENNA BY TACO

A new antenna designed specifically to provide high definition color TV on all VHF channels has been introduced by TACO. The all-weather, broadband antenna, has been named the "Color Guard" (Model C-33) and is the first antenna of its kind directed to the color field which utilizes design formerly used only for the powerful reception needs of extreme fringe areas.

Of the many advantageous features, the "Color Guard" has extra rugged, in-line construction plus high mechanical strength, balance and stability. Additional element support is provided by folded dipole construction, with extra heavy phasing brace. The antenna array is manufactured from a chrome aluminum alloy and coated with TACO's new corrosion-proof, gold conductive coating.

OCTOBER 1962 SALES HIGHEST IN ENTRON HISTORY

Entron, Inc., of Silver Spring, Maryland, manufacturer of television systems and equipment, reports that October 1962 equipment sales were the highest for any month in the company's history, and represented a 48% increase over October 1961.

The increase in equipment sales is attributed to expanded field sales effort and growing interest and use of the Fastee, a new advanced tapoff, as well as Adaband, Entron's system which permits an increase in the number of channels that can be carried on community TV systems.

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1100S	9C	.525-F	.537		.632	NCP	0.77	1.3	148
1102D	9C	.525-F	.537	.548	.632	NCP	0.77	1.3	168
1104S	14C	.286-F	.297		.407	NCP	1.31	2.2	65
1106D	14C	.286-F	.297	.308	.407	NCP	1.31	2.2	74
1108S	12C	.375-F	.390		.460	NCP	1.01	1.6	90
1110D	12C	.375-F	.390	.401	.460	NCP	1.01	1.6	102

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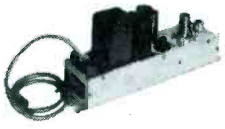
They have built SKL's solid reputation for top quality. They have proved that in *every* way, SKL is *first* in wide band systems.

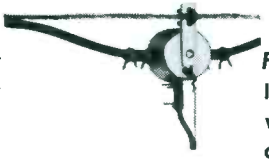
Just a Few of SKL's Wide Band "Firsts":

1950
First wide band distributed main line amplifier.



1952
First automatic level control unit for *wide band* systems.

1954
First Multivider line splitter for *wide band* use.



1956
First Chromatap line tap for *wide band* application.

1958
First wide band distributed feeder line amplifier.

1959
First "Thermatic" gain control for *wide band* systems.

1960
First "Thermatic" *wide band* line equalizer.

1961
First high gain thermally controlled wide band distributed amplifier.

. . . And in **1962,** the *first* automatic pilot controlled slope equalizer for wide band systems.

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