will separate the locals, their main reliance.

If the capacity of that small "antenna" permits r.f. from the power line to oscillate through the antenna coil, why not ground that wire to the huge earth capacity and let it *all* go through? There is no knowing how many people blew out fuses, burned out antenna coils, or worse, because they neglected to connect a condenser in that down lead. The chassis may be on the "hot" side of the line—it depends on which way the power plug is inserted. Nevertheless, the idea is a good one, with one simple precaution. Insert a .01 mfd. (one-hundredth microfarad) condenser in that ground lead. It should have a rating of at least 400 volts. There may be one already, in the chassis, but do not depend upon it. This ground connection is neither an antenna nor an ordinary ground wire, but more of a "down spout" inducing the power line to drain off its radio-frequency through "antenna" coil P. The line still is the real antenna, and the receiver is near the "high" end, but there will be much more current now and less voltage—a real improvement. Length of the down lead is not so important, but its pickup is undesirable, coming from the noise zone. It would be better to replace the original flexible wire with a shielded ground wire, grounding the shield also at the lower end.

The same arrangement can be used to enable a straight a.c. receiver to make the most of power line pickup. In these receivers, distinguishable by the power transformer, there is no direct connection of the line to either the chassis or any radio circuit, so the protective condenser can be omitted from the ground lead with safety. Applied to a *Kennedy 64-B*, 10-tube all-wave superheterodyne, all wave lengths from 14 to 540 meters were received with good volume, and no more *outside* interference than with a noise-reducing antenna that could not be entirely removed from the noise zone. Short waves included European and South American. A vacuum cleaner operating in an adjoining room caused severe interference on distant stations, but little on locals, which do not require high sensitivity. The remedy, or palliative, is a plug-in filter attached to each such appliance to prevent its electrical disturbances from spreading through the house wires.

Grounding the antenna post increases sensitivity, or rather input, but not selectivity. A tuned antenna circuit is the ideal, as it stifles most interference before it can enter the receiver, and vastly increases *current* at the desired frequency. A power line "antenna," broken up into sections by grounds and pole transformers, would resonate to several different frequencies at any setting of the large variable condenser ordinarily used for antenna tuning. Further complications would arise from the ever-changing load of inductance, such as motors,

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The VIDEO Reporter

by SAMUEL KAUFMAN

Hot Stuff!

TELEVISION has already reached the door-to-door selling stage in small towns and villages served by experimental video transmitters.

While on a week-end trip in upper New York State—about 100 miles from Manhattan—the Video Reporter had the opportunity of witnessing an attempted sale to the proprietor of a country hotel.

"You're way out of date if you don't have a television set this summer," the salesman said. "Your guests won't be content with ordinary radio programs any more."

"I'm not investing another cent in my place this year," the hotel owner said, hoping to cut the spiel short.

"But you can't get along without one," the salesman persisted. "Reception up here is excellent. It's a lot of bunk that the reception is limited to fifty miles from the city. Haven't you seen the demonstrations in town? And my set is even better than the line in town."

The salesman, it developed, hied to the country territory all the way from New York and didn't represent a local dealer. Rather, he was competing with the local stores which themselves were trying to push video sales in the area.

"I can give you a better break than any local dealer," he added. While he stressed the advantages of one particular line—and a secondary line at that—he implied that he could offer a better buy on any desired product.

He didn't carry any demonstration equipment but, instead, wanted to capitalize on any local demonstrations the prospect saw.

Here's a sales method that will have to be clamped down in all fairness to locality dealers. Footloose salesmen do more harm than good and can upset the more constructive sales efforts of local dealers. Door-to-door salesmen may have their place in television just as they have in vacuum cleaners and other home appliances. But the door-to-door fields should be left to local dealers. It's seemingly unfair for a New York City retailer to canvas prospects 100 miles away when there are local stores after the same buyers.

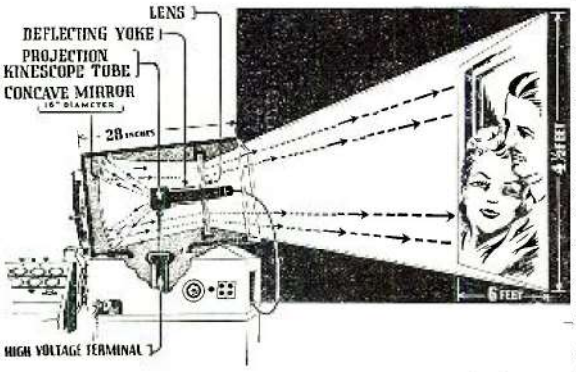
Long Distance Reception

AN encouraging side to the above incident is the proof that New York's video transmissions are being received so well over the 100-mile span.

Telecasters no longer emphasize the point that the coverage area for sight-and-sound transmissions is limited to fifty miles. As a matter of fact, they make little mention of any limits at all.

And one reason is that they don't really know the limits. Their past statements on coverage were constantly disproved—but always in favor of greater service areas than the ones they estimated.

Perhaps, it's best to be conservative on coverage claims at this stage of the new art. Manufacturers feel that a single set sold that won't receive telecasts efficiently can harm the sales prospects in an entire community. And it's for that reason that they insist the dealer handle the installation rather than let the buyer attempt setting the set up himself.



It's all done with mirrors, folks. The CR tube faces backwards, and the image is reflected through a lens to the large screen.

Telly Price Slash?

THERE is talk in New York of an added slash in television set prices to offset adverse publicity created by the FCC's refusal to sanction commercial telecasts.

The second cut will bring retail prices down to almost ordinary receiver levels. But just how dealers will approve of this move is another story; many of them are a bit fed up with the varying sales policies of television set makers and they will be especially concerned with a plan that may offset radio set sales without a subsequent replacement in desired television receiver sales.

The Road Back

TELEVISION is again a highlight at the New York World's Fair. Somehow, though, the demonstrations are not getting the enthusiastic word-of-mouth publicity that last year's demonstrations were accorded.

There are two suggested reasons for the lack of video enthusiasm. The more optimistic one is that television is no longer a novelty and is already in the progressive category of "an accepted thing." But the other reason—and one that cannot be ignored by the trade—is that the public is losing interest due to long delays in establishing satisfactory program services in various sections of the U.S.A.

Manufacturers are not kidding themselves about the fact that so many adverse things have happened to television in the past few months that it will take a considerable time to win back all of the video enthusiasts who have lost patience with the clashing views of manufacturers, not to mention the indecision of the FCC regarding the launching of commercial telecasts.

The 1940 World's Fair demonstrations closely parallel, the 1939 showings. This year there are three girls at the Fair sharing the title of "Miss Television." They are Patricia Fitzgerald, Starr Martin and Patricia Murray; the comely trio was selected

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Remotes

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realize and appreciate the advantages of Signal Tracing, he is either kidding himself or us.

The success of Signal Tracing varies directly with the operator's knowledge of radio, and the more a man knows, the more valuable Signal Tracing becomes.

On the other hand, the system (and we flatter it to call it a system), used by Mr. Bradley may be all right for him, but let us see him teach it to anyone else. By that we mean that Mr. Bradley's lone asset is his experience and you cannot teach experience. One must acquire it.

We think Mr. Rider will agree, and we know that Sam Milbourne, who writes for this magazine agrees, when we say that with the proper system, young radiomen with only a minimum of experience and a fair knowledge of radio theory can be made to repair radios more efficiently than a lot of the Bradley type. This is especially true when Signal Tracing is employed.

Taking up the time element, we find that Mr. Bradley admits that he uses a tube checker. Without a Signal Tracer the only way to check a tube is with a tube checker. Now Mr. Bradley complains about the time he saves that would otherwise be lost in Signal Tracing. If anyone familiar with Signal Tracing cannot go through a radio in less than half the time it will take Mr. Bradley to check a set of tubes, we will make him a present of all mis-matched ties we got for Christmas. And when he gets through with the Signal Tracing process he will know:

1. Condition of tubes.
2. Condition of alignment.
4. Sensitivity of set.
5. Quality of Signal at various stages.
6. And what circuit the trouble is in.

We don't mean to give the impression that a man using a Signal Tracer doesn't need a tube checker. Operating a radio shop without a tube checker is just like operating a filling station without free air and water.

Right here we must break down and hand Mr. Bradley a point on his suggestion of talking the "white elephant" jobs to a distributor or someone who *can* fix them. This is a smart move whether you are Signal Tracing or Hunting and Poking. We know several good radio men who make money by doing this. The only drawback is that about four-fifths of the nation's servicemen are located in towns far removed from anyone who *can* repair the job, and most of them have a reputation to uphold. If their customers learn that their sets were taken to someone else for repair, the customer will often say, "Well, why shouldn't I take it to this man myself in the first place." A customer usually brings a radio to a particular radioman because he thinks that this man is the best there is. He hates to be disillusioned.

Along this same line comes the argument of whether it is better to fix only what is keeping the radio from playing with a minimum of time, or to check and find all the weak parts in the set so as to bar as much future trouble as possible.

A man operating in a big city where he gets most of his work from advertising, might afford the first system. But, the man in the small town knows that his reputation is his fortune, and that even if he replaces only a quarter-watt resistor for which he charges $1.50, he has married that set and if anything happens to it within the next year it is his fault.

The man in the small town is more closely associated with his customers. If he buys a new piece of equipment his customers soon know it and it is good advertising for him. If new equipment doesn't make customer impression, there are a lot of filling stations, garages, doctors, and beauty shops badly fooled.

But Signal Tracing is not a cure-all for the radio service business. To the man who doesn't know the fundamental principles of a superhet, and our experience has taught us that at least two-thirds of the nation's radio fixers do not, we say, "If you buy a Signal Tracer, you are going to be disillusioned." The job of the Signal Tracer is to prove that a certain circuit is either doing or not doing what it is supposed to do. If the operator doesn't know what the circuit is supposed to do, he had better learn before he buys a Signal Tracer, or continue on his Hunt and Poke method.

In the meantime, to those who might be inspired by the words of wisdom of the "Tester," who admits that after 15 years he is still at the same old test-bench, we would like to say that radio servicing is where a man starts in this business and not where he ends up. . . .

(Sgd.) Harold Davis,
Radio Parts & Service,..
Jackson, Miss.

—30—

Video Reporter

(*Continued from page 25*)

by balloting all of the television audience.

FCC Gloom

THERE was a gloomy atmosphere at Radio City the day the FCC announced that commercial operation of television must await the establishment of more definite standards than engineers for competing firms can agree on at this time. One particularly somber note pointed out by an NBC press representative was that one New York newspaper published the story of the FCC's decision on the obituary page!

At the time these lines are being written, NBC declares that there is no intention "as yet" of shortening its already limited television schedule because of the disappointing FCC decision. However, programs are announced only a week ahead and it is likely that schedule alterations can be made on short notice. NBC and RCA have too much at stake in listener good will to withdraw the W2XBS schedule entirely.

In view of the adverse FCC action, continuance of the New York telecasting schedule is a distinct public service. To an extent, RCA is protecting pioneer set buyers by operation of the station on an experimental basis. But program costs are very high even for the skeleton service and how long it will be continued on its present basis is a bit speculative.

Press Agenting Telly

RCA is still clinging to stunting ideas to help win attention to the video art. Some of the stunts are highly involved and it is true that they win television some newspaper space that wouldn't be accorded the industry otherwise. But it's very doubtful that many sets are sold as a result of the trick programs—regardless of how spectacular they are. We still hold to the opinion that it would be more constructive for RCA's New York telecasting station to concentrate on better studio programs on its regular schedule rather than go in for stunts which the public promptly forgets about.

The reception of television programs on shipboard over a 230-mile distance was the most recent stunt.

But it is no longer news to record that television images are received beyond the horizon over much greater distances than once anticipated. Furthermore, we recall that, even as a stunt, shipboard reception is old stuff, one of the early Baird experiments having achieved this long, long ago.

Getting down to earth on constructive program ideas that can be regularly scheduled will go much further towards creating a demand for home receivers and, in turn, promote an earlier launching of commercial television.

W. W. No. 2 & Telly

THERE'S no longer any question about it. Video events of recent months in the U.S.A. have proved that a spirit of international competition is essential to make a new industry thrive.

The start of the European War put television at a standstil in virtually all nations except the U.S.A. Leadership in a new and thriving industry is a flattering thing. But one nation can't boast of being first in a new art when it is the only one active.

Chances are that there would be more accord on standards and other television problems in this country if such unified trade action meant American leadership in a competitive field shared by other nations. And it's quite likely that the FCC would have per-

mitted commercial telecasts if peace reigned over Europe.

Theatre-Stockholders' Telly

SHOWMANSHIP is a thing radio folk know lots about and RCA applied it in a liberal dose at the recent annual stockholders' meeting in New York. The occasion marked the first public showing of the firm's long-anticipated large-screen television system.

The type was described by RCA as "designed for use in theatres." However, the images, projected on an ordinary beaded screen, measured only 4½ by 6 feet—a size considerably smaller than large-screen demonstrations by other firms in the past. Even RCA realizes that its so-called "large" screen is not large enough when the implication is made that it is suitable for theatres.

However, this claim is rationalized a bit with the explanation that the unit is but an intermediate step in the development of apparatus for projecting much larger images. And RCA also adds that the 4½ by 6-foot size has "interesting possibilities" for use in clubs and schools and other places where the viewing group is under 150 persons.

The "letdown" portion of the announcement, though, was the statement that there are no immediate plans for marketing this apparatus and that twelve to eighteen months will be required for commercial development. This took the merchandising edge off the demonstration. Industry observers can't help reflecting that still larger images were achieved before, but that a market for them just didn't exist. The programming problem will have to be solved before the small home sets are sold in quantity; just when theatres will be ready to invest in television is even a greater enigma.

Large Screen Video

THERE are three basic parts to the RCA large-screen system. The first contains a kinescope projection tube and optical system, the second has the high-voltage power supply and the third houses the circuits, amplifiers and controls. The three units—somewhat bulky—are mounted on a single mobile platform located twenty feet from the screen.

A simple explanation of the system is one applied to old-time vaudeville magicians: "It's all done with mirrors!"

The kinescope image is first thrown in an opposite direction to the viewing screen; it falls on a concave mirror of 16-inch diameter and, magnified 22½ times, it is projected back through a lens surrounding the neck of the picture tube and thrown on the final viewing screen.

A5 vs. FM.

MANY television men share the opinion that frequency-modulation broadcasting got a much better break than it was entitled to by the FCC's action in sanctioning commercialization of FM. The video lads feel that, not only is FM making inroads into frequencies they believe should be assigned to television, but that sight transmission is getting a sort of "stepchild" treatment while FM gets the main breaks.

However, FM and television may not be as far apart as many persons believe. There have been many suggestions of future use of FM for video transmissions and they continue to gain weight.

WCAU, Philadelphia, among other leading broadcasters interested in both FM and television, is planning experiments with FM to determine its suitability for sight-and-sound transmissions. —30—

Book Review

(*Continued from page* 30)

able sources exist. The receivers being new and the transmissions being rather limited, much data that might be of value are not yet available. However, the receivers are out in the field; a certain amount of practical servicing experience has been had; an appreciable amount of experimental work has been carried on, so that a fairly comprehensive picture of servicing problems is possible. Contents include chapters on—Frequency modualtion, What happens at the transmitter, What happens in the receiver, The transmission of FM signals, FM Receiving antennas, Servicing FM Receivers, and, Bibliography. —30—

Cuttings

(*Continued from page* 14)

not the case when cutting on acetate type discs. Most manufacturers of recorders, particularly those making portables, seem to undertake the design of the amplifier along general lines. It is only fair to mention that in the Model 1-52-A we find an excellent amplifier that is fully capable of delivering clean speech to the cutting head. There are many considerations in designing an amplifier for recording that do not necessarily apply to those used for PA applications and the manufacturer has carefully considered these in the equipment. The play-back facilities are carefully worked out for maximum results and the quality is excellent. In spite of the fact that a heavy table is used the total weight has been kept to a comfortable figure and the recorder may be carried about with not too much discomfort. Both aluminum and acetate records were cut on both music and voice. The results were most pleasing. The surface noise was particularly low on this machine. The audio response was well balanced for both "highs" and "lows" and distortion was at a minimum for a compact unit of this type. The Model 1-52-A design indicated that all details were carefully considered before manufacture and should stand up in service for many years to come with proper lubricating once a month.

Discussion

Why don't the manufacturer's of portable recorders do something, about storage space for a few discs, needles etc.? Most of them do not have any provision for these and it is necessary to carry a bundle of blanks around in one arm and the recorder in the other. The needles get mixed up or lost when placed loosely within the case, and the poor layman must remember to carry along a few in his pocket. Furthermore, nearly all portable recorders are accompanied with a microphone and floor stand. Ever try to get in a modern apartment building with both a heavy case and stand? Well, if you have, you know exactly what we mean. How about furnishing a stand especially made for the purpose such as a collapsible music type that folds into a small package and can be moved about with ease. I know of several portable recorders that have plenty of room for improvement along these lines. Space is available for a nice large bin that would house a microphone, stand, and discs and still leave plenty of air-space for proper ventilation. Not so long ago I set out one fine morning to make an assortment of sound-effects records. The so-called portable equipment turned out to be an assortment that would make a top-notch window display in a large store. Hint to manufacturers—cut down on the weight of the case, leave the conventional mike stand in the studio where it belongs, add an inch for a record storage bin, and give us a small cup with cover for needles.

The Reader Asks

Is it good economy to purchase a dual-speed recorder?

ANSWER: Yes—by all means do. In the first place, far more playing time is available when recording at 33⅓ RPM. In further explanation I might state that although it is not good practice to record at diameters less than 6" at this slow speed, there are many times when we can make use of the extra surface on the disc for speeches, war reports etc. It is then possible to record about 14 minutes on an inexpensive 12" disc by extending the cutting all the way in to the normal position. This time is almost equal to regular 16" transcription records but the quality of reproduction will not be as good as those cut at proper diameters and with professional equipment. —30—