IN a recent column we noted the experiments concerning railroad yards using television systems to control trains and a central tower. Anent this item, Brother Cott of Milwaukee, Wisconsin, sends in the following communication: Quote... The reason that this item interested me is the fact that I, along with Mr. G. N. Harbort of Washington St. Tower here have proposed to our officials the installation of Train Directors in the terminal with two-way radio communication systems for the control of all movements within the terminal. Such a system would call for an additional radio station, on drawbridges, at switches and locations, Yardmaster’s offices, Signal Supervisor’s office, Asst. Supt.’s office and certain other strategic points. Also on about 85 or 90 locomotives and a like number of way cars.

Maximum distance would be up to four miles. Most communication being from one half to two miles. Train Director would be in on all cross-communication and therefore it could come with the progress of every movement...art of every movement, the starting of new movement, etc. He would be in touch with Train Dispatchers in Chicago and would be informed as to main line movements which were coming up and could therefore authorize movements of these main line trains. Levees on drawbridges would be informed of progress of terminal movements as well as main line trains that were due and would thus minimize the delay to our trains, because, as you know, boats have preference.

About 20 to 55 cars are in daily operation in the terminal at about $35 each. About $140 to $160 per day. A $150 to $1500 would be assured, due primarily to close coordination of movement within the terminal in relation to each other and in relation to main line movements also.

The cost would approximate $35 per day for three Train Directors and a maintenance man. Not saying, then, we are convinced, would be very much worth while, to say nothing of the total elimination of accidents. Just in passing, we had a wreck at Crystal Lake on March 25th, this year, which cost the company between $50,000 and $75,000 and which would have been avoided had such a system been in operation.

Knowing something of the costs of material for the construction of sets, also the cost of sets delivered by the retail dealer ready to go, I am convinced that such sets could be manufactured in quantity to deliver for $350 each. But I am sure the railroad company pays for its signal equipment and most other supplies that it gets, I do not doubt that they would be asked three or four times that amount.

I believe that you will agree with me that this is the same thing. The surprising thing is that it has not come before, but I can explain that by talking many people back of all industry. Airplanes have it, would not think of trying to get along without terminal dispatching...radio. Every city and state police department in the country are rushing into line. Milwaukee has motorists with radio communication...FM is the ticket for such installations. Just a word before I sign off, regarding the job that would be created. These jobs would automatically come under the OR7, schedule. Men with qualifications and sufficient seniority would bid them in. To be sure, it would create a job, but the future looks bright.

Dr. Goldmark shows his color video.

WIT camps raging in several parts of the globe and with huge defensive measures being taken by radio and television, there are times to rally around the colors and that’s just what every true American is doing.

And, in recent weeks, even television rallied round the colors.

CBS went in town in a big way in revealing the achievements of its chief television engineer, Dr. Peter C. Goldmark. The first demonstration was given privately to FCC Chairman James Lawrence, but despite the high-pressure publicity technique of issuing an extremely ambitious program, the success of the demonstration that’s quite prove that the CBS system was a thing that would remain on the screen for a long time.

It is true that color images are preferred to black-and-white. But the present simplicity is such that the latter cures” the mechanical complications of Dr. Goldmark’s 35-line color system still gives it an edge in practical preference.

Getting images as natural as possible is a goal all television engineers. And putting the pictures in natural colors is a step ahead. But consideration must be given to the fact that the potential book-and-listening audience, after being accustomed to black-and-white motion pictures, has come to regard the two-tone image as “natural.”

The return to the redgreen disk—this time in conjunction with a cathode ray tube—is the basis of Dr. Goldmark’s method. Similar disks, synchronized, are used at both the transmitter and receiver. Blue, red and green filters on each disk serve to transmit and receive the corresponding color component. This being the case, every picture will be reproduced as it was before.

THE CTU-Mordiv organization continues to expand. They are opening offices on the West Coast in San Francisco, which, certainly should make for increased sales. Although we can well imagine that competition will be intense, we feel, nevertheless, that the increased activity will induce many people who have been contacted or who have had a personal (Continued on page 59)
should be as good as anything written today—and when we find that the opportunity existed for more deliberate and complete explanations—those places where those explanations appear are even more valuable today than they were at the time of issuance.

Yes sir, many a profitable hour can be spent looking through those old magazines. Well versed you be, you'll find something which will catch your eye something that read over again will clear up some particular point about which you don't think much until it is called to your attention. Periodic review is a marvelous way of keeping old information new and maintaining a well-rounded body of knowledge of things radio. Yes, we even recommend spending those spare moments at least some of those—reading rather than building test equipment. The rest of the spare moments you can loaf, for loafing is a necessary part of every man's existence.

Some day we hope that this radio library of ours is going to be as fine as any other country's. America And we are going to enjoy spending some time each day looking through and reading old radio periodicals. Crazy as it may sound, there is a thrill in the anticipation.

Beginner's 56 MC Xmr.

(Continued from page 37)

heads of jacks. 5/8" hole for jacks fitted with rubber grommets. Socket holes cut with a socket punch. Mounting holes for sockets 1/16" between centers. Distance between jacks 5/8". Holes for standoffs 1/8". All grounds connected together with common ground wire and B.


Video Reporter

(Continued from page 38)

Demonstrations of color television are not too new. But commercializing color television will be a new step—and a great stride at that. But that hasn't been done yet. However, CBS executives have made too-darling references to January, 1941 as a possible starting date for a regular color program service.

Dr. Herbert E. Ives, of the Bell Labs, demonstrated color television as far back as 1929 in a fifty-line picture produced by a three-color filter arrangement. His system involved optical filtering of separate color signals transmitted for each primary color.

Most enthusiastic comment on Dr. Goldmark's demonstration came from George B. Storer of the TV and Radio Corporation, now serving as North American representative for the British television company's apparatus.

"It is a miracle!" he said.

Expressed over the necessity to suspend television program service in the London area as an emergency weapon measure. He couldn’t help but wonder whether television is playing an important technical role in military and naval operations.

RADIO PHYSICS COURSE
by Alfred A. Ghirad

A power detector is one that will not overload when very large r.f. input signal voltages are applied to its grid circuit, and which will handle considerable electrical output. Power detectors are usually operated with rather high voltages. Either a grid leak type or a condenser type of detector may fulfill the condition of power detection if they are operated properly.

Receivers built during the early days of radio employed two or three stages of tuned radio-frequency amplification using the three electrode tubes of the 201-A, 226, or 227 type which were the only ones available at that time. It was impossible to secure much amplification in the first stages and hence in the tubes, because of the difficulty of preventing oscillation due to feedback in the tubes themselves, and other forms of feedback coupling. Therefore, the signal was not very strong when it reached the detector, and it was necessary to use at least 2 stages of radio-frequency amplification after the detector in order to make the signal strong enough to operate a loud speaker satisfactorily. Now that it is possible to build high-gain r.f. amplifiers without oscillation troubles, thanks to the screen-grid tube, modern receivers have the signal voltage at the detector amplified greatly before it reaches the detector. It is not uncommon to use 6 and 6 high-gain amplifier stages before the detector to obtain high gain and the necessary number of tuned circuits for satisfactory selectivity. Therefore, the detector must handle quite large signal voltages without distortion, and in most cases feeds directly into a single power output amplifier stage, and hence to the loud speaker. It is in receivers of this kind that power detectors must be used, for the signal voltages are entirely too large to be handled by the old form of detectors. In some cases, the loud speaker may even be operated directly from the output of the detector without employing any audio amplification. Linear and power detectors are thus closely related in practice, since they both go into the system, although no detector has a perfectly straight-line characteristic. In the usual meaning of the term, "power detector" is used in connection with detection when the r.f. signal voltage applied to the detector input is at least 1 volt or more.

According to the information obtained by Mr. F. E. Terman from several thousand tests on power detectors, the results of which were published in the April 1941 issue of the RCA Proceedings, power detectors of the grid leak and condenser type can be made to produce satisfactory detection under all conditions, provided the proper values of plate voltage, and grid leak and condenser are employed. The proper values of plate voltage and weak signal detection are different from those for strong signal detection. Some of this data is reviewed here.

When the radio-frequency signal at least several volts amplitude is applied to a suitably adjusted grid-leak detector, the action taking place in the grid circuit is equivalent to the action for voltages less than 1 volt.

"T" (To be continued)