Canada Shows Television---New Field Seen For Film Industry---Sight Programs For Week

TWO SYSTEMS NOW BEING USED FOR DIRECT PICKUP WORK IN TELEVISION

Floodlighting Is New Method and Flying Spot the Old.

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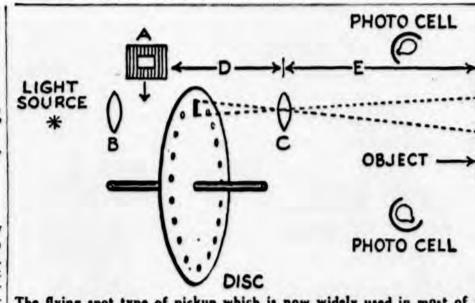
rvice

BOTH ARE EFFECTIVE

New Daylight Camera May Be Used Exclusively For Outdoor Work.

Two mechanical systems are now the subject of experiments in the broadcasting of television images. One of them, known as the floodlight system, makes use of a camera havrectly on one side of the scanning disk and allowed to peek through holes in the disk at the illuminated as used in this system, instead of be- is shown in Figure 2. ing placed behind the scanning disk, then a large amount of light is re-

PHOTO CELL



ing a photoelectric cell mounted di- The flying spot type of pickup which is now widely used in most of the television studios is shown in Figure 2.

object which is on the other side. scanned area is so small that suf- | the scanning disk. The light then The other method is to illuminate ficient light is always reflected from passes through a hole at a time when only one spot on the object, and to a bright spot. This method, how- the disk is in motion. Let us imagine

spot where the light happens to fall. ber of holes is then interposed bethe surface is dark at that par- tween the condensing lens and the ticular point, only little light is re- projection lens, with a diameter such

SOURCE

OBJECT ->

move this bright spot of light over ever, has the disadvantage that ob- that the holes travel from bottom to the object by means of a scanning jects too far away from the photo- top along the spiral and from right Derby at Epsom Downs, England, disk. This method is known as the cells are indistinct because of the to left before the mask. These holes and the reproduction of scenes on "flying spot" system. The photocell loss in illumination. Such a system being imaged within the area where the race course in a London movie the object is located will, because of theater, some twenty miles from the The light necessary to scan an ob- the inverting action of the lens, now course, is said to have marked anas in the first method mentioned, is ject is obtained from a powerful arc. move from left to right and from other milestone in the progress of placed in the vicinity of the object The optical system is complex. If top to bottom across the object. Now television. where it is affected by reflected light one considers the diagram in Figure suppose the holes have their proper the latter. Obviously the 2, the light from the arc lamp is diameter for a sixty-hole disk. When that television has arrived at a praction of the latter. Obviously the 2, the light from the arc lamp is diameter for a sixty-hole disk. When that television has arrived at a praction of the latter. amount of light reflected depends made to pass through a scanning the disk is in motion the first hole in tical stage, but that the reception (110 volt neon preferable), operating the direction opposite to that which upon the nature of the object at the lens. A disk with the proper num- the disk sweeps a spot of light across and transmission of television can the very top of the region where the now be obtained from remote points. object stands. The next hole sweeps This, it is claimed, permits the across just below the line drawn by broadcasting of news events simulflected. If the surface is bright, that the image of the crater just fills the first hole, and so on until in one taneously with their occurrence. We the lens when the disk is removed. revolution of the scanning disk this now can accomplish in television, Light can be passed through only tiny spot of light has struck every says a dispatch from Canadian Teleone small hole at a time provided a portion of the scanned region. Now, vision, Limited, of Canada, the an amplifier where they are then is possible. amplified and sent to the transmit-

> new type of daylight camera and they say, to study the manner in lief that in time the daylight type of course just in front of the winning

THROUGH THE the stage of a movie theater in Lon-SCANNING DISK and the fourth carrying the speech from the microphone which was in-

to Be Televised by W2XAB.

son being televised to employ the be assumed to come from a source lack of sensitivity of the photocells, the hole becomes a virtual source of first time in the bicentennial cele- focused onto the photoelectric cells missions than they have to direct engineers believe that the object light. The function of the project bration of George Washington when cells, caused by the difference of nothing with outdoor scenes. when used in the former method tion lens therefore is to image this the experimental visual station light intensity in the scanned scene, must be flooded with so much light tiny source of light on the object to waxaB presents scenes from Mount were passed on to the amplifying sys-Vernon at 9 P. M. Monday, June tem and then sent along the tele- the probability that Hollywood is to better and more sensitive photocells, the position and distance of the ob- 27. The broadcast will be in charge phone lines in the form of electrical be called upon rather heavily to support the transfer and more sensitive photocells, the position and distance of the obengineers hope that the use of flood- ject to be televised. Naturally, the of the New York division of the bi- point in London.

Two boxing matches and two dem- erected and the television receiving Standard moving picture films. D and E is the magnifying power of onstrations of shadow boxing by apparatus installed at the rear, so such as news reels and pen and ink amateur and professional fighters that the image could be projected silhouettes, have been used rather In Figure 1 is shown the floodlight Another thing that determines the will be shown throughout the teleposition of the object is the area to vision week also by station W2AXB. with the normal projection equipject to be televised is flooded with be scanned. Suppose an area one light. The image of the object is foot on a side is to be scanned. The perform again for the theater. During the per-

Image next to the disk, as shown, so image of that spot of light to travel in a television broadcast to be seen television image the screen was preas to exclude all other light. The twelve inches then the lens, C, must on Thursday, June 30, at 9:15 P. M. pared from a special wax compound photoelectric cell.

with the picture as focused on the ing spot method is as follows: There Lillyan Crossman. A score of other The television receiving apparatus distributed by wire at the start, as television camera, and that she felt

They Said It-

No one need fear that opportunities do not exist today. The next quarter of a century will see more happen and offer more opportunities than have the last twenty-five years. There is much to be done in television and radio. -David Sarnoff, president, Radio Corporation of America.

The advancement of the television art and its subsequent industry now waits upon the visual broadcasters. Better images and more attractive programs are in order.-Leslie S. Gordon, president DeForest Radio Company.

DERBY SHOWN BY TELEVISION

Theater in London 20 Miles From Course Shows Event.

the electric photocells shown to the equivalent of remote sound broadleft and right of the object pick up casting and have at our disposal the these varying changes of light in-tensity, where they are converted sound in one transmission from any NEW FIELD FOR these varying changes of light in- means of conveying both sight and into electrical impulses and sent into location at which sound broadcasting

Television has now advanced beyond the limits of the studio, accord-It is the system as shown in Figure ing to its engineers, and this enthat is now being used with the hances its utility. It is interesting, which is gaining support by most which this demonstration at Epsom television engineers. It is their be- Downs was carried out. At the race camera for direct pick-up work will post was installed a small, light carabe used exclusively in television stu- van containing the television scandios, as it serves the dual purpose ning equipment and the line transof working outdoors as well as in- mitter. To this caravan were con- parently will be one of the first to nected four pairs of telephone lines. These telephone lines terminated on

don. Three pairs of these lines were was fitted a square mirror from Scenes at Mt. Vernon which an image of the race course quate apparatus for the broadcasting onto a rotating drum, which broke up the original image into three sec-Television will participate for the strip in the three areas was, in turn, ments with moving picture trans-

In the theater a special screen was Press.

installed in the theater was some- are sound programs. area on the screen.

This indicator when used either at its present size or enlarged will show

The text explains its use for the various scanning standards.

the experimenter when his scanning disk has reached its proper speed.

The accompanying chart when ro- able to count the segments as easily tated by a television scanning disk as when it is not rotating. If the speed is correct.

on 60 cycle A. C. supply, will enable the disk is running; if too fast, the the experimenter to know if his disk bands will rotate in the opposite way. The 15, 20 and 24 frame rates cor-The indicator works on the strobo- respond to 900, 1,200 and 1,440 revoscopic principle. When the speed is lutions per minute, which cover prescorrect the band of light and dark ent and projected scanning rates. It

segments will appear to be station- is very probable that 24 frames per ary. At correct speed the user will be second will become the standard.

FILM INDUSTRY

Hollywood May Supply Material When Radio Movies Come In.

The moving picture industry apbenefit directly when television

employed for sending the pictures case are definitely apparent already. stalled at the side of the caravan. Ahrough the fact that two television Directly at the end of the caravan experts are devoting all of their time and energy to the developing of adewas taken, reflected and focused of sound talkies direct from film. Both Dr. Vladimar Zworykin at Camden, N. J., and Philo T. Farnstions and then divided such sections worth at Philadelphia, Pa., have into minor elemental strips. Each paid much closer attention to experiand the carrying responses from the studio pickups. They have done

Thus the preliminary steps in the currents to the distant receiving ply the needed broadcast material says a writer for the Associated

scheduled during the coming week, part of the house to witness the the use of film is that of chain tele- Douglas L. West, president of the

what similar in form to that used on The film solves that problem. It lights. the race track, except that in place lends itself to easy shipment from At the conclusion Mr. West told of the photocells the receiving ap- place to place, either for simulta- members of the press that this was paratus wes equipped with three in- neous broadcasting of the same sub- the beginning of a series of television dividual light sources. These lights ject, or for broadcasting at various demonstrations which they would were focused down onto the rotating periods, much along the same plan give in order to show the public that Fig. 1-Diagram of two-element drum to give a three-section scanned followed by the moving picture thea- television as a means of public en-

TWO JUVENILE TELEVISION FAVORITES

AV560

MAKES TELEVISION DEBUT.



Miss Arlene Clair faces the television transmitter in the studios of the Canadian Television, Ltd.,

VISION FOR CANADA First Demonstration Given in

Montreal for Press.

Miss Arlene Clair, concert violinist,

focused on the surface of the rotat-ing disk in such a way as to cover of light caused by the rotation of the virtual source dience on Tuesday, June 28, at 9:45 was drawn up and the television As a rule much better results can appear before the television camera the scanning region of the holes. A is only one and one-half inches in Lou Hanlon, cartoonist, will draw audience. In order to obtain the rect pickup in the studio. There is vision, Ltd., of Canada. The private mask is then placed around the both dimensions. If we want the sketches from the news of the day best conditions for presenting the less loss of light, so that a greater demonstration was held in Montreal Dramatic pantomimes are also which enabled the observers in any One important factor in favor of In answer to questions put by

not yet satisfied that pictures can be was her first appearance before the

tertainment was definitely here.

INDICATES PROPER SPEED FOR SCANNING DISKS Building Your Own Amplifier

Constants and Parts Are Given for Complete Construction and Operation of a Stable Television Amplifying Unit.

An essential component for the reception of television signals is an audio amplifier that, without undue distortion from the rectified picture signals, will build up a sufficiently high voltage to modulate a neon stable, a strong, slow "swing" of glow lamp or other light source. of an ideal audio amplifier for tele- boating, and is really an oscillation

ful amateur or broadcast receiver by feedback through the power supbuilder can construct a resistance ply coupled amplifier which will produce of a plate type neon lamp. The following suggestions as given by en- rate A. C. power pack on each A. F.

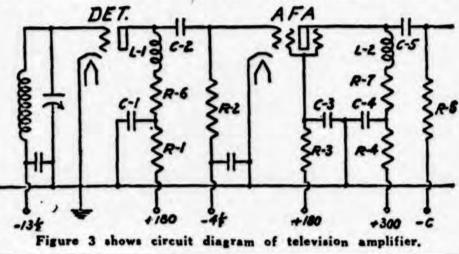
use with a radio receiver that will and with a negative bias of 15 volts usually impractical to obtain bias

of a number of factors, and thus permits instructive experimentation.

Receiver Motor-Boating.

Resistance coupled amplifiers for television reception are often uncurrent occurring in the output of While the design and construction the receiver. This is called motorvision reception is probably beyond of low frequency, usually from onethe average experimenter, any skill- half to 30 cycles per second, caused

The feedback can be prevented by adequate impulses for the operation using high grade "B" batteries for the power supply, or using a sepagineers of Radio Pictures, Inc., may amplifier stage, but either method is expensive. Most receivers are built This audio amplifier is intended for with a single A. C. power pack supplying all stages, and here the greattune to the 1,500-3,000 kc. band and est tendency to motorboat occurs. If which is equipped with a -27 as de- a high-gain A. F. system is used, tector tube. The detector should be very considerable care must be taken used without grid leak or condenser to prevent feedback. Thus it is



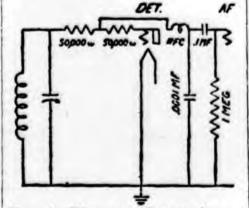
applied to the grid through the tun- voltage for these stages from the ing circuit. The detector plate should power pack bleeder, and "C" batbe connected to a 180-volt plate sup- teries or cathode self-bias are recomply through a resistor of 250,000 ohms | mended. and to the grid of the first audio | The resistance coupled detector stage through a condenser of .01 and first A. F. amplifier stage shown mfd. capacity or a two-element de- incorporates three methods of stabiltector similar to that shown in Fig- izing. Each plate supply lead and

First Stage Uses -24. The first audio should be a type stage coupling condensers are re--24 screen grid tube, and its grid duced below normal capacity to reshould be connected to a negative duce the "gain per stage" at motorpotential source of 3 volts through 1 boating frequencies. megohm resistor. The plate is con- are: C1, 8 mfd. electrolytic; R1, 250,nected to a 400-volt plate supply 000 ohms; C2, .01 mfd.; R2, 1 meg; brough a 200,000-ohm resistor and to C3, 2 mfd.; R3, 250,000 ohms; C4, the grid of the second tube through a mfd. electrolytic; R4, 100,000 ohms; coupling condenser of .01 mfd.

the -24 screen grid type and should L2, 100 MH. At one cycle per second have a grid discharge resistor of 1 the filtering effect or feedback voltmegohm connected to the grid bias age reduction of the detector plate source of 3 volts negative and a plate resistor of 200,000 ohms with an applied potential of 400 volts, as in the case of the first audio stage. Similarly, the plate of the second audio stage is connected to the grid of the third audio stage through a coupling condenser of .01 mfd.

The third audio and last tube should be of the -45 type, and its grid connected to a negative bias source of 40 volts potential through a 1 megohm resistor. Its plate should be supplied with 250 volts potential delivered through a good choke coil having relatively low resistance, high inductance and small capacity.

The neon tube for conversion of television signals into light flashes may be associated with the amplifier output by connecting one plate of the neon lamp to the plate of the -45 tube. This circuit, cooperating with being the first professional artist to the choke carrying plate current will

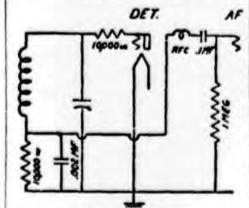


tube when used as a detector.

apply the current output of the amplifier to one plate of the neon lamp. The other plate of the neon tube is to All work plete the A. C. and D. C. circuits.

Speaker Can Be Used.

For the purpose of tuning it is convenient to associate a loud speaker with the amplifier so that a sound response to announcements and television signals may be had. Any type of loud speaker may be connected to this circuit, one terminal being connected to ground and the other terminal of the speaker leading through a switch and a 2-microfarad condenser to the plate of the -45 power tube. In receiving pictures the loud



Another method of wiring up a twoelement tube.

peaker switch will ordinarily be left open, so as to avoid the buzzsaw RADIOS EXCHANGED OR REWIRED tone, corresponding to television sig-

There are other methods of associating the neon lamp with the output tube of the picture frequency "EXCHANGE-IT" RADIO SERVICE put tube of the picture frequency amplifier, some of which are said to

have specific advantages. The circuit described above is, however, desirable for experimental purposes because of its separation of the vari- RADIO SETS Furnished for Any Occasion. ous circuit. This should offer opportunities for independent contest

each screen grid supply lead is provided with a resistance-capacity filter, and as a last resort the inter-

Values for the parts of Figure 3 C5, .01 mfd.; R5, 1 meg.; R6, 50,000 The second audio tube is also of ohms; R7, 50,000 ohms; L1, 100 MH; filter is about 14 to 1; of the amplifier plate filter, 6 to 1; of the screen grid filter, 3 to 1, and of each interstage coupling circuit, 16 to 1.

RADIO EXCHANGE

Rates 10c per word; eighteen words

SETS FOR SALE

NATIONAL ACSW5 Pentode pushpull 9-550 meters. Verified reception Europe, Australia, Africa, South America. Special console; extra colls; Baldwin earphones; loudspeaker. Demonstraton. KLEIMAN, 123 ttockaway Parkway, Brooklyn. PResident 3-2946.

PORTABLE RADIO HEADQUARTERS PORT-O-RADIO
Domestic And Imported Radio Equipment
1472 Broadway (Times Square), N. Y. C.

RADIO ENGINEER offers own receiver, 15 to 550 meters: Europe demonstrated; 12 tubes; cost \$1,000 to develope; \$150; also 14 tube Victoreen, \$50. Hall, BUtterfield 8-2229.

HIGH PRICED Grebe console, direct current, for sale cheap, Call eveniors, Stearns, 955 Park av. Telephone BUtterfield 8-2735.

FOR SALE

FOR SALE-Western Electric No. 2 PA system, including 8A and 9A amplifiers, volume indicator, distribution panels and D. C. motor generators to deliver 400 volts at 1 ampere, 12 to 20 volts at 7 amperes; power and filter supply panels for same, Ten W. E. Morning thery Horns and mag-netic units. Best offer takes entire equip-ment. THOMASTON LABORATORIES, Inc., 135 Liberty st., New York City.

PARTS AND EQUIPMENT

MIDGET SETS REPAIRED FOR \$3.95 The other plate of the neon tube is to All work guaranteed. Your set or power be connected to ground so as to com-TREMONT RADIO SERVICE CO., 5 WEST TREMONT AV., BRONX.

ALAN RADIO CORP., For All Replacement Parts, 83 Cortlandt Street, BArclay 7-4169.

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PORTABLE RADIOS & AUTOMOBILE RADIOS WEASONABLY PRICED RADIOS RENTED SIMONS RADIO SERVICE, INC. 135 West 42nd St. BRyant 9-3281 NIGHT AND SUNDAY SERVICE GUARANTEED Service on all receivers,

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JEWELL RADIO CO., 110 Chambers st. (BArclay 7-8937), is specializing in public address systems for parks, dance half, swimming pools and installation in trucks, AMPLIFIERS and public address systems

AMPLIFIERS

RADIO WANTS

WANTED-In good condition, I Silver-Mar-shall S. M. 737 A. C. short wave set; quote price in letter. Box M, room 604D, 280

SETS EXCHANGED

FROM A. C. TO D. C. OR FROM D. C. TO L. C. EFFICIENT RADIO SERVICE CO. TEL. LONGACRE 5-8466.

BRyant 9-1880

SETS RENTED

M 04880 (42nd St.) 1476 Breaktist

TELEVISION PROGRAMS FOR THE WEEK TODAY. W2XCR-New York, 6:00 to 8:00-Direct pickup.

W2XAP-Washington.

W3XK-Washington.

WIXAV-Boston.

TUESDAY.

W2XAB-New York.

W2XR-New York.

W1XAV-Boston.

8:00 to 9:00-Experimental program. 9:00 to 10:30-Minna Lee, soprano; Pauline Barry, planist; Borle Davidoff, tenor.

W3XK-Washington.

9:00 to 11:00-Experimental film programs

W2XAP-Washington.

W2XCR-New York.

WEDNESDAY.

W2XAB-New York.

W2XCR-New York.

W2XAP-Washington.

W3XK-Washington.

W2XR-N .w York.

5:00 to 6:00-Experimental programs, 8:00 to 9:00-Direct pickup.

9:00 to 11:00-Film presentations.

:00-Experimental programs.

:00-Fina with sourd,

6:00 to 8:00-Direct pickup.

:30-Estelle Bydney, partomime

6:00 to 8:00-Direct plakup.

8:00-Make-up test, 8:15-Baseball scores, 8:30-Hair fashions.

9:00 to 11:00-Film presentation.

8:00 to 9:00-Experimental program. 9:00 to 10:30-Crosson Orchestra.

8:05—Fashion modes 8:15—Juvenile artists, 8:25—Basebail scores, 8:30—Boxing bouts, 9:00—Grace Voss, pantomimes,

4:00—Experimental programs. 8:00—Films with sound. 9:00—Cartoons.

:30-Cele Alpine, planist.

5:00 to 6:00-Direct pickup. 8:00 to 9:00-Direct pickup.

:00-Fashlon modes

W2XR-New York. 00-Experimental programs.

One Method Uses Floodlight.

W2XCR-New York.

0:00 to 8:00-Direct pickup.

W1XAV-Boston. Sight on on to 9:00-Experimental programs.

W2XAP-Washington. 100 to \$106-Experimental programs.

W3XK-Washington. 0.00 to 11:00-Film presentation,

TOMORROW. W2XR-New York. Experimental programs. 00-Films with sound,

W2XAP-Washington. M to f on Experimental programs. 00 to 9:00-Direct pickup.

W3XK-Washington. 9:00 to 11:00-Pilm presentation. MONDAY.

W2XAB-New York. No Sound. 00-Musical comedy miniature. Congerge Washington and Mount Ver One Muriel Asche and Kiddles,

W2XR-New York. -Experimental programs. Carteens.

lighting will be more extensively method of pickup, in which the ob-

light. The image of the object is foot on a side is to be scanned. The perform again for the television au-

side of the disk and receives the light | In sketch A the mask is shown with admitted by each hole in the disk,

"flying spot" method. Due to the residing in the hole. In other words,

Fig. 1 shows a simple optical system in which the object is floodlighted

experimental broadcasting today, and square mask with an opening one

are believed to be equally effective. and one-half inches on a side is

Owing to the limitations of the photo- placed close to the disk on the side

cells, it appears to be a much more containing the condensing lens. Light

comfortable arrangement for the per- passing through a tiny hole can now

scanning disk and light-sensitive and herald such pantomime artists show without a loss of brilliancy to- vision broadcasting. Engineers are company, Miss Clair stated that this with the light varying in accordance photocells. The operation of the fly- as Grace Voss, Estelle Sydney and ward the outer seats. must be a uniform powerful light to features also will be shown this With the flying spot method the fill the area of the mask just behind week.

with some recent developments of magnifying power are determined by closer the object the better the illu- centennial group. mination. The ratio of the distances

THURSDAY.

W2XAB-New York. 8:00—Talking pictures. 8:25—Baseball scores 8:30—Mystery melodrama. 9:15-Lou Hanlon, sketches, 9:30-Lilyan Crossman, dramatic panto-

8:00 to 0:00-Direct pickup.

W1XAV-Boston.

FRIDAY. W2XAB-New York.

9:15-Make-up tests. 9:45-Fritzi Frank, comedienne. W2XR-New York.

4:00—Experimental programs. 8:00—Films with sound. 9:00—Cartoons. W1XAV-Boston. 8:00 to 10:00-Experimental program.

> W2XCR-New York. a 4:00-Direct picks

W2XAP-Washington.

W1XAV-Boston. \$:00 to 10:00-Experimental program,

9:45-Comedy sketch. W3XK-Washington. 9:00 to 11:00-Film presentations. W2XR-New York.

4:00-Experimental programs. 8:00-Films with sound. 9:00-Cartoons. W2XAP-Washington.

W2XCR-New York. 6:00 to 8:00-Direct pickup.

8:00 to 0:00-Experimental program.
9:00 to 0:30-Experimental program.
9:30 to 0:45-Ruth Renwick, soprano.
9:45 to 10:00-Gertrude Hintilan, violinist.
10:00 to 10:15-Robert Campbell, tenor.
10:15 to 10:30-Inez Arzillo, cellist.
10:30 to 10:45-William Searle, bass.
10:45 to 11:00-Renwick and Campbell, songs.

8:00-Shadow boxing. 8:15-Haschall scores. 8:30-George Kelting, cartoons. 8:45-Silent drama.

5:00 to 5:00-Experimental programs. 8:00 to 5:00-Direct pickup



Little Mary Ganley (left), 7 years old, who appears before the television camera of W2XAB every Monday at 9:15 P. M., and Baby Ruth Parkin (right), 6 years old, who appears over the same station on Tuesdays at 8:15 P. M.