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"CQ - TV" No. 4.

Editor's Note:

Dear ones,

we have now been going for just about a year, and so a review of progress to date may not be out of place. From our first three members, our numbers have increased to about 36, of whom 13 are U.K. licensed hams, and of whom about 10 are actively constructing TV gear for transmission purposes. We have liaised with the Dutch and French hams, and have received invaluable assistance from them. We have progressed from the old Circular letters to a magazine which, even if erratically appearing, does at least serve to keep us in touch. Technically, we can produce pictures of equal quality to the BBC on any frequency, and if the licenses were available, in any part of the country. We have produced some new circuits and techniques, we have had to be more economical in our work than other research people, and we can feel proud to have done what we have in the face of official apathy or worse. It is fitting that almost a year to the day that the BATC was started, one of our members has put on a show to the public that has at least given people something to think about. Let us hope that this year will see a reversal of PMG policy, so that we can really get down to some work of a practical nature.

In conclusion, may I apologise for the very long delay between issues 3 and 4, and reassure any of you who thought we were disbanded or defunct - or even that I had absconded with the petty cash! that we are in fact, very much still on the go, and even more determined to dig those licenses out from somewhere.

I should also like to thank you all for your kind and enthusiastic support in the last year, and to express the hope that you will keep it up this year too.

73s to you, es HAPPY BIRTHDAY, BATC!

Mike B. G3CVO.



THIS MONTH'S SHORTS.....

In response to appeals, you will find a new

membership list included with this copy of the mag. The addresses are O.K. but please do not be offended if the occupations are wrong or libellous! WE acknowledge with thanks receipt of the Journal of the Television Society and of the Radio Amateur's Digest.

FOUR issues of the Journal are available from G3OVG now, and may be borrowed on payment of postage. The latest copy carries news on Dx reception, and A.G.C for TV Rxs.

WE should like to congratulate PA6ZX, on behalf of the Club, on his recent engagement.

THERE has been some "OQ-TV" calling by 30VO, but so far no TV replies. Will all licensed members please send in a list of freqs. they work, and if possible, also the times they are available.

HAS anyone tried out this addition of a small 10 mc/s wave to the line so as to reduce the apparent line formation? Could we have details please? IVAN has a neat line in Tuning cards - vy vy fb YLs, obtained from the local shoe shop. Try them, chaps - its worth it!

DO you like our badge? A dipole smells too much of the BBC, we feel. Perhaps we should register it. Can anyone get lapel badges made cheaply?

QSLs for TV contacts.....Only two entries so far. Not so, artists!

KEEP your eye on the various mags. in case Ivan's demonstration in the London area comes off soon. Sorry the notice was too short to tip you the wink about the Shefford do, but hope you at RSGB?

NEW printing ink.....should be clearer.

WANTED: 3" vy short persistence tube....by 30VO.

1000' spool for 35mm projector....by 3ETI.

EXCHANGE: Eddystone 356K communications Rx for good 16mm projector....2DUS

HAS anyone any more information on the ROA Vidicon camera tube? According to the lay Press, these are exceptionally CHEAP (c. \$5), very small, more sensitive than an Image Orthicon, and can be mass produced. The idea seems to be that a normal CRT has its fluorescent screen replaced by a plate of material (Selenium?) whose transmission of electrons depends on the light falling on it. The scene is focussed on the plate, and the VF o/p taken from one side of it which is gold flecked.

HAVE you tried using one of those Infra Red image converters in conjunction with a CRT to form a home made Ike?

NEXT copy of the mag abt JUNE 15th; have you your receipt for your sub?

"SUTTON MOCOLDFEET TALKING....."

As the new station at Sutton Coldfeed has now been in operation for some time, and BATC chaps have had a good chance to observe the results obtained, no doubt a short description of a technical nature of the Birmingham equipment will be of great value.

The first thing that strikes one upon entering the main transmitter hall is the giant green cross-modulated butterswitch that faces one on entering via the Emergency Exit. The whole apparatus, painted a dark shade of Scotch Mist, is supported on reciprocating rubber gubboids, with gymbal-mounted gloits inserted in the strangwires to prevent the back resonance going out of focus.

An ingenious system of spangrods and jampinnies carries the fash discriminator output from one end of the room to the other, where are found the rotary platen-snatchers and their attendant snurgeplates. A cunning and very necessary exhaust system, employing Hawkesholm puddleswitches, eliminates all possibility of the mattersplurge feeding back into the swivel gudgeon pins, which are frequency corrected with Bath crystals.

The main momentary modulator is a crossed arctode, with a berginthorp in the main re-entrant reherostat, and double diversity doobefactors in the teeperframes. A manual aotosnitch controls the ferkinbinders, near the daggery rack. Under the splatterphones, a pair of resonant scharberscorps in pull-pull (actually diametrically opposed in quadrintival Class B) cause the supersonic sound system to be selectively switched in a grounded grid gonfobulator for continuous monitoring. Should the mains supply fail, a reversible gubbinsnark shorts out the beeroids, so bringing the coolumpers into action.

It is felt that the care so evidently exercised in the design and construction of this modern piece of electronic engineering will repay a careful study by members of the BATC, especially those engaged in the manufacture of felt hats this April 1st.

HAM TV IN HOLLAND Pt. II.

(Following our comments of last month on this subject, Henry de Waard, PA6ZX, has written the following article for us).

A group of eight of the Groningen section of the VERON, the official Dutch amateur radio club, including PA6BF, GWT, VT, TB, WL and ZX, started the construction of an amateur television transmitter in early 1948. The project was particularly attractive because at that time there was no commercial nor government controlled TV in Holland. The first object of the team was to complete a TV camera, transmitter and at least one receiver for demonstration at a large exhibition that was held in Groningen in September 1948. During this fair, 15,000 people visited our TV stand and viewed the pictures transmitted from a spot at the fair about 400 yards from the receiver. The picture quality was good during sunny days, but less so in the evenings when spotlights were used to illuminate the scene. Most successful were the telecasts where visitors could see and talk to friends who were in front of the camera. Duplex radio-telephone communication was maintained between the receiver stand and the camera operator on 80 and 2 metres.

It had been realized from the start that a simple and relatively inexpensive system would have to be adopted, and accordingly it was decided to use a small 6A5⁵²⁷ iconoscope with sequential scanning, using 250 line definition and a 50 cycle frame frequency. The following principles of construction have been applied: the camera unit contains all its associated circuits and controls such as shading, blanking, sync generating and mixing. It also incorporates an electronic viewfinder. This enables one man to control the whole transmission. The video signal from the camera is applied to the modulator via 72 ohm cable. This unit was built alongside the transmitter, which was a 100 watt job operating on 59.4 mc/s. Grid modulation of the final 24Gs in push-pull gave a negatively modulated picture. The first receiver was a converted GEE set.

Thanks to the fine cooperation of the Dutch Communications Committee, a licence was obtained to operate the the wide band transmitter for a period lasting until January, 1949.

Systematic research in the three months after the exhibition resulted in improved picture quality, especially at lower lighting levels. Regular transmissions took place from the transmitter location at PA6ZX in Groningen. These were received at a distance of 25 miles. On the occasion of the annual PA6 conference at Utrecht, the apparatus was taken there and demonstrated.

As from January 1949 the transmitter had to be changed over to 145 mc/s because 59 mc/s was no longer available for amateur use. This took some time. In August 1949 a demonstration at another fair in a small town brought the equipment near the location of PA6VT in Winschoren. 'VT is a keen amateur who has played an active part in every stage of the TV-project. It was decided to transmit from there for some months as 'ZX was in the USA. At the moment, although 'ZX has been back from the States for some months, the transmitter and camera equipment are still there, considerably modified and extended. Here is some technical data: The composite video signal is fed from the camera into a three stage modulator, the last stage of which is a Cathode follower, modulating the grids of the 829 final in the Video Tx. The Tx starts with an 8060 kc/s CO, then double-triple-triple with EL42s (6AQ5s), and then to the 829 that drives the final 829.

A separate control unit containing three CRTs has been built by PA6VT. This makes possible the comparison of the video quality before and after transmission and the inspection of the RF envelope.

The RF is radiated from a horizontal 4 element wide spaced beam 65 feet high. Reception is good over distances up to 30 miles. The accompanying sound is transmitted on 29.6 mc/s (50 watts A.M.).

Transmissions take place every Saturday evening from 20.00 to 2230 local time. Programmes are kept simple. They include talks and short performances by visiting hams. Especially enjoyed are the good-natured chats by PA6BF, with demonstrations. The program is alternated with a test pattern and various signs.

All the receivers have been built by amateurs, and the number of viewers is increasing weekly.

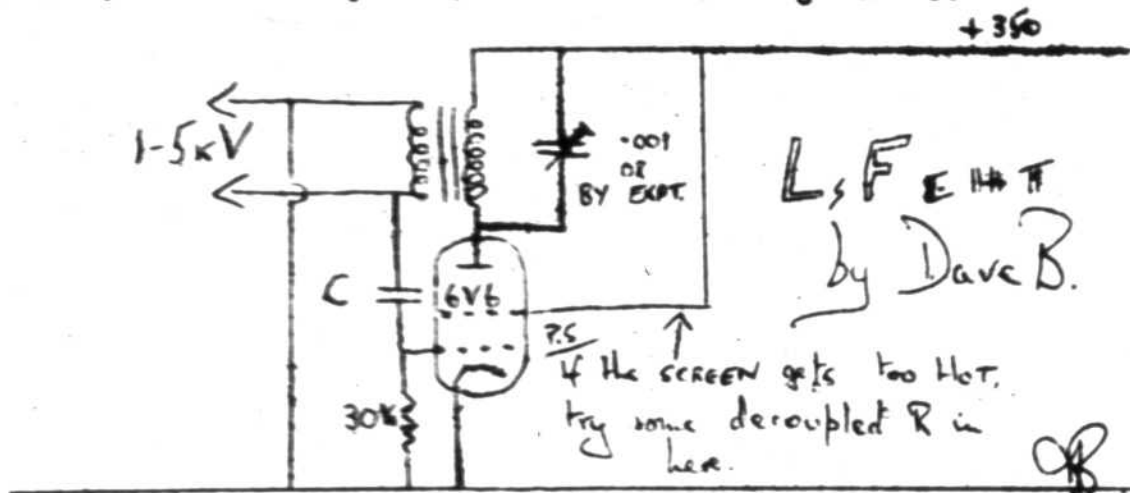
It is hardly necessary for me to point the moral of the above article. As long as our own authorities are openly hostile, there is little chance of British hams achieving a place in the TV world. It might be added, however, that a commercial station (Phillips) has now been in operation for some time in Holland, but the Dutch authorities have seen no reason for cancelling the TV licences already issued.

We are hoping for a similar article on PA6YN's rig.

LF EHT UNITS by D.P.Bishop.

The usual type of transformerless EHT supply uses a TPTG oscillator running between 30 and 100 kc/s. This design is distinguished by its use of transformers - but this time not the 50 cycle type, but certain of those "useless" radar transformers with 80 volt primaries. These transformers are normally either 400 or 2000 cycle working, and if we can build an oscillator to give 80 volts at these frequencies, then the existing high voltage windings can be employed.

The waveform of the AC applied to the transformer should be peaky to obtain a high output, and also it should be attempted, in the interests of economy, to make the transformer an integral part of the oscillator; this is easily done, and the circuit is given below.



The operation is that of a blocking oscillator, and the feedback condenser C is a very critical component. A typical value is 5pF - and do not forget that the full EHT will be across it! If a ceramic cup type is used, adjust its value for max output. The primary of the transformer is also tuned, either for max o/p or least screen colour! Transformers so far tried have included an 80v - 2.5kV (marked 2VEHT, by the way, but actually 2.5kV to earth and 2v between tags), and various line and hybrid transformers. About 2mA can be drawn from the secondary, but it is not advised to try and take rectifier heater volts from this transformer. Actually, greater output can be obtained by pulsing the transformer from a separate pulsing valve. As, however, 6 kV were obtained at one time in this manner, it should not normally be necessary.

THE FIRST BRITISH AMATEUR TV DEMONSTRATION HELD IN PUBLIC!

7.30 p.m., April 21st, 1950, saw the first public demonstration of ham TV. At an open meeting of the Shefford and District Short Wave Society, attended by some 250 people, Ivan Howard, G2DUS, demonstrated his 250 line Iconoscope camera equipment over a closed circuit, and televised 2½ hours of the meeting.

The studio was at one end of the hall, behind a large tarpaulin. The audience viewed the results on a 15" tube in front of this. In the studio was all the gear, camera, lights, sound equipment, cables, tea, cakes, - and most of the members of the Press for miles....

After a late start, due to posing for Press photos, the meeting opened with a blank screen, and G3CVO, on sound, announcing that the meeting would be held in the normal manner, but that it would be televised. The Chairman was then faded in, who made his opening speech, and then called on the Hon. Sec. to read the minutes (pan). The Chairman and Treasurer then swapped seats, and the Financial Report was read. The Chairman then announced that the evening's show would commence, and was faded out. Caption: "HAM TV!" moves aside and reveals G3CVO, who says a few words about the SATC, and introduces a local comedian who did a short sketch, in costume. 3CVO then presents Ivan himself, who gives some details of the equipment. A question and answer period 3CVO - 2DUS follows, and then CVO, ("the porr man's Leslie Mitchell!"), interviews various Club officials and back stage workers. Next, members of the audience are invited up and interviewed, and at the same time the tarpaulin is removed to show what is happening. After the refreshment break, there is a junk sale with a difference. Each item is held in closeup, and is clearly visible at the back of the crowded hall. After some concluding speeches, the meeting winds up at 11 p.m.

Such was the general scene. In the studio, various difficulties had to be overcome. Power to be laid on, cables laid, tables moved, but a small army of helpers were of great assistance. The scene was lit by 4 photofloods and two Aldis lamps, and was about 4 ft. square, i.e. two people side by side. Other lenses were used for closeups, etc. Owing to the confined space, accurate lighting was difficult, but very good head and shoulder reproduction was possible. Two mikes and a P.U. channel were used, with a 'sound engineer' in attendance, 'phones and all. The camera was mounted on an old floodlight stand for tracking purposes, the pulsing gear being on the same stand. Only three cables - power, video (coax) and sync (twin shielded), - connected the camera to the rest of the apparatus. A 9" monitor tube was visible to both camera operator (who also had a 3" viewfinder tube) and "victim", providing he could look past the photofloods!

White sheets were hung to increase the general illumination; the heat was rather oppressive to some people. Test cards and stills were mounted on the table, and little trouble was caused by microphonic camera valves as people walked across the stage. The equipment ran perfectly the whole time a matter of some 5 hours, and this alone is a tribute to the care taken in its construction. The audience was most impressed, and Ivan is to be congratulated on his great effort. He hopes to repeat it in London for the RSGB at some later date. We hope that the reports (truthful) of "....better than BBC quality..." will make the GPO -and BBC - sit up and reconsider the question of licenses.

Ivan is going to draw out the circuits for CQ-TV in the near future.

"

OTHER BLOKE-ISMS continued from page ten.

tube, and asks if anyone has tried 5 or 7BP7 tubes with blue filters to kill the orange (long) afterglow.

Fred ROSE 33BLV (Sunderland) is pressing on with his IPT, and has built the pre-amp for it. He is considering getting an Ike, and has temporarily shelved everything until he gets some pictures.

Ray HILLS (Harrow) has been passing out (metaphorically) on GEE equipment, and reports that sufficient was left over for him to complete his rx.....

Tony SALE has joined the RAF, and has not been able to do much. However, he is going in for radar so we shall see.

Dave BISHOP (Weymouth), Tony GILBEY (Chelmsford), Wally OLIVER (Morecambe) Geoff HARDING (Surrey) and Mike BARLOW have all been demobbed recently, and in the changeover to Civvy street have not had much time for TV work.

Tony LEAVERLAND, "Ivanhoe", Station Rd, Ibstock, Leics. (Tel. 208) has been doing closed circuit stills - using sine wave deflection for simplicity! (Tony is not on the list; put him down, men).



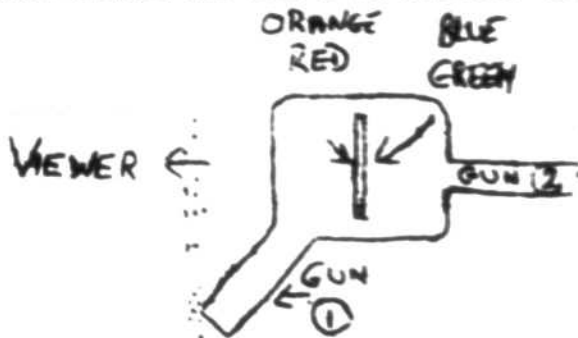
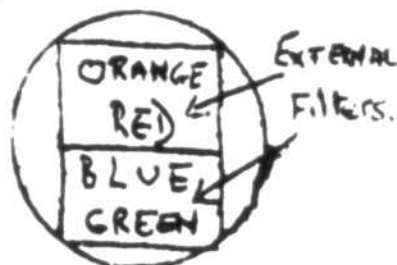
A SIMPLE SYNC
LEVEL CONTROL

T.G.

Send that mail in, chaps -even if I don't reply quickly.....

COLOUR TELEVISION

The production of a full colour picture has always been the aim of TV designers, but so far the economic and constructional difficulties have been against success. The simplest system, using rotating colour filters at both sender and receiver, suffers from the disadvantage of mechanical difficulties, and likelihood of breakdown. At the receiver, it is far preferable to use some electronic means, although at the sender it could be tolerated, since engineers are immediately available. Baird's "Telechrome" has two or more electron beams scanning screens that glow with different colours, the addition of which produces a likeness of the original. Careful balance is necessary between the intensities of the electron beams, and the deflecting systems must be very stable to maintain correct addition. For amateur work, this system is in any case impracticable unless one has a Telechrome tube.

Baird's TelechromeAlternative method

It is possible, however, to use instead two or three white trace CRTs with static colour filters in front, and to switch these on in turn superimposing the pictures afterwards optically. Obviously, projection tubes are ideal, but expensive, and again stable deflection systems are required. There is no reason, though, why one tube only should not be sufficient. Depending on whether a two or three colour system is employed either two or three pictures are produced on the face of the tube by beam-switching. With the present aspect ratio, these would be on top of one another to save tube face area, and would each have a filter in front of it. The limitation here is the definition, size and intensity obtainable for each small sub-picture, but only one deflection system need be used as any line variations will affect each picture equally.

The idea is theoretical, but should be easy to try out. The writer would be interested to hear of any results obtained.

M.B.



"WHAT THE OTHER BLOKE
IS DOING....."

Jack HARGREAVES, G5VO, (Bempton, Yorks) has been having a little trouble with his Sound rig - Meteors in the Grid overheads, and flames in the speech amp. Jack has been trying out rxs on Sutton C. Didn't you have a TV licence once, cm?

Peter PARKIN (RAF) is training as a Fighter controller at Middle Wallop. He suggests using the received BBC signals for testing the response of ge Ian WILSON (Durham) G3BHH, has been receiving S.O very well in his 3RF and 5IF rx....To combat fading, Ian has removed the DC restorer, and is trying out a stabilised Black level system instead. Because of "the nationalised electrons' go-slow policy", he is using an eight tube stabilised p/pack. QRM is giving him bother, and he enquires if anyone knows the source of that "bee-in-bottle" effect that wanders all over the bands.

I.J.P. JAMES (EALING) G5IJ has been rebuilding his sound rigs, and is often on Top Band cw. He is working his way up to the VHF bands, and expects to be on 145 mc/s and 420 mc/s very shortly.

Ivan HOWARD G2DUS (Stotfold) has rebuilt his equipment to be more portable. His 250 line pictures have caused wide comment on their quality, and Ivan has had approximately one photographer every ten minutes for the last few weeks. His show for the Shefford and District R.S is reported elsewhere. Henry de WAARD PA0ZX (Groningen) is hoping to visit the U.K for a week on May 5th, and to meet some of the BATC. He sends full details of TV in Hol (see article).

Ian MACWHIRTER G5ETI (Wirral) has been trying to photograph his results. I reports that 1½ kV on a VCR139A gives a nice bright picture, but only for a little while! Ian can't make 'aked times, but will be on 1860 kc/s Sunday from 1100. As a result of going to Paris, he sends his 75s to Bernard, with a large "Bonne Chance!"

Maurice SWIFT (DERBY) has been busy building rxs, and complains that the local apathy towards the VHF bands is discouraging him. However, he says some of the chaps are on 10 cms which is a little high, but even so.... Maurice is still getting closed circuit stills (100 line) with his green

(continued at foot of page eight)