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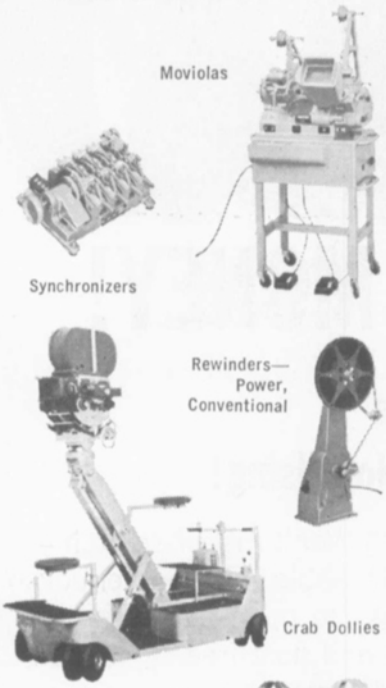

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ABSTRACTS OF PAPERS FROM OTHER JOURNALS

Abstracts of papers appearing in other journals, chosen for their importance and possible value to researchers as well as those of timely interest, are published in the *Journal* from time to time. Many translations of abstracts from foreign journals, chiefly those of the USSR, are made available to the *Journal* by the Research Laboratories of the Eastman Kodak Company. As a rule, translations are made of the abstracts and not of the papers. The journals in which the papers appear can be consulted at some libraries. Current issues of *Tekhnika Kino i Televidinya* can be consulted at, or borrowed from, the Society's Headquarters Office.

Those requiring definitive and thorough searches of current literature and patents are referred to *Abstracts of Photographic Science & Engineering Literature* (*APSE*), published monthly by the Engineering Index, Inc., 345 E. 47 St., New York, N.Y. 10017, with the editorial cooperation of the Society of Photographic Scientists & Engineers.

(Although, normally, the abstracts appearing in this column cover a wide range of subject areas, an unusually large number of papers in journals currently examined relate to various aspects of television; therefore, it has seemed feasible to limit abstracts appearing in this issue of the *Journal* to those of papers dealing with the subject of television.)

TELEVISION

Examination of the problem of registration with color television cameras with three and four camera tubes (in German), N. Mayer and G. Moll, *Rundfunk Technische Mitteilungen*, 127–134, June 1965.

The advantages of "separate-luminance" cameras are discussed with reference to registration problems. An alternative system for improving registration faults in three-tube cameras is described. This system involves use of a special brightness signal derived from Y and G inputs.—F.S.

NTSC color television transmission with additive reference carrier (in German), N. Mayer and G. Holoch, *Rundfunk Technische Mitteilungen*, 157–165, June 1965.

The susceptibility of NTSC signals to differential phase changes can be considerably reduced by superimposing on the normal color signal a low amplitude color subcarrier oscillation, thus continuously transmitting the reference phase. This oscillation is reversed on alternate lines. Automatic compensation and suitable equalizing equipment is described.—F.S.

NTSC-PAL-NTSC transcoding (in German), N. Mayer and P. Albrecht, *Rundfunk Technische Mitteilungen*, 145–156, June 1965.

The susceptibility of NTSC signals to differential phase changes can be considerably reduced by transcoding them into simplified PAL signals before, and back to NTSC after, a distorting transmission element. Standard NTSC-PAL-NTSC transcoders are also described.—F.S.

Test patterns for color television transmission equipments, H. Schonfelder, *Rundfunk Technische Mitteilungen*, 135–144, June 1965.

The addition of I, Q and stairstep signals to a simple color bar test signal enables more accurate phase measurements to be made with a vectorscope, and permits better line-up of television receivers.—F.S.

An investigation to determine the transmission characteristics of an electronic color camera under studio conditions (in German), F. J. In Der Smitten, *Rundfunk Technische Mitteilungen*, 121–126, June 1965.

Describes a method of using a color camera to display color mixing curves so as to make possible a direct determination of the effect of changes of studio lighting, scene brightness, photocathode material, etc.—F.S.

A field interlace system for closed circuit television, A. B. E. Ellis, *Marconi Rev., XXVIII:* 135–146, No. 157, Second Quarter, 1965.

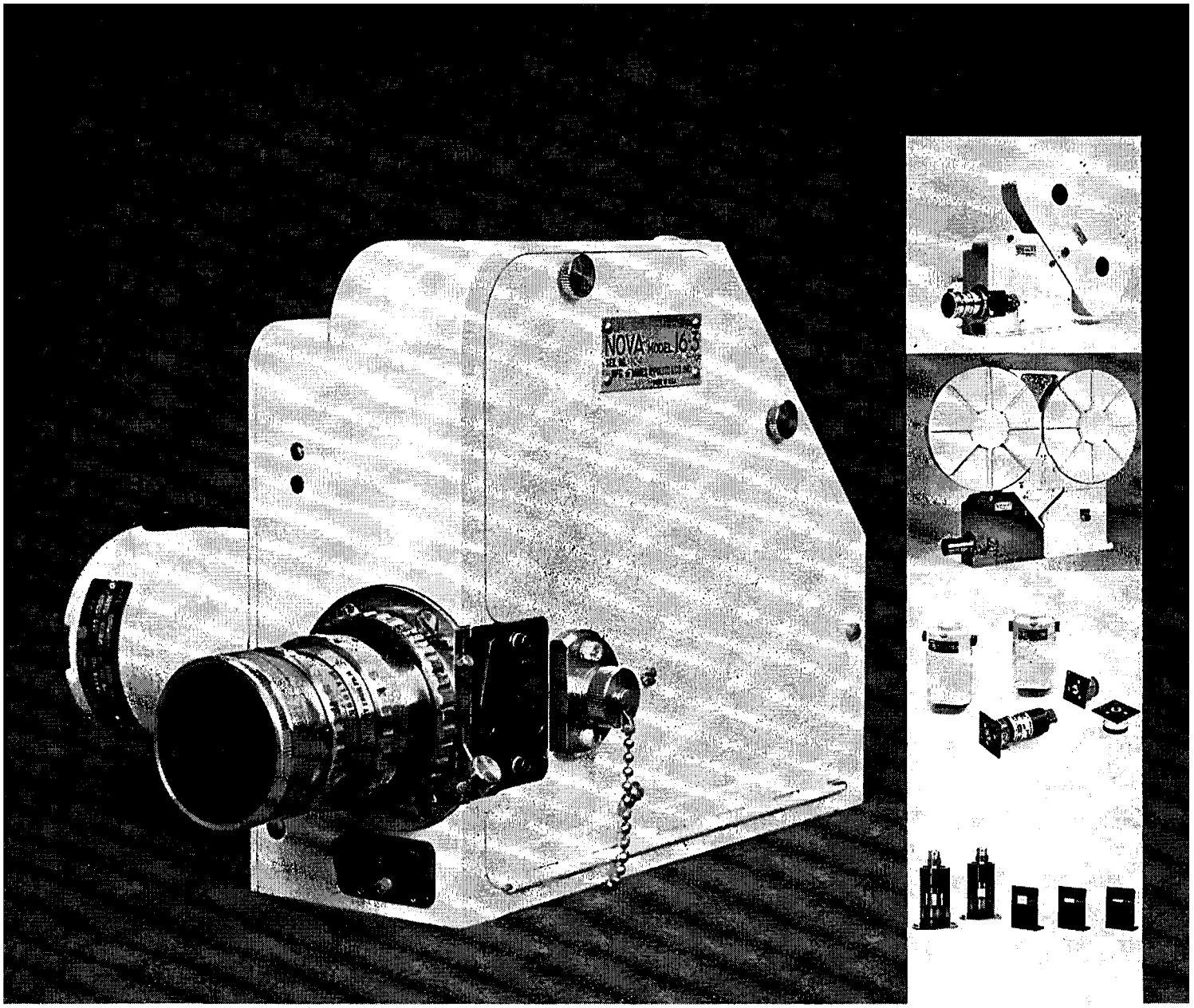
A brief description is given of the present method of generating field interlace synchronizing pulses for television systems. A new approach is described whereby most of the disadvantages of the present method can be overcome using pulse techniques. The new method can be applied in two ways both of which are described. One of these methods is extended to provide pulses for an eight field interlaced picture. Final results of these systems are shown to give good performance at greatly reduced cost and complexity.

Satellite telecommunications, *E.B.U. Rev., 87-A:* 239–241, Oct. 1964.

Experiments in telecommunications by means of artifical earth-satellites are proceeding within the frame-work of a number of current projects. However, the end of the experimental period now seems to be in view, and the attention of the administrations and organizations concerned is turning more and more to work related to the establishment of operational systems. A brief summary is given of recent developments in the field.

A versatile two-camera outside broadcast unit, P. A. T. Turral, *Sound and Vision, 5:* 25–30, No. 2, Summer 1964.

The increasing trend towards the inclusion of more outside broadcast material in television programs has led to the development of various types of outside broad-



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cast units. The Marconi Company has done much pioneering work in this field, and several examples of units designed by the Company have appeared. Latterly, they have produced two widely different designs which could be said to represent the two extremes of design—one is an eight-camera vehicle capable of contending with the most complex outside broadcasting production, and the other, a two-camera van which, though small, can still originate comprehensive programs.

A color television projector for medium screen applications, P. Lowry, *J. Brit. IRE, 25:* 305–320, Apr. 1963.

The need for large color displays is outlined and various methods of projection reviewed. Detailed requirements are discussed, including choice of cathode-ray tube optical system, correction for various forms of distortion, scanning and video drive arrangements. Methods of operating are mentioned and the mechanical construction and circuit diagrams described. The paper concludes with a summary of performance and applications.

Visual detection in intensity-modulated displays, J. W. R. Griffiths and N. S. Nagaraja, *J. Brit. IRE, 25:* 225–240, Mar. 1963.

In a two-dimensional intensity-modulated display such as the plan position indicator used in radar systems, the observer is looking for and recognizing the signal as an area, or pattern, of brightness differing from that of the surround. By using a closed circuit television system it was possible to reproduce the essential features of this type of display while having complete control over the important parameters—signal area, background noise, target presentation time, etc. In particular, the background can be changed from being uniformly illuminated, i.e. the situation studied by many psycho-physiologists, to the more realistic situation appertaining to radar displays, i.e. when the background is completely perturbed by noise.

Threshold signal/noise ratios have been measured for a number of such conditions and compared with those of an equivalent theoretical model. The results suggest that the visual detection system is a sub-optimum one and its efficiency is dependent, among other things, on the area of the signal. This point goes some way to explain some previously observed discrepancies between experimental and theoretical rates of improvement with increase of area.

A two-channel method for compressing the bandwidth of television signals, M. P. Beddoes, *Proc. IEE, 110:* 369–374, Feb. 1963.

The results of experiments with a coder for compressing the bandwidth of television signals are reported. A complete television system was used consisting of a transmitter, a receiver and two channels. At the transmitter a 'slope-feedback' coder reduced the bandwidth of the television signal before transmission; waveforms specifying scanning-spot brightness and scanning-spot position were separately conveyed to the receiver; the two waveforms were used to reconstruct the television picture at the receiver.

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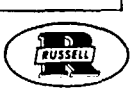

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It is shown that, under virtually noiseless conditions, the total bandwidth for the television signal can be reduced some 3.7 times below the normal one. For this extreme compression ratio, some distortion is evident in the received picture, even when slope-feedback coding is used. This mainly takes the form of incorrect shading of large surfaces and some defocusing where white dots are excessively reproduced; some spatial distortion is also evident. These detrimental effects could be reduced with improved experimental techniques. The experiments show quite definitely that cyclic patterns which were suppressed by narrow channel bandwidth can be restored by slope-feedback coding using the same bandwidth.

Some features of the method are (*a*) the irregular scanning motions in the horizontal and vertical directions, (*b*) the variation of about 10% in the number of pictures per second (each picture contains the same number of scanning lines), (*c*) that synchronizing pulses are not needed, and (*d*) that relatively standard apparatus is required, although the cathode-ray tube at the receiver must have a wide contrast range.

The lowest signal/noise ratio which can be tolerated in each of the channels does not appear to be excessive; for one channel it is much the same as for normal television (30 dB or so), and for the other it is higher, i.e. 45 dB.

It must be emphasized that the experiments are limited to indicating some of the potential features of the two-channel method; they do not constitute a crucial test of the method whose final value must be assessed with more refined experimental techniques than are available to the author.

A sub-carrier regenerator circuit for color televison receivers, M. C. French, *J. Brit. IRE, 25:* 83–95, Jan. 1963.

The three principal circuits used to provide a continuous source of sub-carrier in an N.T.S.C. color receiver are briefly described. The phase and frequency-controlled crystal oscillator circuit, commonly called the automatic phase control circuit, is described in detail.

Multiplexing f.m.-multiplex, M. W. S. Barlow, *Sound and Vision, 5:* 26–29, No. 3, Winter 1964/1965.

An unusual multiple f.m. installation has recently been completed in Montreal, Canada. Restrictions imposed by the local authority have meant that the aerials of the various local television and sound broadcasting stations have had to be concentrated in one area on Mount Royal, above the city. Here, among others, four antennas in the form of a candelabra system, are mounted on a platform on top of a mast. Into one of these antennas are combined the outputs of four f.m. stereo transmitters.

Problems of band IV/V coverage, H. Ehlers and K. Vogt, *E.B.U. Review No. 88A:* 260–261, Dec. 1964.

The Band IV/V transmitting channels that were assigned by the European Broadcasting Conference in Stockholm 1961 to the Federal Republic of Germany are not sufficient for assuring complete coverage

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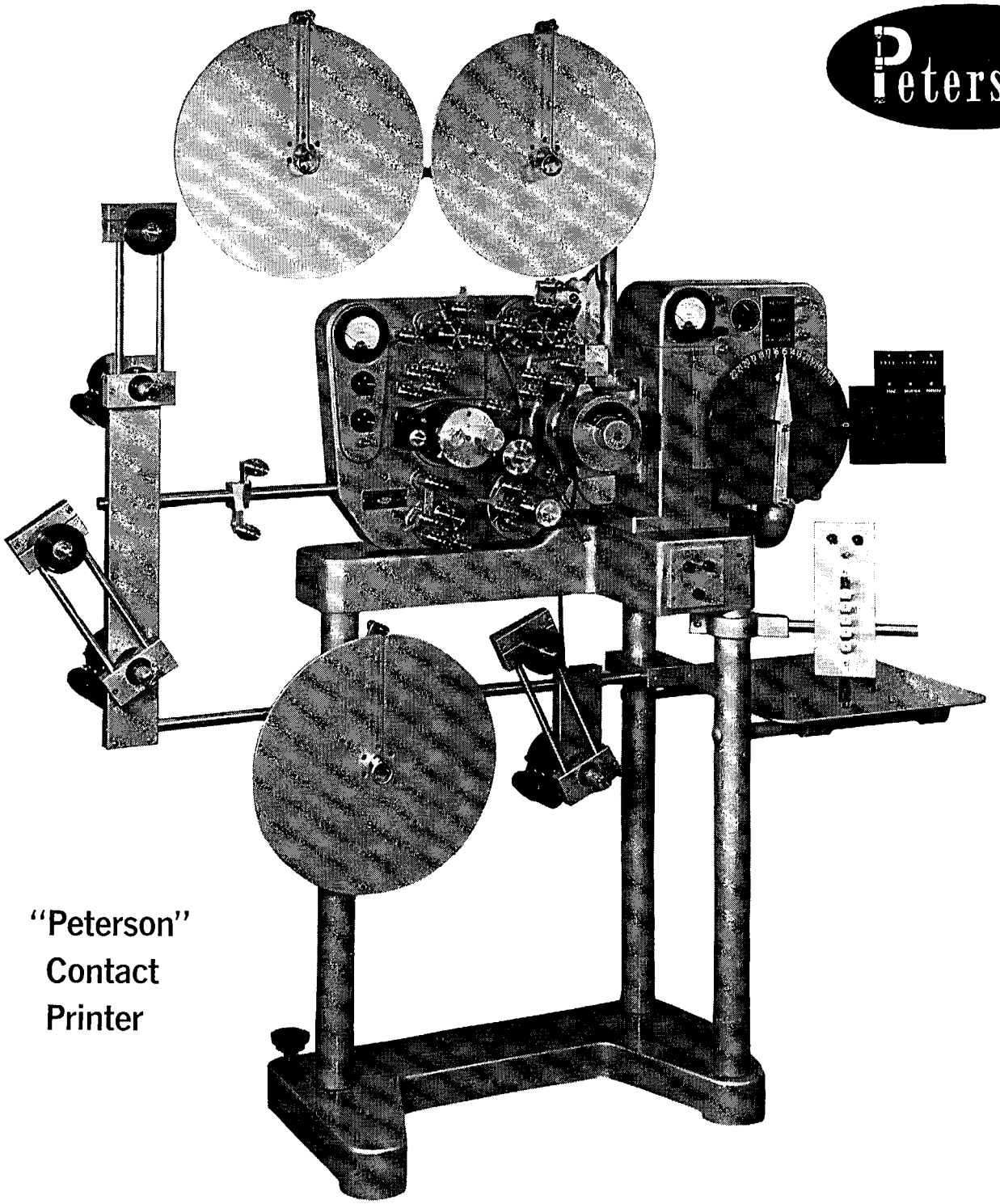

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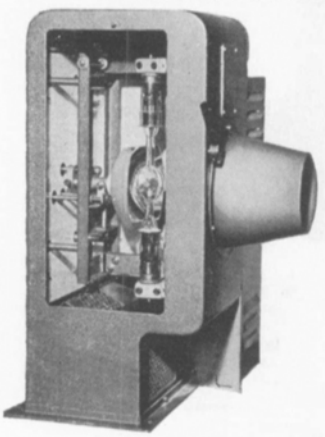

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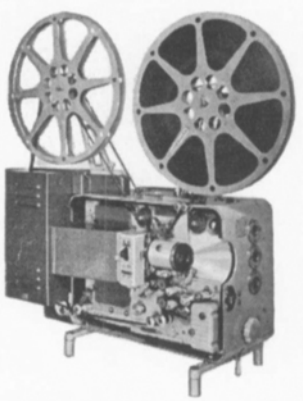

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of three television programs. It is, therefore, necessary to use a large number of additional transmitters to fill the gaps in coverage. A group of experts of the A.R.D. and the D.B.P. has been formed to find a solution to the tasks involved.

The necessity of a frequency plan for gap-filling television transmitters in Band IV/V, W. Berndts, *E. B. U. Review No. 88A:* 261–262, Dec. 1964.

The article describes the requirements for using Band IV/V on the basis of experience gained when establishing the television network in Bands I and III in the Federal Republic of Germany. The necessity of adding some 5000 low- and medium-power gap-filling transmitters to the basic network of the Stockholm Plan (1961) makes it necessary to introduce a systematic frequency plan for gap-filling transmitters. The article gives the conditions for a frequency plan for gap-filling transmitters in Band IV/V.

Adding a plan for gap-filling transmitters in Band IV/V to the basic network on the Stockholm Frequency Plan (1961), H. Eckold, H. W. Fastert and W. Naujack, *E.B.U. Review No. 80A:* 263–268, Dec. 1964.

After a theoretical examination of the possibility of adding to a regular network a plan for a large number of gap-filling transmitters with outputs of less than 10 kw, the article describes a practical application of a gap-filling plan, taking into account the existing network of basic television Band IV/V transmitters according to the 1961 Stockholm Plan.

Group delay equalization of bandpass filters at intermediate frequencies, J. K. Skwirzynski and E. J. C. B. Dunlop, *Marconi Rev., 27:* 162–187, No. 155, 4th quarter 1964.

Nonuniform group delay responses of typical intermediate frequency amplifiers, such as are commonly used in FM systems, may have detrimental effects on distortion figures and cross modulation. Therefore, selectivity curves of such amplifiers are often adjusted to provide gradual and limited deviations of group delay from a constant level. The resultant delay responses then exhibit characteristic parabolic shapes, which are not necessarily symmetrical with reference to the mid-band frequency. Such group delay responses may be considered as sums of symmetrical parabolic and linear contributions. In the equalization procedure developed here, each contribution is catered for by one all-pass equalizer section. Therefore the total group delay equalizer consists of two sections. Charts and graphs are provided for the determination of equalizer network elements and expected errors, starting from measured delay responses. Three design procedures are provided which may be suitable for particular purposes and which may readily be modified for special cases. Some suggestions for alignment of all-pass sections are also included.

Design of a single port S-band parametric amplifier, K. V. Gopala Krishna and S. Ramogopal, *J. Inst. Telecommunication Eng.:* 415–423, Sept. 1964.

The design and constructional details of a single port S-band parametric amplifier are discussed. The expression for gain-bandwidth product and the noise figure of the amplifier are derived and the computed values are compared with the experimental results.

Delay measurement and dispersion in quartz delay lines, D. G. King, *Marconi Rev., 27:* 188–201, No. 155, 4th quarter 1964.

Several methods of measuring group delay in quartz delay lines are described. A theoretical explanation of dispersion in these lines is discussed.

A new studio vision mixer, G. Farnworth, *Sound and Vision, 5:* 6–11, No. 2, Summer 1964.

Up to now equipment for vision mixing in television studios has been to a great extent designed to fit the specific requirements of the user. Certainly this is true in the larger studios. The basic units making up these systems are nevertheless standard design. There are many instances where a standard mixer made up of these units would fit ideally into the average studio, with the advantage of a more economical installation. This article describes the capabilities and facilities provided by such a mixer.

Television in Venezuela, R. D. Evans, *Sound and Vision, 5:* 18–23, No. 2, Summer 1964.

Of the countries of the South American continent which have shown the greatest economic advance Venezuela must rank among the foremost. This advance has been based on the exploitation of very large oil and mineral deposits and shows itself externally in the magnificent new cities and industrial plants that are now springing up. Venezuela was among the first countries in South America to have television and there are a number of television companies operating in the country.

Eine Zweckmassige Erweiterung Des Impuls und Sprungsignals (A Convenient Extension of the Pulse and Bar Signal) (in German), P. Wolf *Rundfunkt Technische Mitteilungen,* Feb. 1965 621.317.7:621.397.6

A 2T sine-squared pulse does not rigorously check the performance of a TV system near color subcarrier; a T pulse contains components which lie outside the passband. A new test signal is proposed consisting of a 20T pulse of 3.58 Mc/s carrier. Frequency-amplitude errors at color subcarrier show as humps or dips in the waveform baseline; phase errors show as an S-distortion of the baseline. Both errors show on the waveform before they are seriously noticeable on a color picture. Combination of the 20T pulse with a standard pulse and bar signal is suggested.—M.W.B.

Television studio lighting suspension, K. Ackerman and P. Berkeley, *Sound and Vision, 5:* 4–10, No. 3, Winter 1964/1965.

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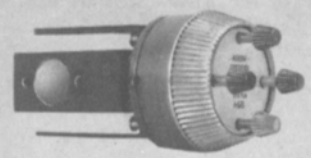

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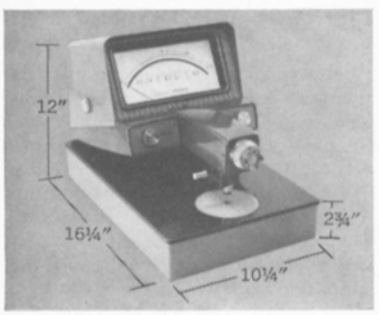

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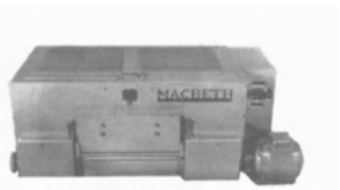

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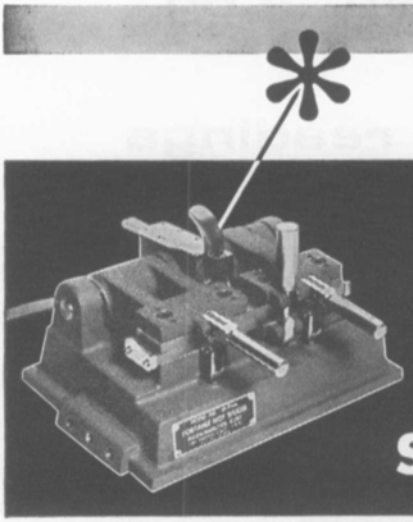

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plexity of the lighting. Two broad types of suspension are used in the larger studios, each with its intrinsic advantages, and these are discussed in an article derived from a recorded discussion by leading protagonists of each system. Variants and other forms of suspension, particularly for smaller studios are also mentioned (first of a series of articles covering the whole question of studio lighting). In this instance Ken Ackerman of the BBC and Phil Berkeley of ABC Television took part in a discussion with the editor.

The development of transmitting aerials for Bands IV and V, J. Bodonyi and R. G. Wills, *Sound and Vision, 5:* 11–19, No. 3, Winter 1964/1965.

The congestion in the hf band has led to the exploitation of the uhf bands for television in many countries. Under the Stockholm Plan more than 4,500 uhf television stations are allowed for in Europe. It is therefore not practical that each of these stations should have an individual aerial designed for it. Manufacturers must decide on a standardized form that can be made in large quantities. The authors of this article have been engaged in the design of aerials of this type and they discuss the design criteria of these new aerials.

Two new amplifiers for video and pulse distribution, P. B. Helsdon, *Sound and Vision, 5:* 20–24, No. 3, Winter 1964/1965.

One point in the television chain where full advantage can be taken of transistors is in video and pulse distribution amplifiers. In a complex organization these can proliferate and the small size, low heat dissipation and intrinsic reliability of transistors can prove very valuable. These amplifiers, however, call for an exacting performance specification especially as the video amplifier is designed for color television. The author who has been engaged on their design writes on the considerations that prompted the various courses taken.

Television camera mounting equipment, W. P. Vinten and D. C. Ward, *Sound and Vision, 5:* 30–36 No. 3, Winter 1964/1965.

A very important, but somewhat neglected, part of television is the camera mounting equipment. The continual desire for more flexibility and improved presentation has led to the development of more versatile mountings. New ideas, however, are impinging on the scene, and may well have a revolutionary effect on mountings in the future.

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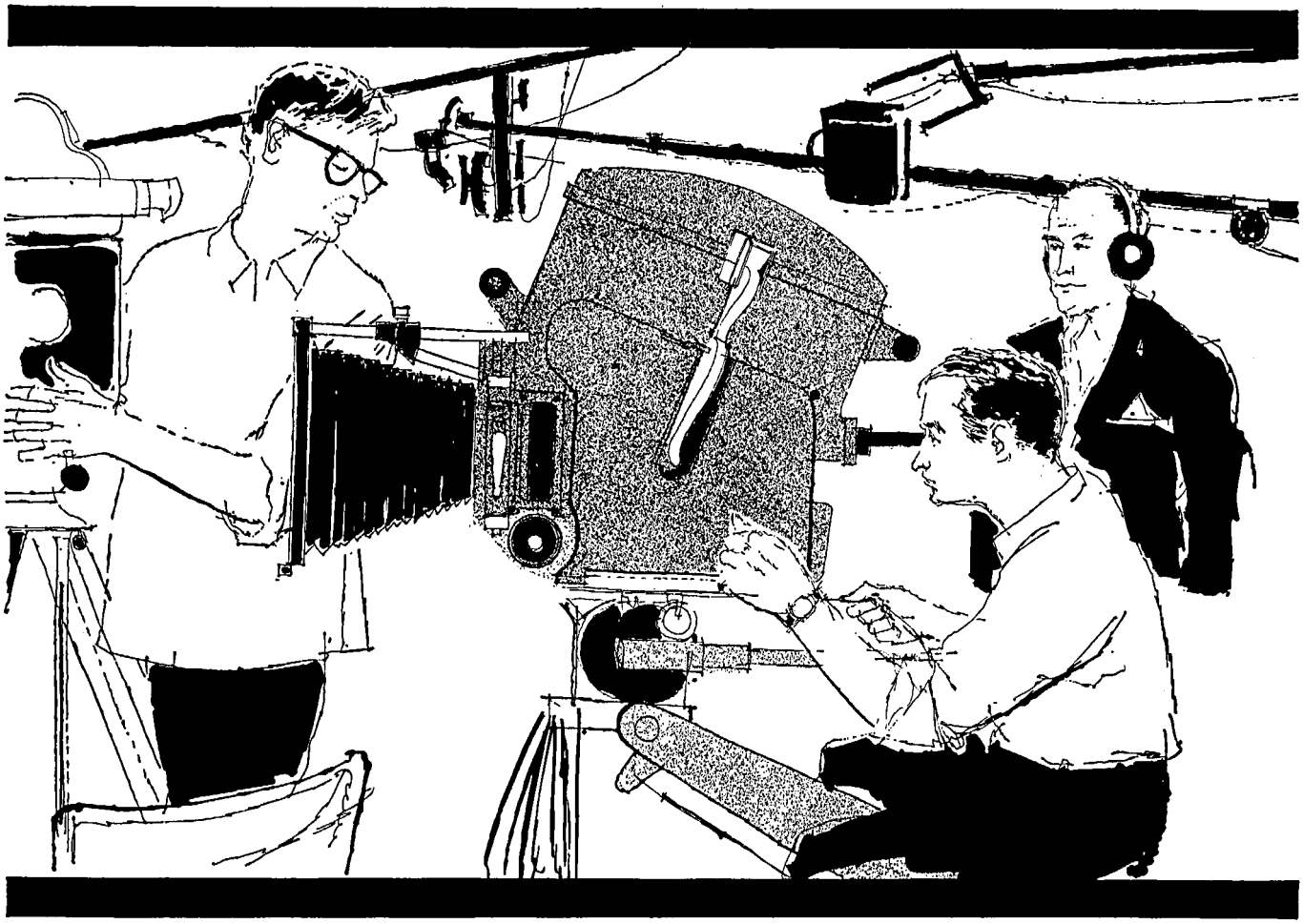

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