



Another group of visitors at the Overseas Reception including W0NWV/G5ADJ, W2EYR/G5ACL and 9M8QM.

(Photo by G3NMR)

completely modern equipment: in 7½ in. × 4 in. × 6 in. is a 38 semiconductor tunable first i.f. amateur band receiver (see September issue, p. 582, for photo). Twelve bandswitch positions cover 80m, 40m, 20m, 15m, 10m and 6m, plus 10 Mc/s (for WWV) and two spare 550 kc/s segments. The manufacturers are particularly proud of its good cross-modulation performance, which is a characteristic of the field-effect transistors used in the two r.f. input stages, and the selectivity curves, obtained with combinations of a mechanical filter, crystal filter, ceramic transfilters and standard transformers. The i.f. switching does not, incidentally, mean r.f.-live leads to a panel switch, routing of the signal being achieved with d.c. operated diode gates. Bandwidths obtainable are 500 c/s, 2.1 kc/s and 5 kc/s. It is mechanically novel, plug-in glass-epoxy printed circuit modules being used exclusively, sliding into slots in screening members of a single aluminium extrusion. Great care seems to have been taken in the design and construction, exemplified by p.t.f.e. wiring and a diecast v.f.o. drive gearing housing. The maximum audio output is 1 watt, matching into any impedance from 8 ohms to 45 ohms, plus a 600 ohm earpiece output. The DR30 costs \$398.50 in the USA.

Green Electronic and Communication Equipment Ltd. introduced a range of v.h.f./u.h.f. converters employing FETs.

Electroniques (Felixstowe) Ltd. have combined with STC Electronic Services to provide a by-return mail order service for all types of radio components and certain equipment. A very imposing stand displayed a proportion of the stocks interesting to amateurs, such as an aerial rotator, Japanese transmitter and receiver, circuit modules, filters, equipment housings, microphones and valves. The aerial rotator, made in the USA by Channel Master, is notable for the claimed accuracy to which the aerial may be set—Selsyn control permits rotation by 1° increments. An all-steel thrust bearing is incorporated in the motor housing, and this should accommodate most v.h.f. arrays, although for very windy locations and a considerable length of mast above the rotator, the user may wish to add an alignment bearing to relieve the side thrust. The price of the rotator, the Tenn-a-Liner model 9528, is £17 17s for the fully automatic version, and £12 12s for the compass type. Specimen models of the Star SR700 receiver and the ST700 s.s.b. transmitter were on show—delivery to customers should be possible early in 1967. The transmitter covers the complete bands 80m, 40m, 20m, 15m, and 10m, running a maximum of 200 watts p.e.p. The s.s.b. is filter derived (mechanical filter), and amongst the facilities are automatic sidetone, a.l.c. grid block keying for c.w., PTT, VOX, and, of course, manual operation. The companion receiver is a crystal-controlled front-end type, with three i.f. passbands of 500 c/s, 1.2 kc/s and 2.4 kc/s.

Facilities include a 100 kc/s crystal calibrator, tunable notch filter, switched sideband selection and a means of connecting the receiver to the ST700 so that the pair can be operated as a transceiver. The simpler SR150 and SR550 receivers were also on show. For amateurs and enthusiasts who prefer to assemble their own equipment, but who do not have much time to wire up components, Electroniques displayed the first four units of a new line of transistorized modules. These four devices were i.f. amplifier/filters to cater for different requirements: (i) a commercial grade module with a 7.5 kc/s 6db bandwidth at 470 kc/s, incorporating an a.m. detector and a.g.c. output, for 37s. 6d.; (ii) a 455 kc/s professional grade unit using a Brush-Clevite ladder filter providing a bandwidth of 8 kc/s at 6db; (iii) a professional unit using a half-lattice crystal filter with a bandwidth of 2 kc/s; and (iv) another professional module using a half-lattice crystal filter with a bandwidth of 2 kc/s, but for an i.f. of 1.6 Mc/s. The price of each professional module is the same: £8 17s. 6d. Five new diecast boxes have guides on the internal walls to retain printed circuits or Veroboard. The boxes are cast in aluminium alloy, and are available in sizes of 4½ in. × 3½ in. × 1½ in. to 10½ in. × 6½ in. × 2½ in., at prices ranging from 7s. 6d. to 22s. 6d.

Also on Electroniques' stand were products from another comparatively new firm, Light Electro Developments, Ltd. LED's showpiece was the Anglian 650, an exceptionally comprehensive sideband transceiver with a built-in linear to deliver the UK licensed maximum power from 80m to 10m. A particularly interesting feature was its twin dial mechanism: one scale is used, but with twin drives, pointers and v.f.o. tuned circuits, which are switched into the oscillator valve as required. Thus the Anglian can operate as a normal transceiver, or as separate transmitter-receivers. It is sizeable, but this appears to be justified by the comprehensive circuit. Companion equipment on show, included a transverter, the Anglian 20-2-2. This delivers 40 watts at 2m from a QQV06-40A, and incorporates a converter to reduce received signals from 2m to 14-14.5 Mc/s. The Anglian 80/20 is a 3.5 and 14 Mc/s mobile transceiver with an output of 200 watts p.e.p. at the modest price of £65.

KW Electronics Ltd. exhibited a new receiver, the KW201, which, sitting beside the Vespa sideband transmitter, makes an attractive pair. Special attention has been paid to external appearance, as it bears a new style of dial, illuminated coloured legends to indicate the selected sideband, and a new pattern S meter. The slide rule dial is calibrated for a 200 kc/s segment, and 11 bandswitch positions (a tunable first i.f. is used) enable it to cover all the amateur bands up to 28.8 Mc/s. The quoted sensitivity is 1 µV for a 20db signal-to-noise ratio. The other important criterion, selectivity, is 3.1 kc/s, produced by a mechanical filter; for the c.w. devotee, this can be sharpened up with an



The KW201, a new amateur bands receiver developed by KW Electronics Ltd. The method of interpolation employed with the compact dial allows the frequency to be read to within 1 kc/s.

(Photo by courtesy of KW Electronics Ltd)

optional outboard Q multiplier (£8 10s.). There is also an extra unit for frequency measurement, a 100 kc/s crystal calibrator (£6). An interesting mechanical change can be found in the KW201, incidentally, the traditional chassis having been replaced by a large printed circuit. The price of the receiver is £105. Another instrument making its debut was a low voltage stabilized power supply which can provide a constant voltage at any setting between zero and 24 volts, with a maximum current of 500 mA. The latter parameter is continuously monitored by a large, clear plastic, panel meter. Use of the supply is not restricted to positive or negative earth applications, as both terminals are completely isolated. The case measures approximately 6 in. \times 4 in. \times 4 in., and the price is £12 10s. ElectroSil tubular resistors, suitable for use as dummy loads were displayed, as well as a complete dummy load unit manufactured by KW. If used in conjunction with the established E-Z match (a versatile high power aerial matching unit) and the KW match (an s.w.r. meter which can now, incidentally, be used with 50 ohm cable as well as 75 ohms) a complete transmitter matching system results. The KW2000A transceiver, and the commercial-use version were on show, as well as other manufacturers' complete equipments from the USA, Japan and Italy.

Putting a sideband transmitter or transceiver on 2m is now catered for by **TW Electronics** who exhibited a prototype transverter which should be in full production by March 1967. It is driven by the 28-30 Mc/s output of an s.s.b. transmitter, which matches into an internal oil filled dummy load. The 10m signals are filtered and heterodyne converted to 144-146 Mc/s to drive the QV06-40A linear p.a., capable of delivering 150 watts p.e.p. On receive, a NuVistor converter produces a 28-30 Mc/s i.f. The price of the transverter is £69, and a companion power unit £30. The rest of the TW range was available for inspection, including the single band 4m or 2m Communicator (which uses a QV03-10 p.a. and transistor receiver), a v.h.f. mobile receiver, and the seven-valve v.h.f. transmitters.

J-Beam Engineering displayed a new aerial, a four element Yagi for 10m, which dwarfed the other arrays on the stand. This is a departure for the firm which has hitherto specialized in v.h.f. and u.h.f. aerials. The 10m beam, priced at £18, consists of four dual section elements fitted to an aluminium alloy boom, which itself is supported by a steel tube, on the lines of the 6m export series. A twin matching system incorporates a coaxial balun for 52 ohm feeder. Three other new aerials were announced, though were not on show: six, eight and ten element Yagis for 4m. The latter model is 21 ft. 2 in. long! A 70cm Parabeam was also displayed.

Microphones were the principal feature of the **Grampian** stand, and in particular two new ribbon microphones, the GR2, which has the usual figure of eight pattern, and the

GR1, a cardioid model capable of 10db suppression of the higher frequencies at the rear. Both versions, however, are the same basic price: £10 10s. Another new product was a low cost four channel active mixer, type 18/4. It is transistorized, operating from a 9 volt battery, and its performance is 100 c/s-10 kc/s, ± 3 db, with less than 1.5 per cent distortion.

Perhaps the colour schemes were flamboyant for amateur shacks, but the actual designs of the professional cabinets on the **Alfred Imhof** stand could suit practically every requirement. Less expensive and rather more versatile methods of housing equipment were also demonstrated—**Imlok** and the **Cubical Construction System**—which could be categorised as do-it-yourself. This **Uxbridge** company shared the stand with **Imhof's (Retail) Ltd.**, of New Oxford Street, London, who are Eddystone agents. The amateur band EA12, the transistorized EC10 and the 940 receivers were on show, accompanied by the EB35, a new transistorized broadcast receiver, similar in appearance to the EC10, but covering the h.f. and v.h.f. broadcast bands.

British and American Heathkits were well represented on the **Daystrom** stand, especially amateur band and test equipment. There were, however, some fascinating kits not connected with the subject of the exhibition, such as a working analogue computer (**American Heathkit**). There was news of a new import to accompany the SB100 series of transmitters, receivers and amplifiers: the SB610. This is a cathode ray signal monitor—for use with transmitters and receivers—which can display a transmitted signal pattern, r.f. envelope, trapezoid, an RTTY cross pattern, and signals from any receiver having an i.f. below 6 Mc/s. The frequency coverage when used with a transmitter is 160m to 10m, and it will operate at power levels of 15 watts to 1 kW into 50-75 ohms. To facilitate p.e.p. measurements with s.s.b. transmitters, two audio oscillators are provided, the frequencies being 1500 c/s and 1950 c/s; thus within the range of all standard filters. The price of the kit is £42.

Constructors who are tired of fiddling with pieces of wire may have found their needs suited in **Cir-Kit**, a simplified method of fabricating printed circuits, manufactured by **Peak Sound Ltd.**, and demonstrated by **Enthoven Solders Ltd.** The unconventional approach lies in the fact that the circuit is not etched, but strips of copper are affixed to a plain prepared laminate board with an impact adhesive coating on the foil. When the circuit is complete, the joints are just soldered and necessary holes drilled. Enthoven's own products were also continually demonstrated, special attention being paid to proper preparation of the surface to be soldered; a task for the variety of soldering fluxes offered.

The adjacent stand, **Salford Electrical Instruments Ltd.**, displayed a comprehensive range of quartz crystals, capacitors, metal rectifiers, and the Selectest and Minitest multi-range meters. Special prominence was given to ferrite toroidal cores, which are gaining increasing popularity in amateur equipment.

The **Swan 350** was the most familiar equipment on **Peter Seymour's** stand, but there was also a newer range, the **Sommerkamp** equipment units on show being the FR100B receiver and the FL200B transmitter. The FR100B's principal features include two mechanical filters in the i.f. chain, one providing a bandwidth of 4 kc/s for a.m. reception, and the other 2.1 kc/s wide for s.s.b. C.w. is also catered for with a crystal in series with the narrow mechanical filter. The frequency coverage is 3.5 to 29.5 Mc/s (amateur bands), plus a position for WWV and space for three additional bands. The tuning ranges are 600 kc/s wide. Sensitivity is claimed to be better than 0.5 μ V for 10db signal-to-noise ratio. The price of this 10 valve, 15 semiconductor receiver is £120. The companion s.s.b./c.w. transmitter, the FL200B, covers the same bands as the FR100B receiver, but only up to 29.1 Mc/s. The pair of 6JS6 linear p.a. valves can run up to 240 watts p.e.p. The transmitter contains 12 valves, 10 semiconductors, including a solid-state



A typical RAEN base station was in operation during the exhibition on the 4m band to demonstrate the activities and facilities of the Radio Amateur Emergency Network.
(Photo by C. R. Cooper)