



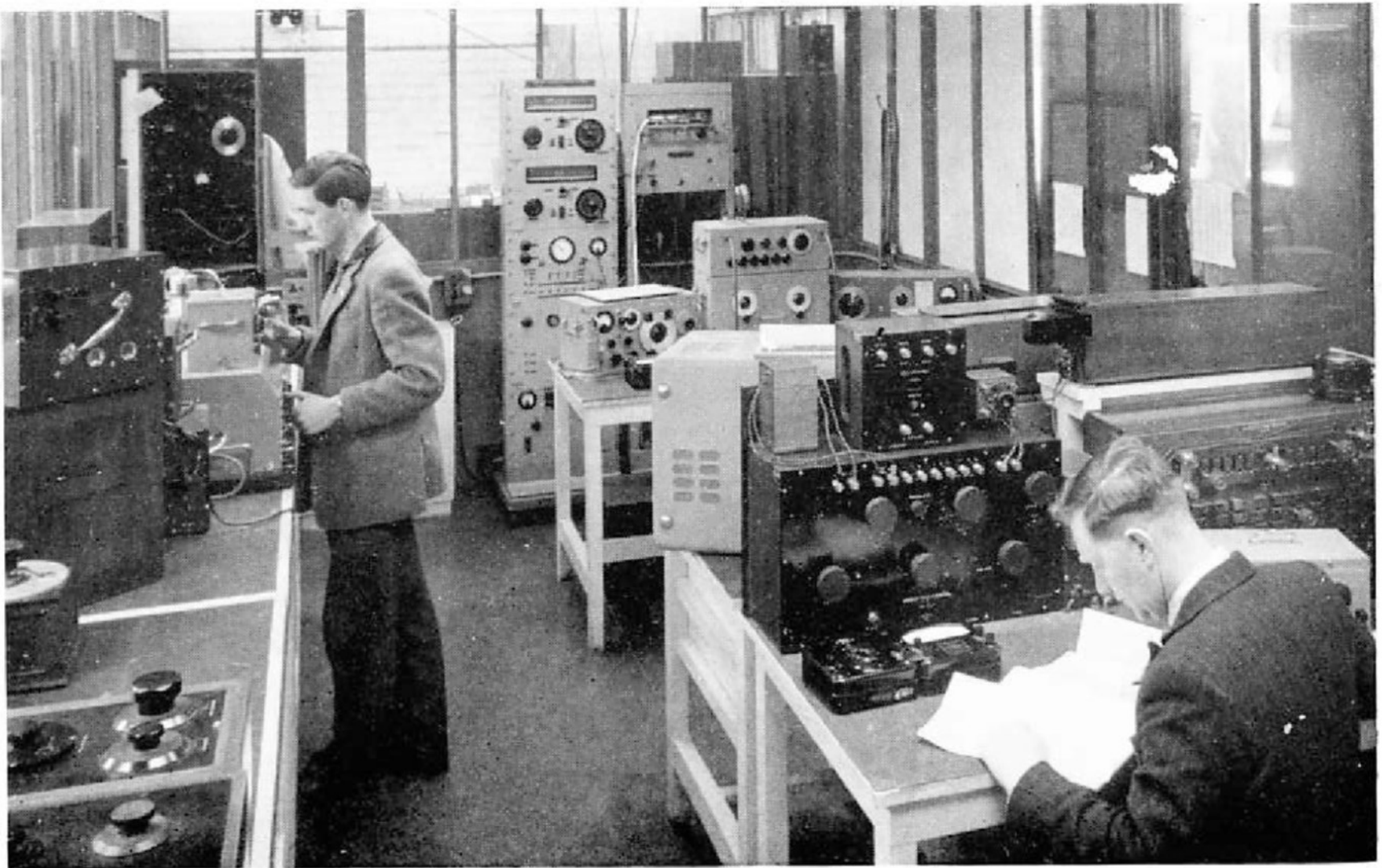
STANDARDS OF MEASUREMENT

EVERY MORNING of the working week an interesting little procedure is carried out in the Marconi Instruments' Standards Room. One of the engineers in this section checks the TME 1 Frequency Measuring Equipment against a time signal from the transmitter at Rugby. Both signals are recorded on paper tape on the TME

3 Double Pen Recorder and the slightest variation in accuracy of the TME 1 can be quickly calculated. The *slightest* variation is not exaggerating for the TME 1 is maintained at an accuracy of one part in a million.

Briefly, this section standardises the test gear that is used in calibrating and testing. Great accuracy is required. For

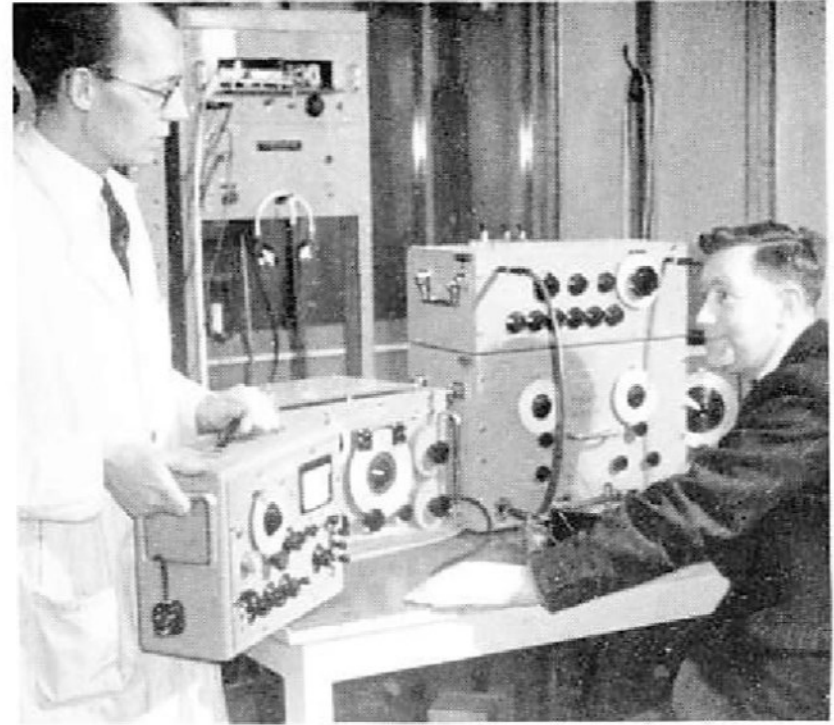
The Standards Room is the key to the accuracy of all M.I. instruments. Here two engineers are working in collaboration on the checking of the Dielectric Test Set TF 704B



instance, the output level accuracy of the TF 867 Standard Signal Generator must not err more than two and a half per cent below three Mc/s; the Calibration and Final Test generators used in checking the instrument are a great deal more accurate, while the Standards Room equipment must be correspondingly still more precise.

To the non-technical, all this emphasis on super accuracy may seem slightly unnecessary. But it must be appreciated that even the slightest relaxation in the Standards Room vigilance could quickly be reflected in the finished product, with a flood of complaints from disgruntled customers. That sort of thing is just *not* allowed to happen. In order to see that it doesn't, a continuous check is kept on all the equipment in the Standards Room. Furthermore, every instrument is sent at regular intervals to the National Physical Laboratories at Teddington, where it is submitted to

Jim Crane, Standards Chief, discusses a point with Rhys Richards during the checking of Standard Signal Generator TF 867



Dennis Brown, Calibration, brings in an F.M. Receiver Tester for crystal oscillator checking

rigorous testing and returned in due course with a full report on its efficiency.

The instruments used by Calibration and Final Test sections are tested in the Standards Room, the frequency of checking depending on the type of equipment and its amount of use. During our visit we noticed Dennis Brown, Calibration, bringing in an F.M. Receiver Tester TF 913. This instrument is a small portable signal generator with crystal controlled oscillator and audio frequency power meter. The accuracy of the frequency output of the instrument depends on the crystal controlled oscillator and during its stay in Standards Room this part of the circuit receives a thorough test.

Due to the wide variety of measurements that have to be made, the choice of equipment for the Standards Room requires the greatest consideration. It would be quite possible to get a different instrument to do each measurement. But for such an arrangement a Standards Room the size of the Albert Hall, or thereabouts, would be required. The instruments chosen, therefore, must be both versatile and accurate. The Company's instruments adequately fill these requirements, exceptions being equip-

ment which is outside its field of manufacture.

The engineers in the Standards Room require the patience of Job combined with the wisdom of Solomon. At no time must they assume what appears to be obvious, all figures being checked . . . and re-checked before being finally accepted.

How much is the goodwill of the Company worth? The answer to that question would show the true value of the Standards Room equipment. For, in ensuring the basic accuracy of the test instruments, this apparatus plays a vital role in maintaining the Company's leadership in a highly competitive field. Marconi Instruments doesn't just make *instruments*; it designs and produces *precision* equipment which is recognised as a standard of measurement throughout the world.

Cover Craftsman

The hands of the craftsmen on the front cover are those of Ron Archer of Marconi Instruments Model Shop. Component parts must be machined to fine limits for the standard of our equipment depends upon them



M.I. Apprentices

SIR RONALD NESBITT-HAWES, Chief of Educational Administration of the Group, presented M.I. apprentices with awards on 27 May for their work in 1953.

L. Dollimore, who recently finished his apprenticeship received a tool chest, whilst J. A. G. Brown, fourth year apprentice, was given a set of drawing instruments; a text book on electronics was the prize for P. Badcock, third year apprentice, and B. Higgs and R. Rolls both received slide rules. A special award, consisting of a cheque was presented to J. Balding who gained a Certificate of Honourable Mention in Class 1, Senior Grade, in the Physical Society's Craftsmanship and Draughtsmanship Competition.

J. M. Furnival, General Manager of M.I., was present, with other executives of the Company.

On the following day, Sir Ronald, together with L. R. Nicolson, M.I. Apprentice Supervisor and the Apprentice Committee, discussed their future careers with senior apprentices.

Over 3,000 apprentices are receiving training in the Group's works and laboratories throughout the country.

The Name's the Same

R. SARGENT, for many years M.W.T. Plant Engineer, has reached retiring age but is continuing work with the Company as Assistant to the Works Manager. His son, L. R. Sargent, will now be responsible for the maintenance of the Company's plant. He is well qualified. Since 1936 he has worked in Assembly and Tool Room, on machine tool design in the Plant Engineers Department and was assistant to Mr. Sargent senior before being appointed deputy in 1944. We have no need to introduce him, since he is as well known as his father, but we wish him all success in his appointment.