



Fig. 4. Variation of the energy of spectrum peak with R.F. frequency.  $\odot$ , high  $E$  spike

fell steadily to 3.85 MeV. at a gun voltage of 45 kV. The half-amplitude width of the spectrum increased rapidly, being 0.27 MeV. at 30 kV. and 0.42 MeV. at 40 kV. This behaviour was identical with that of the shorter 0.5-MeV. accelerator and can be explained in precisely the same manner. It was significant, however, that with the longer length of guide the energy variation was not so pronounced, although even in this case electrons at low injection voltages being picked up near the peak of the wave were still moving relatively slowly down to the true stable phase position.

Using the optimum conditions so far determined, and increasing the injected current by increasing the gun filament from 0.2 mm. tungsten to 0.3 and then 0.4 mm., the X-ray yield using a lead target  $\frac{1}{8}$  in. thick (and a 2-mm. lead filter for soft radiation) has been increased to 30 roentgens per minute at a metre at 50 c./s. recurrence-rate. By increasing the recurrence-rate the output has been scaled up to 66 r./min. at 100 c./s. and 132 r./min. at 200 c./s. The maximum permissible recurrence-rate, determined by the magnetron, is 500 c./s., giving a potential X-ray yield of 300 r./min. The output reached a maximum with the 0.4-mm. tungsten current at 12.6 amp., and no further increase could be obtained by going up to 14.0 amp., which should represent an enormous increase in emission. It was evident from the fact that at 30 r./min. a hole was very soon burnt through the lead target (and at 132 r./min., even with a strong blast of air on the bombarded side, burn-out was quite common) that the mean power in the beam was quite large and easily measurable by calorimetry. (It is interesting to note that the hole burned in the target was invariably about 7 mm. in diameter.) A continuous-flow water calorimeter was therefore constructed consisting of a lead target  $\frac{1}{8}$  in. thick with a circulating water film 7 mm. in thickness on the bombarded side. A small spiral heater of diameter comparable with that of the beam was mounted in the water near the target spot on the lead. Direct comparisons could then be made of beam power and power required in the heater to produce the same temperature difference between inflow and outflow as indicated by a thermocouple system. In this way it was established that the mean power in the beam at 50 c./s. under conditions which gave an X-ray yield of 30 r./min. was almost exactly 60 watts, giving a mean current of 15 microamp. and

a peak current of 150 milliamp. if the energy was taken to be 4 MeV. Hence the highest current which has so far been obtained is 60 microamp. with a possible maximum of 150 microamp. at 500 c./s., the highest magnetron recurrence-rate. The efficiency in terms of radio-frequency power being fed into the accelerator is 30 per cent, and since the radio-frequency losses in the system are normally 2.5 db., it is understandable that no further increase in efficiency is readily obtainable. It has also been observed, using the spectrometer again, that the width of the spectrum is generally unaffected by increased beam current, but the energy of the peak falls by about 250 keV.

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<sup>1</sup> Fry, D. W., R.-S.-Harvie, R. B., Mullett, L. B., and Walkinshaw, W., *Nature*, **160**, 351 (1947).

<sup>2</sup> Walkinshaw, W., *Proc. Phys. Soc.*, **61** (Sept. 1948).

<sup>3</sup> Mullett, L. B., and Loach, B. G., *Proc. Phys. Soc.*, **61** (Sept. 1948).

<sup>4</sup> R.-S.-Harvie, R. B., *Proc. Phys. Soc.*, **61** (Sept. 1948).

## SOUTH AFRICAN MUSEUMS

THE appointment of a commission to investigate and report upon the future policy of certain State-aided institutions in South Africa is the subject of an announcement by the Department of Education in the *Government Gazette (Pretoria)* of October 8, 1948. It is understood that State-aided institutions include museums, art galleries and zoological gardens. The members of the commission are Dr. P. J. du Toit (chairman), Dr. G. von Welfling Eybers, Prof. J. J. Smith, Dr. S. H. Houghton and Dr. S. H. Skaife.

This announcement will be welcomed by South African museum directors generally, but it seems a pity that the scheme could not have been extended to embrace all museums in the Union, for all are faced with similar problems affecting adequate housing accommodation, up-to-date equipment, and staffs trained in modern museum methods and technique. Nevertheless, the present action is a step in the right direction, for the Government has now taken a lead which ultimately may influence all provincial and municipal museums, irrespective of whether they do or do not receive a Government grant.

Generally speaking, there is at the present time a considerable amount of room for the improvement of South African museums in relation to their appeal and use to the general public. Although in one or two of the larger institutions exhibition rooms have been improved by the introduction of the animal habitat group, dioramic backgrounds, and models, etc., museum exhibition in the Union on the whole lacks imaginative construction. In many cases the presentation of collections is along old and stereotyped lines; labelling is often poor and inadequate for purposes of sufficient instruction; related subjects are badly linked—or not linked at all; while some are so scantily treated as to be of little or no value in the museum concerned. Again, the special temporary exhibition of current or topical interest seems to find no place in South African museum



administration; and lectures, informal talks, or classes upon subjects of particular interest in the museum do not seem to be a regular, or even frequent, feature of the work of the officials. Introductory series, so useful where the uninitiated and schools are concerned, are usually absent; and very rarely indeed, if at all, are collections used to illustrate or teach such matters as, say, the impact of geology upon the mining and building industries, upon road and railway construction, or upon water-supply, etc.; or again, the impact of biology upon medical and veterinary research, upon agriculture, horticulture, and matters of human health, and so on. The average archaeological collection (and most South African museums are rich in this material) neither tells the 'story' of prehistoric man in South Africa nor illustrates archaeological method. A great deal more, also, could be effected with the usually abundant collections of native material—in the more graphic portrayal of tribal customs, mode of life and social organisation, for example. The brilliant exhibit of life-like models of Bushmen (both male and female) in the South African Museum at Cape Town well illustrates the possibilities in this direction. These figures, set up in astonishingly realistic attitudes, wear Bushman clothing and carry Bushman weapons of the chase or war, and associated with them are Bushman domestic utensils. Cast from life, these 'living' records of a practically extinct people make the Cape Town Museum unique among all others in the Union.

With few exceptions, the congestion of the average South African museum exhibition-case leaves no room for the treatment of subjects in some of the ways suggested; but considerable improvement would be possible (even without building extensions) if a good half of some of the material exhibited were to be transferred behind the scenes—not to be lost or neglected, but to be suitably and systematically stored for the better use of the student and specialist worker. Several museums, in this way, could make room for better exhibition work in the public galleries.

Other matters which strike one as requiring consideration in the museums of the Union are appointments and retiring ages. At the present time some appointments seem to go to individuals who have already retired from some other walk of life. In the case of directorships or curatorships, especially, it is important that appointments should go to those who have had training and wide experience in museum work and methods, and who can put in a sufficient number of years of service before reaching retiring age. As yet, there seems to be no hard and fast rule as to the age at which a museum official should retire. It is clear, however, that this should be fixed in the interests of any progressive policy of work and service. New ministerial blood at prescribed intervals is a necessity to any institution the primary function of which is public service—and service suitable to the times.

There is, no doubt, a big future for South African museums; in a rapidly developing country they are a cultural necessity. South African museums have already carried out much useful work in scientific research, and vast fields for further study and collection lie before them. As has already been suggested, however, there is room for better work in their educational function, the function which, in the long run, will determine not only their use to the community, but, in addition, their status within it.

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## TWENTY-THIRD ANNUAL CONFERENCE OF ASLIB

**D**URING September 17–20, the twenty-third annual conference of Aslib was held at Ashorne Hill, near Leamington Spa. This Conference resumed, for the first time since 1938, Aslib's residential conferences, which, with the fast-expanding number of special librarians and information officers, are essential if the old and experienced members are to mix informally and discuss the difficulties of the younger and comparatively inexperienced information officers. Some idea of the extent to which this is necessary is given by the growth of Aslib's membership: 1,010 on June 30, 1948; 827 in 1947; and 712 in 1946. At the beginning of the War it was less than 300. Of the total, research associations and learned societies account for 33 per cent, industrial and commercial organisations 20 per cent, individuals 22 per cent, overseas members 17 per cent, and British Government Departments 8 per cent. These figures give some idea of the extent to which the information officer and special librarian have become essential members of any well-conducted, modern research establishment and progressive industrial concern.

The report by the director (Miss E. M. R. Ditmas) of the work of Aslib, 1947–48, pointed out that 'Aslib' is now a registered name, and since the amalgamation with the British Society for International Bibliography on January 1, 1948, no longer stands for "Association of Special Libraries and Information Bureaux". The amalgamation added a couple of score of members. The increased amount of work means that a series of afternoon meetings will be held between October 1948 and April 1949, besides the annual conference. Instead, therefore, of an annual publication of *Conference Proceedings*, there will be a new journal, *Aslib Proceedings*.

In March 1948 Aslib called the meeting which is now working towards an Institute of Recorded Sound; sixty students attended the Aslib Study Group in August 1947, and seventy in April 1948, and a memorandum on "Training of Information Officers" was drawn up by a Sub-Committee of the Education Committee; the Information and Library Section recorded 2,521 inquiries, had 66 requests for registered translators and supplied 2,275 items through the Documentary Reproduction Service. The Aslib library receives regularly more than 100 periodicals; but lack of suitable premises makes 52 Bloomsbury Street badly overcrowded. At the request of the Department of Scientific and Industrial Research, Aslib set up, in June 1947, its Committee on the Mechanized Distribution of Information to discuss the uses of mechanization in library and technical information work, and supplied a statement to the Royal Society's Conference. In December 1947 the Committee on the Format and Efficiency of Periodicals was set up.

Naturally, Aslib has taken much part in the documentation work of the British Standards Institution, the British National Committee on Documentation and many international and foreign organisations. Sir Richard Gregory was made an honorary member during the year.

Usually the annual conference of Aslib is organised almost as a symposium of papers on one or, perhaps, two subjects of universal interest. This year it was a miscellaneous collection dealing rather more with the existing problems in the fields of the information