$$T = 0.9 \left[\frac{0.83\alpha - 0.17}{0.83 + 0.17\alpha} \right] \left[6.9 - \ln \frac{1.2\alpha}{\alpha - 1} \right] \quad (6)$$

and the variation of this time with the separation factor is illustrated in Fig. 1. It can be seen that if α is as high as 5, then T would be of the order of 14 days. But considering the separation factor of other isotopes, it is suspected that α would not be greater than 1.5, in which case T would be of the order of 6 days. It would seem, then, that it is not necessary to wait for 1½ years, as suggested in the communication under consideration, to measure the ratio of the tin isotopes.

Fig. 1

Thus the enrichment is too small to have any practical value and we can see no necessity for measuring these isotopic enrichments in tin extracted from the plant. If, however, it is necessary to measure the enrichment of the tin isotopes in a continuous-feed electrolytic system which is at equilibrium, it is suggested that the following experiment be set up in the laboratory where the conditions of temperature, current density and initial isotopic ratio can be carefully controlled. A cell containing 0.1 gm. of tin in the electrolyte and an electrolysing current of 1 ampere will be within 99.9 per cent of equilibrium in a time of the order of one hour, if it is assumed that the separation factor is as high as 5. After this time the isotopic enrichment can be measured.

A. E. BAINBRIDGE
A. T. WILSON

Division of Nuclear Sciences,
Department of Scientific and
Industrial Research,
Lower Hutt,
New Zealand.

¹ Tolansky, S., *Nature*, **179**, 623 (1957).

² Sandström, E. A., *Arkiv Fysik*, **3**, 546 (1951-52).

IN order to secure definite experimental evidence as to the validity or otherwise of my earlier tentative conjecture that there might possibly be an appreciable isotope enrichment in old electrolytic tin-plating baths, at my specific request Dr. W. E. Hoare, of the Tin Research Institute, has recently obtained some comparative isotope abundance measurements. These were carried out by G. Nief, of the French Commissariat à l'Énergie Atomique. Abundances were measured for a commercial tin sample and on the previously mentioned 1½-year-old electrolytic sample from Ebbw Vale.

Because of some instrumental contamination, it was not possible to evaluate accurately the abundance

of the isotopes 112, 114 and 115. Thus the actual ratios available for comparison do not refer to the optimum, which is 112/124, but only to 116/124. Nief reports that the ratio 124/116 for the old electrolyte is 0.408 ± 0.002 , while the same ratio for the commercial tin is 0.405 ± 0.003 .

It is obvious that the slight difference is of no real significance, and this clearly indicates that my original conjecture was certainly a weak one, in that any effective enrichment is scarcely detectable.

My thanks are due to Dr. Hoare for the above experimental results.

S. TOLANSKY

Royal Holloway College,
Egham.
March 1.

Detection of Inositol and Inositol Diphosphate on Paper Chromatograms

A COLOUR reaction, known as Scherer's test, is extensively used as a specific, qualitative test for inositol. It is based on the formation of the coloured alkaline earth metal salt (usually calcium salt) of rhodizonic acid on the oxidation of inositol with concentrated nitric acid^{1,2}. While studying phospholipids containing inositol we needed to identify accurately very small amounts of inositol by paper chromatography, or by spot tests on filter paper. P. Fleury *et al.*³ reported a method in which they used mercuric oxide as a catalyst of the oxidation, and barium acetate as for the alkaline earth metal. This method, however, is tedious and sometimes gives uncertain results; the smallest quantity detectable is 5–10 µgm. This may be ascribed to the formation of yellow mercuric salt at the first stage of the reaction. A more sensitive, reliable and easier method was, therefore, devised by modifying that of Fleury. This modified method can, in addition, be applied to the detection of inositol diphosphate located on paper chromatograms. The procedure is as follows.

The paper chromatogram is dipped into the first reagent mixture, which is prepared by adding 10 ml. of concentrated nitric acid to 90 ml. of ethanol. It is then drained, and heated in an oven or over a hot plate at 95–100° C. for 10 min. (heating above 105° C. makes the paper yellow). The paper is exposed to ammonia vapour for 1–2 sec. to neutralize the remaining traces of nitric acid and then dipped into the second reagent mixture (*n*-butanol/glacial acetic acid/10 per cent (w/v) aqueous barium acetate/calcium chloride, 40 ml. : 10 ml. : 10 ml. : 0.5 gm.), drained, and heated at 95–100° C. for 4–5 min., when the orange colour due to barium rhodizonate develops on the white background. This coloration, however, is not sufficiently intense to detect amounts of inositol less than 8 µgm. In order to intensify the colour, the paper is thoroughly sprayed with a third reagent mixture—5 per cent (w/v) calcium chloride in 50 per cent ethanol—and then heated at 95–100° C. for 2 min. The orange colour changes through cherry-red to rose-pink due to calcium rhodizonate.

By this method 1 µgm. of inositol can be detected on one-dimensional paper chromatograms, for example, with 80 per cent *n*-propanol⁴ (R_F , 0.12–0.13); butanol/acetic acid/water (4:1:1) (R_F , 0.09); 80 per cent phenol (R_F , 0.21–0.22, yellow background).