of the catheters was controlled using the routine radiograms taken for the isodose curves. The pieces of glass have a wide measuring range (50 mr.–10,000 r.) and a notable correlation with energy.

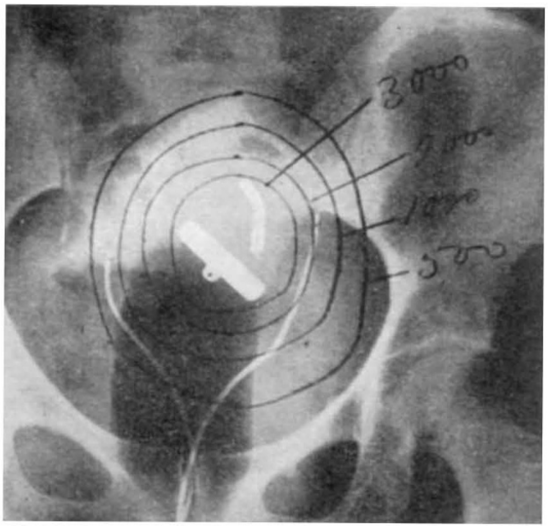

Fig. 1. X-ray picture showing catheters in the ureters and the applicators for γ-therapy. The isodose curves are drawn

Yokota *et al.*[1] investigated the energy-dependence of a corresponding glass on energy and found that the correlation with energies in excess of 110 keV was fairly small. We calibrated the glass for cobalt-60 radiation using doses of different magnitudes and the calibration was carried out with the glass in wax inside the catheter so that radiation scatter was also included. The correlation between the Toshiba readings and the radiation dose was linear. We used radium in addition to cobalt-60 in our radiotherapy. It has more than ten energies in the range 0·18–2·2 MeV, but the correlation with energy is smaller than 20 per cent. The glass was kept in the patient's ureters for about 30 min and ten patients were measured in this way. Comparison of the glass doses with those obtained by the isodose method showed a difference of under 20 per cent. The applicators in Fig. 1 were two cobalt tubes of 27 mgekV and a 100-mg radium plaque. The treatment time was 15 h. Using the glass method, the doses received by the ureters at the tips of the catheters during the whole period of treatment were 1,500 r. in the left ureter and 900 r. in the right. The corresponding doses according to the isodose curves were: left ureter, 1,800 r.; right, 800 r.

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HISTOCHEMISTRY

Demonstration of Ribonuclease and Deoxyribonuclease Activities by Substrate Film Methods

IN a recent paper[1], Dr. B. D. Lake states that an important proportion of the enzyme activity revealed by substrate film methods may be attributed to the non-specific action of proteolytic enzymes dissolving the gelatine constituent of the film. Such a statement leaves the impression that the substrate film methods for RNase and DNase are unreliable and that results obtained so far by these methods have been erroneously interpreted.

The facts are that the authors who have used these methods have carried out several control experiments, did actually use gelatine–nucleic acid films resistant to proteolytic activity and thus specifically demonstrated RNase and DNase activities of tissue sections.

The point raised by Dr. Lake had been discussed before[2,3]. It is known that some varieties of gelatine remain digestible by proteases after formaldehyde fixation and it has been stressed in previous articles that such varieties of gelatine are not suitable for preparing films of substrate.

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SOIL SCIENCE

Contamination of Urban Garden Soils with Copper and Boron

SPECTROCHEMICAL analyses of garden soils sampled in the Edinburgh and Dundee areas indicate that there is substantial contamination of urban soils with copper and boron.

This conclusion is based on the analysis of sixteen soil samples taken from gardens randomly selected in the Edinburgh area, and nine samples taken in the same way in the Dundee area. These soils were analysed spectrochemically with respect to total copper and water-extractable boron content with the view of comparing the levels obtained in urban areas with levels in arable soils in rural areas. The reference levels of copper and boron in arable soils were based on the analysis of one hundred soil samples representatively sampled from fields under cultivation in south-east Scotland. A modification of the method of Farmer[1], adapted for the analysis of soils, was used for the determination of total copper, and boron was determined by porous-cup spark excitation[2] following the hot-water extraction procedure of Truog[3]. 'Ultra' boron-free graphite preformed cups and counter electrodes were used in the sparking procedure.

The results (Table 1) indicate that urban garden soils tend to contain about four times as much copper and two to three times as much water-soluble boron as rural arable soils. The differences between the levels of copper and boron in the Edinburgh and Dundee soils were not statistically significant, but the levels in both urban areas were so much higher that statistical analysis of the results was almost superfluous ($P < 0·01$). The existence of such a marked disparity between the levels of two potentially toxic elements in urban and rural areas is evidence of slow poisoning of the soil environment in built-up areas and is cause for concern.

Table 1. MEAN LEVELS OF TOTAL COPPER AND WATER-EXTRACTABLE BORON IN URBAN AND RURAL SOILS

Sample	No.	Copper p.p.m.	*S.E.*	Boron p.p.m.	*S.E.*
Rural arable soils	100	15·5	± 1·5	0·70	± 0·03
Edinburgh garden soils	16	71·6	± 4·1	1·95	± 0·23
Dundee garden soils	9	56·2	± 7·6	1·56	± 0·21

All the copper levels encountered in the Edinburgh area (and, with two exceptions, in the Dundee area) were very high compared with levels generally encountered in arable soils, in which it is very unusual to find more than 50 p.p.m. total copper[4]. The boron levels in the urban soils were also abnormally high, not only in relation to