procedure has been repeated on subsequent occasions with similar results.

A preliminary investigation has indicated that most of the clones belong to the genus *Hartmanella*[5], and a fuller inquiry, together with the isolation of clones from different habitats, is being carried out.

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Ultra-thin Serial Sectioning with Rocking Microtomes

A well-known difficulty in using rocking microtomes for ultra-thin sectioning is the tendency for the cut section to be picked up on the return stroke. A number of mechanical devices have been described[1] which attempt to overcome this. The device described here is a non-mechanical and exceedingly simple but effective aid to serial sectioning.

A No. 1 hypodermic needle is cut off a quarter of an inch or so from the hilt and bent to hook over and into the trough attached to the cutting knife. The hilt is provided with a rubber teat and reconnected to the hook with a suitable 'Polythene' or other tube. The whole is then filled with the liquid normally used in the trough, say, 10 per cent acetone, and the hook suspended on the trough edge, the tip inside. The trough is then filled with liquid to just below the knife edge, a level normally inadequate for sectioning. The level can now be brought to the optimum for section cutting by pressing on the teat for the cutting stroke of the microtome, while by releasing the teat the liquid level can be reduced to prevent the section being picked up on the upward stroke.

Incidental points in the construction are the *S*-bend made in the 'Polythene' tube to improve its accommodation to the various positions of the knife, which would be unnecessary if a more flexible rubber tube were used, and a clamp attached to the knife-holder to keep the tube in position.

Uniform serial sections, showing the silver or gold interference colours associated with the thinnest sections, can be cut without great difficulty from blocks with the relatively large surface area of 1 mm. × 0·5 mm., while smaller blocks can be cut serially *ad lib.* and with ease.

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Response of the Ceric–Cerous System at High Dose-Levels of Cobalt-60 γ-Rays

The radiation yield value of cerous ion in the irradiation of ceric solutions has recently been given as 2·45 ± 0·08 for cobalt-60 γ-rays[1]. This is somewhat lower than figures which have formerly been accepted. In a recent determination of the value of $G(Ce^{3+})$ at high dose-levels, I have obtained a result which confirms the lower value. This value of $G(Ce^{3+}) = 2{\cdot}36 \pm 0{\cdot}12$ molecules/100 eV. was obtained by working in the dose-range 0·1–1 megarads at a dose-rate of $1{\cdot}4 \times 10^5$ rads/hr.

The ceric ammonium sulphate solution used was made up in triply distilled water to a strength of 4,000 μmoles/l. in cerium, the solution being made 0·8 *N* in sulphuric acid ('Analar'). The water used was distilled twice over alkaline potassium permanganate. The ceric ammonium sulphate was used without further purification, and as supplied by G. F. Smith Chemical Co., Columbus, Ohio.

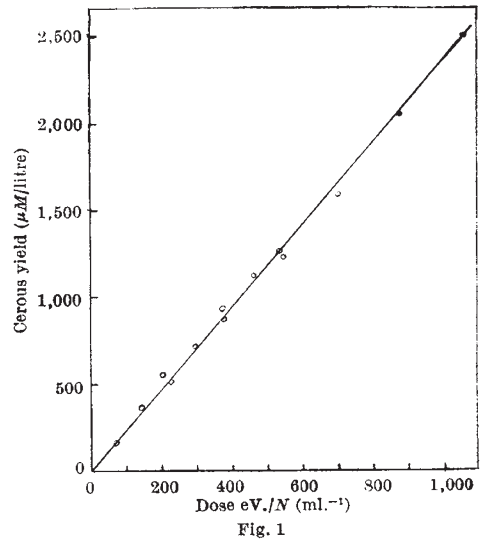

Fig. 1

The solution was irradiated in a four-kilocurie cobalt-60 source in 15-ml. bottles placed in standardized positions. Dose-rates were measured in the standard positions by filling the same bottles with ferrous sulphate solution, and measuring spectrophotometrically the concentration of ferric ion produced. A $G(Fe^{3+})$ value of 15·6 was assumed. In this way, errors due to attenuation in the 15-ml. bottles were avoided. Analysis was carried out by potentiometric titration with ferrous ammonium sulphate solution in 0·8 *N* sulphuric acid. 5-ml. samples were titrated using a Willard–Baldyreff electrode system[2], each titration being duplicated.

The graph shows that within the limits of error the response of the ceric/cerous system is linear up to one megarad eV./*N* (ml.$^{-1}$).

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