

Controls were sprayed with water containing the detergent.

4. The leaves were studied after they reached mature size. The growth usually required 4 to 5 weeks.
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International Comparisons of Radioactivity Standards

During the period May 1952 to November 1954, international comparisons have been made of standard samples of the radioactive nuclides Na^{24} , P^{32} , Co^{60} , $\text{Sr}^{90} + \text{Y}^{90}$, I^{131} , and Au^{198} . The organizations taking part in these measurements and comparisons have been the U.S. National Bureau of Standards, Atomic Energy of Canada Limited, and four British laboratories (the National Physical Laboratory; the Atomic Energy Research Establishment, Harwell; the Royal Cancer Hospital, London; and the Medical Research Council, London, coordinated through the NPL Advisory Committee on Radioactive Standards). Periodic meetings between representatives of the three countries have been arranged by the U.S. National Research Council Subcommittee on Beta- and Gamma-ray Measurements and Standards. Several papers on the work have already appeared (1-12).

The samples used for the comparisons were standard solutions prepared by the NBS, except the $\text{Sr}^{90} + \text{Y}^{90}$ and Au^{198} samples, which were prepared by the AERE. The solutions generally contained a few microcuries per gram. In the case of Co^{60} and I^{131} , stronger solutions containing of the order of 1 millicurie per gram were provided. The disintegration rates of the samples were determined at each of the laboratories by one or more of the following methods: total β counting in a 4π solid angle, $4\pi\beta\gamma$ and $\beta\gamma$ coincidence counting, and $\gamma\gamma$ coincidence counting. The results of measurements under what are considered to be the best conditions attainable at present are in agreement to within about ± 2 percent except for 4π counting of low-energy β rays.

In measurements of Na^{24} and Au^{198} by $4\pi\beta$ counting, the fractional losses of β particles by absorption are small and the results agree within ± 2 percent. They also agree within these limits with $4\pi\beta\gamma$ and $\beta\gamma$ coincidence results. The basic counting measurements for I^{131} are in agreement within 1 percent, but there

is some uncertainty concerning the allowance to be made for self-absorption. No such allowance is applied by the British and Canadian laboratories, but it has been calculated by the NBS to be about 2 percent. Owing to the complex disintegration scheme of I^{131} , there is unfortunately no ready means of providing a cross check. The apparent systematic difference of about 3 percent between the NBS results for I^{131} and the standard of this nuclide at present adopted in Great Britain and at Chalk River is thus attributable to the correction assumed for self-absorption.

Agreement to within ± 1 percent was obtained in the measurements of Co^{60} by $\beta\gamma$ and $\gamma\gamma$ coincidence counting. A wide range of values by $4\pi\beta$ counting was reported, however, by the British laboratories. Subsequent investigations at the NBS showed that owing to the relatively low energies of the β particles, the apparent disintegration rates obtained by $4\pi\beta$ counting were critically dependent on the amount of solid material in the source and on its distribution. Consideration of the Co^{60} results leads to the conclusion that owing to the precautions necessary in source preparation, and the uncertainties in the absorption corrections, the $4\pi\beta$ counting method of standardizing this nuclide is at present less reliable than the coincidence method. However, it is considered that the disintegration rate of the solution distributed was determined by the coincidence method to an accuracy approaching ± 1 percent.

Ionization chamber equipment for preserving standards of the nuclides used for these comparisons has been set up at the NBS, and similar equipment is being calibrated at the NPL. The cooperation between the NBS, AECL, and the British laboratories on all matters relating to the establishment and the maintenance of radioactivity standards is to be continued in order to check the agreement already attained and to extend the comparisons to other nuclides. It is hoped that standardizing laboratories in other countries will participate in future comparisons; those interested should write to the most convenient of the authors of this letter.

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Explanation for the So-Called "Ascending Impulses" in the Pyramidal Tract

In 1953 Brodal and Kaada (1) reported responses to peripheral nerve stimulation in the medullary pyramid of the cat. They related this unorthodox finding to previous studies in which ascending fibers had been demonstrated histologically (2). The possibility that their responses were related to activity in the medial lemniscus was considered and rejected. A further evaluation of their experiments was suggested by the observation that the antidromic cortical responses to medullary pyramidal tract shocks are seriously complicated by spread of the stimulus current to the sensory pathway in the adjoining lemniscus.

In adult cats that had been lightly anesthetized with Surital, the sigmoid motor cortices and superficial radial nerves were exposed for stimulation, and the ventral medullary surface was exposed for recording. The animal was placed in a supine position, the space ventral to the medulla being filled with Tyrode's solution. Responses of medullary points were mapped following both a constant ipsilateral cortical stimulus and a maximal contralateral nerve shock.

The electrodes were 75- μ steel wires cemented together with the tips 1 mm apart. Bipolar recording proved more effective, but monopolar recording of the "active" lead against an indifferent lead in the cervical soft tissue was also used. The area adjacent to the midline was explored from the origin of the