ASSAY OF RADIOACTIVE MATERIALS

I should like to refer to the most interesting report on "Assays of Radioactive Materials for Use in Patients" by Cliggett and Brown which appeared in the June, 1968 issue of your Journal (*J. Nucl. Med.* **9**:236, 1968) and in particular to the description of the errors which occur occasionally in the supply of radioisotopes and labeled compounds by commercial producers.* It is quite probable that such errors occur more frequently than one would normally expect, and we should be grateful to the authors for having taken the trouble to compile their list. It is very desirable that other groups should also describe their experiences of this type so that the average consumer, who does not enjoy such excellent services as those of the NIH Radiation Safety Office, may be aware of possible hazards to patients and personnel. To make a start, I should like to record two incidents which I remember to have occurred about 15 years ago at the Allgemeines Krankenhaus in Vienna.

A shipment of some 20 mCi of ^{131}I was received one day for therapy of three patients with thyrotoxic goiter. The certificate accompanying the shipment stated that this activity was contained in some 15 ml of solution. The bottle was left in its lead container, and a remotely controlled pipette was used to withdraw the first ml of solution. This was thought to contain 7 mCi and was, after suitable dilution with tap water, administered orally to the first patient. For the second patient the pipette was inserted again into the shielded bottle but drew air almost immediately. The volume of solution had thus been 5 rather than 15 ml and the first patient had been given three times the dose he had been intended to receive. He was quickly recalled, treated appropriately and suffered no ill-effects.

The second incident occurred when a dose of ^{32}P was given intravenously to a patient with polycythaemia vera. The needle had hardly been inserted into the cubital vein when the patient began to complain of a sudden pain in her arm. She reported the next morning with an acute thrombophlebitis up to the axilla. A check showed the rest of the solution to have a pH of 1 although the label on the bottle read "sterile pyrogen-free solution for intravenous use."

The first incident could have been avoided had the possibility of a volume error been anticipated; the second error would have probably escaped the scrutiny of even the NIH Radiation Safety Office.

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* Note at time of proof correction: For another Letter to the Editor (by W. L. Saylor) on the same topic, see *Physics in Medicine and Biology* **13**:664, 1968.