et al introduce gelatin and carrier rhenium at the start of the preparation run.

We have found that stabilizers interfere with the formation of both technetium and rhenium heptasulfide; the more powerful the stabilizer the more distinct is the effect. This is why we could never obtain any reasonable yield of the colloid when polyvinylpyrrolidone was added at the start of the preparation run, and why we had to introduce that potent stabilizer at the very end, after the production of the colloid was finished (it is the buffer which contains the stabilizer) (*1*). At the same time, we had to decrease the concentration of hydrochloric acid added to the medium to slow down the hydrolysis, occurring during the preparation run without any stabilizer.

There is also some difference in the chemical behavior of pertechnetate and perrhenate when hydrogen sulfide, either in gaseous form or split from thioacetamide or thiosulfate, is introduced into the solution. Technetium gives heptasulfide only, while rhenium yields both heptasulfide and thio-perrhenates, substituted per-salts which are more soluble than their oxygen analogues. Thio-perrhenates decompose to rhenium heptasulfide with a rate depending on pH. Hence, it is understandable that Cohen and Spolter have got almost complete yield of technetium heptasulfide (Figs. 1E and F), and only a trace output of rhenium heptasulfide (Fig. 1D).

In conclusion, we have demonstrated that in our procedure almost all the rhenium is in the form of heptasulfide. Plausibly, the reasons are as follows: (A) we do not introduce any interfering substance during the preparation run, which enables us to bring the reaction to an end for both technetium and rhenium heptasulfide; (B) we prevent hydrolysis of the colloid by working at higher pH; (C) we protect the produced colloid from deterioration by simultaneously stabilizing it with pvp and increasing pH to about 6.

We do not intend at present to follow Cohen and Spolter's suggestion that we investigate alternative methods of preparing technetium heptasulfide colloid.

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TEMPORARY CIRCULATORY ARREST IN THE EXTREMITIES TO RESTRICT DISTRIBUTION OF I.V. ISOTOPES

Most gamma-emitting isotopes are administered intravenously with the intention of mapping their subsequent localization in some specific region such as brain, pancreas, kidney, etc. If it is not bound to plasma proteins, the isotope is largely lost from blood to the extracellular fluid of all tissues (except brain) within 2–3 min and regional concentration is very slow thereafter. With the circulation to all four extremities intact during these first 2 min a substantial fraction of the dose (perhaps ⅕) distributes to the legs and arms and serves no function in the visualization of specific organs. This loss wastes isotope and unnecessarily radiates the extremities.

I wish to suggest that sphygmomanometer cuffs could be placed high on all four extremities and interconnected by rubber tubing to a common pressure source. Immediately prior to injecting $^{99m}TcO_4^-$, ^{75}Se-selenomethionine, or other isotopes intended to map a specific region, the three cuffs on the legs and uninjected arm would be quickly inflated above systolic pressure. The injection would be made, the needle withdrawn and 5–10 sec later the cuff on the injected arm would be connected to the other three. If brought rapidly above systolic pressure, the puncture site should not bleed significantly.

For scintillation angiography the cuffs need only be held 20–30 sec. For brain or other regional scans 2–3 min would be adequate to gain most of the advantage. After 2–3 min the cuffs could be individually deflated at 10–15-sec intervals to minimize any abrupt hemodynamic changes. The original inflation should be fairly rapid to minimize venous pooling in the extremities with an attendant drop in central circulating blood volume.

Carrying this regional circulatory restriction to an extreme, one would like to cut off, for the first few minutes, circulation to all tissues, but the target organ. This is, of course, impractical but the above suggestion seems a safe compromise which might be of use in certain studies.

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