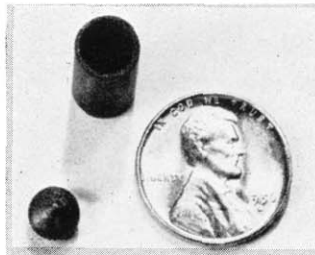


## A Rapid Efficient Method for Reducing Certain Metallic Isotopic Oxides

As previously reported in THIS JOURNAL,<sup>2</sup> the limited abundance of many species of expensive separated stable isotopes requires unusual techniques to insure efficient conversion and recovery of material involved in chemical transformations. For example, it is frequently desirable to convert oxides of enriched isotopes to metallic forms suitable for use as targets in cyclotrons, Van de Graaff accelerators, and reactors.

The reduction may be carried out in a number of ways, but one of the simplest involves the use of a hollowed-out spectrographic carbon as a combination container and reductant. Commercial spectrographic carbons, such as are routinely available from the

National Carbon Company, are drilled out with a suitable steel drill and the desired quantity of the metallic oxide is introduced into the cavity. The carbon can then be flamed with a torch to reduce, for example, lead oxide or tin oxide to the metal. The thimble may also be placed in a hydrogen reduction furnace to effect the reduction. The conversion is rapid, the recovery is essentially quantitative, and no impurities are introduced. Furthermore, the metal is removed as a pellet suitable for rolling. The accompanying photograph shows a hollowed-out carbon and the lead pellet resulting from a reduction of isotopic lead oxide.



<sup>1</sup> Operated for the U. S. Atomic Energy Commission by Union Carbide Nuclear Company.

<sup>2</sup> BAKER, P. S., WELLS, G. F., AND RATHKAMP, W. R., J. CHEM. EDUC., **31**, 515 (1954).