epithelial and parenchymal tissues such as liver and kidney stained well; malignant tumors stained rapidly and intensely. Its action on various bacteria and on onion root tips was also discussed. In another paper, the same authors (*54*) reported its use as a tool in the study of active cell processes, and Narahara, Quittner, Goldman, and Antopol (*55*) recorded its use in the study of *Escherichia coli* metabolism. For the test used on milk for the presence of brucellosis in cattle herds, Wood (*56*) has prepared a stable antigen for the *Brucella* ring test by the reduction of neotetrazolium salt.

Blue tetrazolium, which forms a deep-blue pigment on reduction, has been used by Rutenberg, Gofstein, and Seligman (*57*) to demonstrate enzymes in normal and neoplastic tissues, but it is ten times more toxic *in vivo* (mice) than tetrazolium salt itself; it has also been used in the histochemical demonstration of succinic dehydrogenase in tissue sections by Seligman and Rutenburg (*58*).

2-(*p*-Iodophenyl)-3-(*p*-nitrophenyl)-5-phenyl tetrazolium chloride recently reported by Atkinson, Melvin, and Fox (*59*), along with some other iododerivatives, is far less photosensitive than tetrazolium salt itself and has the additional advantage of giving very rapid staining with less diffusion into unstained tissue.

Further reports on these and possibly on new, improved members of this useful type of compound will be awaited with interest.

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Radioactive Tracers in Solid Solution Investigations

William T. Foley and Paul A. Giguere

Department of Chemistry,
Laval University, Quebec, Canada

During recent work on the exact freezing point of hydrogen peroxide we had to ascertain definitely whether this compound forms solid solutions with water. The experimental evidence reported previously in that connection (*1*) was considered doubtful, as it was based on an inadequate method, namely, direct analysis of phases. Indeed, the high viscosity of the solutions and the tendency of hydrogen peroxide to decompose on melting made it practically impossible to isolate completely the crystals from the mother liquor. On the other hand the so-called wet residue method of Schreinemakers (*2*) required addition of a third substance fairly soluble in both water and hydrogen peroxide, which did not catalyze decomposition of the latter or interfere with its chemical determination. It was further desirable that this substance

formed no solid solution or addition compound with the major constituents. Eventually it turned out that potassium chloride was suitable for that purpose, but in the meantime it occurred to us that the above difficulties could be removed or greatly minimized by using a radioactive tracer.

To this end radioactive phosphorus, P^{32}, in the form of potassium dihydrogen phosphate was chosen, as its type of activity was suited to the problem at hand. The peroxide solutions containing 0.025 mg tracer/l were partly frozen, and the bulk of the liquid was separated from the crystals by means of a filter stick. After warming to room temperature the activity of each phase was measured with a thin glass counter immersed in the liquid; the hydrogen peroxide content was determined from refractive index. The results obtained with a dilute (10%) and a concentrated (90%) solution indicated that the solid phase was pure ice and pure hydrogen peroxide, respectively. Further details on the experimental procedure and results will be published elsewhere (*3*).

Summing up, the use of a radioactive tracer offers the following advantages: minimum complications resulting from addition of a third component to the original system; no interference of the tracer with chemical analyses or measurements of some physical property of the solutions such as density, refractive index, etc.; only one component need be determined instead of two. This technique is equally applicable to the "synthetic" method of Bancroft (*4*) which requires no separation of phases. The results may be analyzed algebraically or graphically by plotting on rectangular coordinates activity against concentration of the component in greater proportion.

A number of years ago Terrey and Jolly (*5*) used natural radioelements to study the degree of hydration of certain salts. We feel that the availability of powerful artificial isotopes and the development of modern counting techniques add greatly to the interest and possibilities of this method.

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Comments and Communications

Touché!

In SCIENCE for May 11, 1951 (p. 543), in the article, "The Origins of American Scientists," by Robert H. Knapp and Hubert B. Goodrich, they list "the first fifty institutions with 30 or more annual graduates, ranked in order of their production index." The authors commented that "No Southern institutions appear here." Johns Hopkins University, Maryland, is nineteenth, and Charleston, South Carolina, twenty-ninth. I realize that Maryland, although below the Mason-Dixon Line, is sometimes felt to be a border state; but this is the first time that I had known that South Carolina was not considered a Southern state.

WINGATE M. JOHNSON

Private Diagnostic Clinic
Bowman Gray School of Medicine
Wake Forest College

Condensation Globules at Meteor Crater

THE American Meteorite Museum, located on U. S. 66, 5 miles from Arizona's meteorite crater, has been making extensive and intensive studies of the adjacent soil. These studies have brought to light minute metallic globules that are believed to have been formed as condensation products from metallic vapors generated by the explosion of the colliding meteorite or meteorites.

Chemical analysis of these particles by F. G. Hawley[1] shows them to be about 17% nickel, and metallographic studies by A. W. Herbenar[1] prove the presence of cohenite, steadite, and schreibersite, as well as troilite. The percentage of nickel is about double that of the meteorite fragments found in the same area.

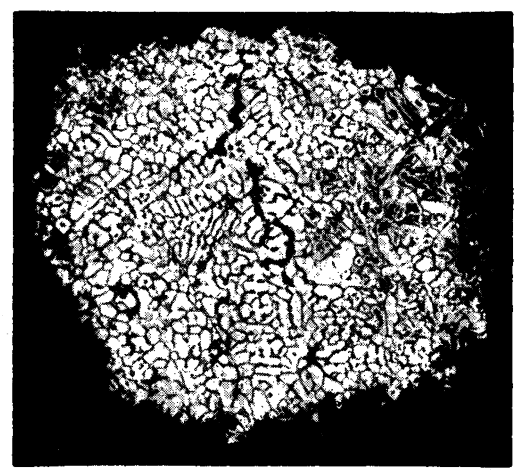

FIG. 1. Dendritic structure indicative of rapid cooling from liquid state. Black veinlike areas are oxide. The white dendrites are nickel-iron, and the gray filling between the lobes of the dendrites is sulfide, carbide, and phosphide more or less mixed. (×100.)

[1] We wish to express our thanks to F. G. Hawley for the chemical analysis, to A. W. Herbenar for his metallographic report, and to both Mr. Herbenar and Glenn E. Mills for photographs.