ments in the Tris buffer system after 24 h of irradiation, because standards of higher concentration showed sometimes higher binding than zero or preceding standards.

The control values were in the expected range in the PBS/ANS system and also—in spite of the deterioration in zero binding and discrimination—in the barbital buffer system, over the whole range of irradiation.

Results were similar when we incubated the assay mixture for 2 h in bright sunlight: the Tris buffer system yielded erroneous results but the other systems performed well. After five weeks of storage of the tracers in the cold room, zero binding of $^{125}$I-T$_3$ in the Tris buffer system decreased by 10% if exposed to light but remained constant if the tracer was protected from light.

Using chromatographic methods, we detected no sizable amount of $^{125}$I or any other radioactive compound except $^{125}$I-T$_3$ in the irradiated samples. The cause for the deterioration of zero binding, discrimination, and consequently of assay results, especially in the Tris buffer system, remains to be clarified.

We conclude that the use of $^{125}$I-T$_3$ in PBS/ANS is not sensitive to light. $^{125}$I-T$_3$ in barbital/sodium salicylate is somewhat sensitive to light, but assay results are still acceptable. $^{125}$I-T$_3$ in Tris/thimerosal is very sensitive to light, and ultraviolet or bright sunlight should be excluded during the assay procedure.

References
5. von Stetten O, Schlett R. Iodine-125 labeled compounds using high-performance liquid chromatography with on-line detection. Accepted for publication in J Chromatogr.

O. von Stetten
R. Schlett

Byk-Mallinckrodt, Chem. Produkte GmbH
von-Hoevey-Str. 1-3
D-6057 Dietzenbach 2, F.R.G.

1 Current address: L. Merckle GmbH & Co., Dr.-Georg-Spoth-Straße 7, D-7802 Blaubeuren, F.R.G.

A Source of Error in Determination of Blood Gases

To the Editor:
The use of pre-heparinized plastic disposable syringes for the measurement of blood gases, although convenient, may lead to errors. We recently investigated the occurrence of occasional discrepancies between the actual bicarbonate value calculated in blood-gas analyses and total CO$_2$ as measured in the ASTRA 8, using venous plasma obtained with lithium heparin as the anticoagulant. Duplicate results on two blood gas analyzers (Corning Model 175 and Corning Model 178) showed no significant differences in pH, pCO$_2$ or pO$_2$. Hematocrit determinations on blood-gas samples showed much lower values when compared with hematology results from samples collected at the same time.

Example 1
Arterial sample
pH 7.46
pCO$_2$ 2.93 kPa (22 mmHg)
Calculated bicarbonate 16 mmol/L
Hematocrit 27%
Venous sample
Measured total CO$_2$ 25 mmol/L
Hematocrit 41%

Example 2
Arterial sample
pH 7.46
pCO$_2$ 3.20 kPa (24 mmHg)
Calculated bicarbonate 17 mmol/L
Hematocrit 33%
Venous sample
Measured total CO$_2$ 24 mmol/L
Hematocrit 42%

The disparity was traced to dilution of the blood-gas samples by the 0.8 mL of heparin solution in the disposable syringe; even after expulsion prior to the arterial puncture, about 0.2 mL remained in the dead space, enough to produce an appreciable dilution error if the 3.0-mL syringe was not completely filled.

L. D. Mellor
V. T. Innanen

Div. of Clin. Chem.
Women's College Hosp.
76 Grenville St.
Toronto, Ontario
M5S 1B2 Canada

Interference by Metrizamide with the Du Pont aca Method for Cerebrospinal Fluid Protein

To the Editor:
Recently we measured protein in a clear, non-xanthochromic specimen of cerebrospinal fluid (CSF) from a 13-year-old boy who had undergone computerized axial tomography scanning. The radiographic contrast medium used was metrizamide (Amipaque*, Winthrop Labs, New York, NY 10016), a water-soluble material first introduced in the U.S. for myelography in 1978. The protein value as measured with the discrete analyzer (aca; Du Pont Co., Wilmington, DE 19891) was 2400 mg/L (reference interval 150–450 mg/L). In this method, the decrease in light transmission due to light scattering by the protein precipitate formed after trichloroacetic acid treatment is measured at 340 and 540 nm (1). A precipitate can be seen in a reagent pack if the CSF protein concentration exceeds the reference interval.

Because no precipitate was visible in the spent pack from the assay of this undiluted specimen, we suspected interference. We then measured protein in this specimen by another trichloroacetic acid precipitation method in which absorbance is measured at 450 nm (2), and found a protein value of 100 mg/L. When this same specimen was assayed for protein with a Coo massie Brilliant Blue dye-binding method (Bio-Science Labs, Great Neck, NY 11022), a value of 140 mg/L was obtained.

We believe the source of the interference was the radiographic contrast material metrizamide, which for many radiographic procedures is injected directly into the lumbar space. The absorption spectrum of a diluted specimen of the patient's spinal fluid was similar to that of a metrizamide solu-