was not indicative of a change in the total protein or A/G ratio or the total –SH bonds potentially present. The technique employed appeared to measure the reactivity or the rate of appearance of such groups wherein a decided difference was found in plasma from patients with and without malignancies.

(2) The use of the technique which I have described previously has now been applied to almost 2,000 control individuals, 1,000 diverse cases of nonneoplastic diseases, and 1,000 cases of diverse forms of cancer. In 75–80% of the cancer cases distinctive prolongations of the methylene blue reducing times have been noted. No such findings are encountered in the nonneoplastic diseases with the exceptions of cases of pregnancy, tuberculosis, rheumatic fever, and cirrhosis. Further, the elevated reducing times in cancer cases are readily reversible after adequate therapeutic procedures via surgical resection or radiation. These results have been corroborated by various investigators whose combined series total more than 500 cases (personal communication; also discussion by Dr. W. Morris at American College of Chest Physicians, Chicago, 1948).

(3) The following experimental data would indicate that while there is no significant difference in the total reducing groups in the presence or absence of malignancy, there is a decided difference in the time of appearance of these groups under the experimental conditions employed. It is this latter phenomenon which is measured by my technique and which undergoes alteration with malignant disease.

One cc of plasma or serum is mixed with 0.2 of a 0.15% methylene blue solution in a Wasserman tube. The tube is immersed in a boiling water bath and the time noted for complete decolorization of the dye. This is the usual technique employed by me and referred to as the methylene blue reducing time. On removing the tube, cooling, and agitating, the blue color returns. The tube is then replaced in the boiling water bath, and again the time is noted for complete decolorization of the dye. The second decolorization is found to require less time than the first. This process is repeated until the time for decolorization appears to be constant:

Case	MBT_1*	MBT_2	MBT_3	MBT_4	MBT_5	*Diagnosis*
G.C.	15	9.0	5.0	4.0	4.0	Ca. esophagus
J.F.	13.5	4.0	4.0	..	..	Hodgkin's disease
A.C.	7.5	4.5	4.0	4.0	..	Cholecystitis
J.M.	11.0	7.0	5.0	3.5	3.5	Ca. tongue

* Methylene blue reducing time in minutes.

These findings indicate that (1) there is no significant difference in the total reducing groups potentially present in the serum of patients with and without malignant disease, as shown by similarity of the final reducing time obtained after multiple heatings; and that (2) this in no way is contradictory to the observation that the initial reducing time in the technique employed is increased in 75–80% of cases of malignant neoplastic disease.

MAURICE M. BLACK

Department of Biochemistry, New York Medical College

The Varieties, Quantities, and Purities of Stable Isotopes Which Have Been Concentrated Electromagnetically[1]

The electromagnetic process for the separation of isotopes at Oak Ridge has been successfully applied to concentrating stable isotopes of the following elements:

Lithium	Copper	Indium
Magnesium	Zinc	Tin
Silicon	Germanium	Antimony
Chlorine	Selenium	Tellurium
Potassium	Bromine	Cerium
Calcium	Strontium	Tungsten
Titanium	Zirconium	Rhenium
Chromium	Molybdenum	Mercury
Iron	Silver	Thallium
Nickel	Cadmium	Lead

Additional elements are being added to this list from time to time.

From several hundred isotope collections approximations can be made as to the expected enriched concentration of an isotope, based on its natural abundance and the probable amount of an isotope which will be available. These expected concentrations and amounts are approximate because the natural abundance of an isotope is not the only factor which influences its enriched concentration after it has been processed in the mass spectrograph (calutron), and because the amount available for shipment will, of course, depend on the time given to collecting the particular isotope.

The following table summarizes the likely amounts of stable isotopes of the above elements available, together with their probable range of enriched concentrations:

If the natural abundance is:	The probable amount available for shipment is:	The expected enriched concentration is in the range:
(%)	(mg)	(%)
0.01 – 0.1	1	0.1 – 1
0.1 – 2	10	0.5 – 60
2 – 5	50	25 – 70
5 – 10	100	45 – 85
10 – 25	250	70 – 90
25 – 90	500	85 – 99
90 – 100	1,000	95 – 100

More specific information can be obtained from the Catalog of Stable Isotopes which is available from the Isotopes Division, Atomic Energy Commission, Oak Ridge, Tennessee.

C. P. KEIM

Carbide and Carbon Chemicals Corporation, Oak Ridge, Tennessee

[1] This document is based on work performed under Contract W-7405-Eng-26 for the Atomic Energy Commission by Carbide and Carbon Chemicals Corporation at Oak Ridge, Tennessee.