TABLE I. C^{12}/C^{13} *ratio for various carbon sources.*

SOURCE	NO. OF SAMPLES	RANGE OF VALUES OF C^{12}/C^{13} FOR GROUP	AV. RATIO FOR SAMPLES IN GROUP
Limestone	10	88.8–89.4	89.2
Coal (humic origin)	10	91.3–92.0	91.8
Wood	7	91.6–92.2	91.8
Petroleum	6	92.0–92.8	92.5
Bituminous shales	7	92.1–92.7	92.5
Torbanite and kerosene shales	3	91.3–92.0	91.7
Meteoric carbon	7	89.8–92.0	91.3
Graphite	1		90.2
Zeolitic calcite	1		89.9
CO_2 in air	1		91.5
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Lycopodium spores	1		93.1
"Balkashite" algae	1		92.8
Marine shell	1		89.5
Sea water	1		89.3

are thus significant although all of the values may be too high or too low owing to constant discrimination in the spectrometer. This constant error in the absolute numbers is probably less than 1 percent, although it may be as great as 2 percent.

A glance at the table shows that variations up to 5 percent exist in the C^{12}/C^{13} ratio. As was shown in the earlier work, C^{13} is concentrated in the limestones whereas plant forms have a preference for light carbon. There appears to be no "age effect." The limestones varied in age from Pre-Cambrian to modern, the coal from carboniferous to Pliocene, the wood from Late Pleistocene to present. Although there are individual variations within the groups no trends with age were noted.

It is interesting to note that the values for sea water and the marine shell check closely with those for the limestones. As sea water is considered to be the regulator of atmospheric CO_2, it would have been interesting to analyze CO_2 collected above the sea. The high ratio found for the sample collected in Minneapolis can, no doubt, be attributed to the CO_2 produced when coal is burned.

We are indebted to Drs. H. Berman and W. C. Darrah of the Harvard University Minerological and Botanical Museums for many of the samples. The meteor samples were kindly given to us by Professor G. P. Baxter of the Harvard Chemistry Department. The bituminous shales, plant spores and algae were supplied by Dr. Taisia Stadnichenko of the U. S. Geological Survey. Mr. R. O. Belkengren of the Botany Department kindly permitted the use of his Van Slykes apparatus for converting samples to CO_2. Through his efforts the old wood samples were obtained.

[1] A. O. Nier and E. A. Gulbransen, J. Am. Chem. Soc. **61**, 697 (1939)
[2] A. O. Nier, Rev. Sci. Inst. **11**, 212 (1940).
[3] B. F. Murphey, Phys. Rev. **59**, 320 (1941).

Proceedings of the Metropolitan Section of the American Physical Society

MEETING OF MARCH 28, 1941

THE second meeting of the Metropolitan Section of the American Physical Society for the season 1940–1941 was held at 3:00 P.M. on Friday, March 28, 1941, in the Pupin Physics Laboratories of Columbia University. The following papers were presented:

The Structure of Black Carbon. A. H. WHITE.

Microphonic Contacts and the Properties of Pyrolitic Carbon. R. O. GRISDALE.

Quantum Relationships in Vision. SELIG HECHT, SIMON SHLAER, AND MAURICE H. PIRENNE.

The following officers were elected for the season 1941–1942:

Chairman, BERNHARD KURRELMEYER
Vice Chairman, RICHARD T. COX
Secretary-Treasurer, W. S. GORTON
Members of the Executive Committee, J. M. B. KELLOGG
DAVID B. LANGMUIR
W. S. GORTON
Secretary-Treasurer