THE PURIFICATION OF SPECTROGRAPHIC CARBONS[1]

GRAPHITE electrodes purified especially for spectrographic analysis are available at a rather high price; those ordinarily used contain appreciable amounts of impurities in varying numbers and varying quantities. However, owing to the high porosity of these electrodes it is readily possible to remove from them by chemical means all significant amounts of impurities.

The electrodes are treated for four hours with a mixture of equal parts of concentrated hydrochloric and nitric acids which is kept at a temperature slightly below the boiling point during this period. The acid is then poured off and the carbons are treated with redistilled water, which is kept at the boiling point for an hour, and poured off. More water is added, and this process is repeated until the hot wash water has no acid odor. The carbons may then be dried in an oven and used.

Several hundred electrodes have been purified, with uniform success, by this method; the data which follow were taken on eight carbons from a typical batch. Spectrograms of these eight electrodes and of eight unpurified ones from the same lot were made with a concave grating spectrograph of moderate dispersion using the 220 volt DC arc, with a current of 20 amperes. The exposures were fifteen seconds. In the region from 2478Å to 3274Å, the unpurified carbons showed 56 ± 24 lines, the greatest number being 110 and the least, 33. Calcium, magnesium, silicon, copper, iron, titanium and manganese were identified among the impurities.

The purified electrodes showed in the same region only 2 ± 1.7 lines. Of the eight electrodes examined, five showed only the 2882Å silicon line, three showed very faint traces of copper, and one, a trace of magnesium. In the visible, the persistent calcium lines at 3934Å and 3968Å remained, but those from 4240Å to 4318Å were entirely absent.

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THE CORRECTION BY SCIENTISTS OF MANUSCRIPTS FOR THE PRESS

As a professional science reporter and interpreter of science for the layman I recently had the pleasurable experience of working with Dr. John A. Wilson, director of the Oriental Institute of the University of Chicago, in the preparation of an article relating to the new discoveries of the Mitannian civilization in the Near East. Following the approved practice, employed by members of such organizations as the National Association of Science Writers, the manuscript was sent to Dr. Wilson for checking, prior to publication, to assure scientific accuracy.

Dr Wilson's prompt but careful treatment of this manuscript and the exceedingly clear manner in which his suggested changes were made—and why they were made—is a splendid example of how scientists can best cooperate in the dissemination of accurate, yet interesting, articles on science in the realm of modern journalism.

As an object lesson to other scientists who may, in the future, be asked by the various science reporters to edit manuscripts for accuracy, the following examples of Dr. Wilson's changes are cited:

Original MS.: "Science now knows that it was the almost mythical and mysterious race known as the Mitanni who introduced the horse and chariot to the Egyptians, the Hittites and other peoples and revolutionized. . . "

Suggested change: "Science now knows that mysterious people known as the Mitanni were important agents in introducing the horse and chariot to the ancient Near East and in revolutionizing. . . . "

Reason: Mitanni were not a biological "race"; term "people" less specific. The Mitanni were one segment of the great Indo-European migration, in which they brought the horse to upper-Mesopotamia, their cousins the Hittites brought it to Anatolia, their cousins the Kassites brought it to lower-Mesopotamia, and a more dilute mixture of Indo-Europeans, the Hyksos, brought it to Egypt.

Another example:

Original MS.: ". . . at a great mound near the headwaters of the Tigris and Euphrates Rivers. . . . "

Suggested change: " . . . at a great mound between the upper Tigris and Euphrates Rivers. . . . "

Reason: The mound of Tell Fakhariyeh is located somewhat like Des Moines in reference to the Mississippi and Missouri Rivers.

Other examples might be cited, but the important thing to note is the pattern which Dr. Wilson uses in his suggested changes. 1. The specific phrase in the original manuscript, which is erroneous or requires a different shade of meaning, is cited. 2. The suggested change is given, keeping as near to the wording of the original as is possible. 3. The reason for the change is given.

Most scientists, when asked to correct a rough manuscript, will obey point No. 1 listed above. Very few of them will follow point 2 in keeping as near to the original phraseology as possible. Still fewer will give the reason for the suggested change.

Point 2 is important because science reporters desire most the correction of errors of fact, or misinterpretation. If they write in the vernacular of the newspapers they do so because this simple language—