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—

rather than technical phraseology—will be read by the newspaper public. Many scientists are unwilling to accept a simple way of saying something and adhere closely to strict scientific terminology.

Point 3 is important because the professional science writers, to-day, are intelligent, specialized and experienced journalists who do nothing except follow and report the latest developments in the world of science. They are willing and eager to correct errors or misinterpretations which may creep into their writings, but they appreciate the courtesy of explanations for the changes in their manuscript. Such explanations are the tribute of equality from the professional man in one field to the professional man in another field of related endeavor. It is only by such mutual respect and cooperation that the great work of advancing the dissemination of knowledge of science to the public can be raised to greater heights.

ROBERT D. POTTER,
Science Editor, The American Weekly

REPRINTS FOR EUROPEAN LABORATORIES

MOST European laboratories are unable at present to obtain American (or British) scientific journals, but can receive reprints, especially if they are sent by first-class mail. In the past week I have received two letters from scientists in Denmark and Sweden complaining that their work was handicapped by unavailability of journals, and thanking me for reprints I had sent. This seems to indicate a very practical way for American scientists to aid their colleagues in Europe.

ROBERT B. DEAN

QUOTATIONS

SCIENCE SHOWS THE WAY

THE significance of the conference on Science and World Order has been two-fold. It has held aloft the torch of free scientific discussion between men of many nations on issues of vital importance to humanity—"the greatest torch," in the words of General Smuts's recorded message to the conference, "that the spirit of man has kindled in the modern world"; and it has emphasized the increasingly close relationship between science and government. The relationship has never been closer than in this war. Not only the fighting services but all other forms of governmental activity are increasingly dependent on science. This dependence has perhaps not yet been as fully realized everywhere as it should have been. There are still gaps due to obstructive traditionalism. Professor Haldane may be right in thinking that the potentially valuable services of men of science less persistent than himself are sometimes left unused; and, among lesser men, there are still too many stories of trained chemists working as orderlies or pay clerks. But in general the change in outlook has been undeniable and striking. It has not been confined to general staffs and civil servants. Men of science on their side have learned to regard themselves not as mere consultants sitting in remote laboratories but as active participants in front-line warfare and in the framing of military and administrative policy. The conference which ended last night has certainly not been "academic" in the invidious sense of the word.

More important in the long run even than relations between science and government are relations between science and the people. Much was said at the conference about planning for the future. But, as one speaker remarked, planning can never be more than an "administrative convenience" until it is brought into direct contact with human needs. The American Ambassador, who presided at one session, spoke of the "wounded world of immediate needs and crowded wants" into which we shall move when hostilities end. In this world of the future it may sometimes be necessary to strike a nice balance between needs and wants. Clearly the needs of all have precedence over the wants of some. In such fields as health and nutrition much can be done by education to make people want most what they need most. But, save where military exigencies in time of war and restricted resources in time of peace are a limiting factor, intelligent planning must make allowance not only for human needs, but for human preferences and even for human caprice. There is nothing scientific about herding together in blocks of flats the people who want their own cottages and backyards.

In fact science, if it is to fulfil its human mission, will have to concern itself in future as much with the consumer as with the producer. This implies to some extent a reversal of past attitudes. But the whole conception of the needs and wants of the consumer as the starting-point of a program of reconstruction owes much to those who in recent years have worked out, especially in the field of nutrition, standards recognized as the necessary minimum for human well-being, and have shown how far existing standards, even in advanced countries, fall below them. The recognition of such standards was rightly described by Herbert Morrison as "a new social and political factor of the first importance." It has aroused the social consciences of all classes, and has established a principle accepted by all parties as an obligation overriding selfish or sectional interests. The war has forced on this country what Sir John Orr urged as a permanent and universal objective—"a food policy