the mitochondria of animal cells. We came to the same theoretical conclusions as Graffi but from an entirely different approach, in that, in our studies, we were able to show that in plants modified mitochondria (plastids) induce diseases that are fundamentally like those induced by plant viruses. Also, on the basis of chemical and physiological observations, we were led to the concept that certain viruses have evolved from mitochondria or their constituents, implying that similarly modified mitochondria of animal origin can reasonably be expected to be disease causing and that these diseases might be represented by the neoplastic diseases. It is interesting to note that two entirely independent groups of research workers arrived at identical concepts although starting from different points. We regret that our oversight has prevented us from giving due credit to the considerations of Graffi, who terminates his article with the following sentence, which we translate:

"May it however once more especially be emphasized that at the present these trains of thought are still purely speculative and that they have already partially been expressed by other authors in one way or another. However, it might pay to follow them experimentally in one case or another."

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A Note on "Radioactive Hydrocarbons"

In a letter describing the synthesis of mesitylene from radiocarbon dioxide by A. V. Grosse and S. Weinhouse (*Science*, 1946, **104**, 402), an error in representation has been introduced which may be very misleading to those inexperienced in the use of isotopic materials in the synthesis of organic substances.

The two cyclic products obtained, namely, mesitylene and the corresponding trimethyl cyclohexane, must be labeled with Carbon 14 in all three positions in the ring on the carbons bearing the methyl groups. The mixing of inactive acetone with the carbonyl-labeled acetone in Step 4 merely accomplishes a dilution of the resulting activity.

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A Designation for Micronutrients

In a letter entitled "Quantification of Micronutrients" (*Science*, 1946, **104**, 303), Harold N. Simpson recommends that the micronutrients (vitamins and trace minerals) be reported in micrograms per gram.

I have found this designation to be undesirable for the following reasons: The technician making up rations does not ordinarily actually weigh in micrograms and must recalculate to some practical unit, usually milligrams. It is surprising how frequently an error can be made in this process. Furthermore, the term "microgram" is difficult to visualize as a definite quantity, but everyone knows approximately what a "milligram" looks like.

For this reason I have found the most suitable designation for micronutrients to be "milligrams per kilogram." Quantities so expressed can be stated interchangeably as "mg. per kilo." or as "ppm."

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Reprint Filing—Perennial Problem

L. R. Richardson recently described a system of filing reprints alphabetically by author (*Science*, 1946, **104**, 181). He uses manila envelopes for the reprints of each author, and a cross-reference by subject is maintained on index cards. Richardson also quoted Smith (*Guide to the literature of the zoological sciences.* Burgess Publishing Co., 1943), who advocated filing all reprints numerically as received. With this latter method a card index for both subject and author must be maintained—a distinct disadvantage to those not having secretarial help—and, as Richardson points out, it is an unnatural method. An objection to filing by author is that, unless the author's name is remembered, the subject index card must first be consulted. Considerable time is also involved in extracting from the file several papers on the same subject unless they happen to be by the same author.

Although the filing system to be described may not be suited to all subjects or to special cases, it has been found very satisfactory for the subject of pharmacology (including papers on the closely related biological sciences) and should be adaptable to many other fields. The reprints are filed by subject and are given code numbers analogous to the Dewey decimal system used by libraries. An author index is maintained on index cards. A few examples will be given to illustrate how the system is applied.

The subjects were first separated into several classes of code numbers. Numbers 00. to 09. include all papers dealing with drugs acting on the central nervous system; numbers 10. to 19., those dealing with the autonomic nervous system; 20. to 29., those dealing with circulation; and so on to 90. to 99., which is a miscellaneous classification.

Within the classes individual subjects were assigned code numbers. For example, number 00. represents analeptics and convulsants; number 01., centrally acting nonopiate analgesics; 02., the general anesthetics; and so on.

Occasionally it was found that the use of subgroups was necessary. For example, the subject of vitamins was assigned to the 60.–69. class. Group 61. contains general papers on vitamin B, while number 61.1. is for papers on thiamine; 61.2., papers on riboflavin; 61.3., papers on pyridoxine; etc.

Individual reprints under each subject are numbered serially as received. The code and serial numbers are combined and placed in the upper right-hand corner in red ink; thus, for example, 02.1, 02.2, 02.3, etc., or, as with subgroups, 61.1.1, 61.1.2, 61.1.3, etc.

The same numbers are also placed on the author index cards, which contain only the author's name, the title

of the paper, and the code number. It would also be advisable to put the code number on any abstracts made of the reprints. However, doing this may add a bit of extra work, since abstracts are often made from the original article before a reprint is obtained and catalogued. Although I have not found it necessary, it is suggested that if any group becomes overburdened with reprints, the titles be listed numerically on a sheet inserted at the beginning of the group. If the group becomes still bigger, a subject card index file could be set up as suggested by Richardson.

Instead of envelopes for holding the reprints I have been using pamphlet boxes, 7 inches wide × 10 inches high × 3½ inches deep. When necessary, reprints are trimmed to 7 inches × 9½ inches, or those too large to be trimmed are folded. Trimming or folding has not been found a serious handicap, since only about one-fourth are too large for this size of box. Spacer cards with index tabs giving the subject and code number separate the different groups of reprints. If the boxes are kept at a minimum of three-quarters full, there is little more waste space than that represented by the thickness of envelopes, especially when the envelopes may hold in many cases no more than a single reprint. If envelopes were used for filing by subject, there would be, at least in most fields, far fewer needed than in filing by author.

When a box becomes full, the rear group of reprints is transferred to the next box, and a similar shift is made in successive boxes. In a rapidly growing collection new boxes should be inserted at intervals. The effort in making such a rearrangement from time to time is minimal. A card on the outside of each box gives the code number and subject of each group in the box. The card is slipped into a shallow pocket made by pasting a cut envelope on the outside of the box. The code numbers and subjects are visible above the edge of the pocket.

In setting up the system some thought should be given both to the classes of subject matter and to the group titles. As I have employed the system, nearly every class has some unused group code numbers which are available for future expansion. With the use of subgroups expansion of the filing system is virtually unlimited.

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Book Reviews

Acetanilid: a critical bibliographic review. Martin Gross. New Haven: Hillhouse Press, 1946. Pp. 155. $3.00.

This review of acetanilid is the first of a series of monographs from the Institute for the Study of Analgesic and Sedative Drugs. It is introduced by H. W. Haggard, director of the Laboratory of Applied Physiology, Yale University, and will be followed by other volumes under the same editorship dealing with salicylates, phenacetin, bromides, and antipyrine. Not only are these intended to furnish for investigators a critical review of the whole literature, but they also collect and evaluate the previous and encourage additional research.

The present work is an excellent survey of the problems which have been studied by biochemists, pharmacologists, and clinicians since acetanilid (antifebrin) was introduced in 1886 by Cahn and Hepp as the first modern antipyretic. The material is discussed in several meticulously elaborated chapters. The most important are: "The Fate of Acetanilid in the Body," "Therapeutic Use," "Pharmacology and Toxicology With So-called Cases of Acetanilid-Poisoning," and "The Question of Addiction or Habituation." Pharmacologists and clinicians will find in all these chapters that, despite 60 years of experimental and practical research, a wide field is still open for new investigations to confirm and augment older studies and to ascertain new facts about the antipyretic, analgesic, and toxic action of this drug, so fundamental to our knowledge of all antipyretics subsequently discovered. Its excellent and critical contents are supported by an extensive bibliography of 763 references.

All scientists interested in the progress of experimental or clinical therapy will find stimulating material for study in this outstanding volume, which is highly recommended.

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The dynamics of human adjustment. Percival M. Symonds. New York: D. Appleton-Century, 1946. Pp. xiv + 666. $5.00.

This book gives evidence of the increasing interest in dynamic psychology, which the author defines as "concerned with the ways in which an individual satisfies his inner drives from the physical and social world in which he lives." The scope and level of the volume show that it is intended primarily as a textbook for advanced students who are preparing for professional work in clinical psychology.

The six opening chapters deal with general principles of dynamic psychology. The thesis of these chapters is that the frustration of human drives leads to aggression, that aggression meets with punishment, that punishment is the source of anxiety, and that anxiety, in turn, is the basis of substitutive and neurotic behavior. The seventh chapter, on defenses against anxiety, is a transition to the core of the book, which discusses at length each of the mechanisms of adjustment, including fixation, regression, repression, displacement, introjection, projection, identification, sublimation, reaction and reversal formation, compensation, rationalization, and fantasy.