proximately 3 mg of mercury per cubic meter. This much mercury may accumulate in the air of a closed laboratory where numerous droplets of mercury, spattered during the course of manipulations, are present in cracks in the floor and furniture and where open vessels of mercury are kept. Prolonged exposure of some individuals to as little as 0.01 mg of mercury per cubic meter of air[2] and of many individuals to 0.25 mg[3, 4] results in chronic mercury poisoning. Although the content of mercury in the air inhaled is low, a portion of the mercury is retained,[3] and, since air is inhaled at the rate of approximately a cubic meter per hour and the mercury is only slowly voided, the amount in the body soon accumulates beyond tolerance limits.

The biographies of some famous physicists and chemists, such as Faraday and Pascal, show that they were sufferers from chronic mercury poisoning without being aware of the nature of their illness.[2] Victims of mercury poisoning show, among other symptoms, irritability, headaches, catarrhal troubles and recession of the gums. These symptoms may not develop until several months after the exposure and may persist for years.

Small amounts of mercury in the dust of laboratories where mercury has been handled may be detected in a number of ways[5] and may be demonstrated visually by the use of a mercury resonance lamp and a screen of anthracene.[6] The sweepings from such a laboratory are placed in a beaker and warmed and the beaker is then interposed between the source of light and the screen; since the light is mainly of λ2537A and this wave-length is strongly absorbed by the mercury vapor, one can actually "see" the vapor rising from the beaker.[6] If the resonance absorption of mercury were in the visible instead of the ultra-violet, the indifference with which many laboratory workers treat mercury would be replaced by extreme care.

Certain precautions will readily insure one against mercury poisoning: (1) All containers with mercury should be tightly covered. (2) Mercury should always be handled in a container to catch spattered droplets. A satisfactory container is easily made by bending in the edges of a sheet of wrapping paper and fastening the corners with paper clips. On completing manipulations droplets of mercury on glassware used may be easily brushed off with a feather. The stray mercury may be returned to the stock by inclining the paper container and puncturing the corner over the stock bottle. (3) If a room has been previously contaminated with mercury, all cracks should be cleaned by means of a suction pump with trap and tube and the laboratory should be well ventilated each time before use. This is especially urgent if the room has no windows and if the temperature is relatively high. (4) Finally, one should avoid getting mercury onto his clothes and skin and should thoroughly wash his hands, including the nails, after handling mercury. This note merely calls attention to the necessity for precautions in handling mercury; for discussion of mercury poisoning the reader is referred to Goodman[5] and the literature cited by him.

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[2] Stock, *Zeits. angew. Chemie*, 39: 461, 1926; 42: 999, 1929.
[3] Fraser, Melville and Stehle, *Jour. Ind. Hyg.*, 16: 77, 1934.
[4] *U. S. Publ. Health Service Bull.* 234, 1937.
[5] Goodman, *Rev. Sci. Instr.*, 9: 233, 1938.
[6] Leighton and Leighton, *Jour. Chem. Educ.*, 12: 139, 1935.

IS SULFANILAMIDE BACTERIOSTATIC UNDER "ANAEROBIC" CONDITIONS?

RECENTLY R. H. Broh-Kahn[1] presented data which he interpreted as demonstrating "the bacteriostatic action of sulfanilamide under anaerobic conditions." Utilizing a medium of inorganic salts and lactate devised by Quastel, Stephenson and Whetham,[2] Broh-Kahn observed no bacteriostasis with sulfanilamide under aerobic conditions. When air was completely excluded, however, bacteriostasis could be demonstrated by the addition of nitrate to this medium.

At first glance, this would seem to demonstrate bacteriostasis by sulfanilamide under anaerobic conditions. Nevertheless, as Quastel, Stephenson and Whetham explicitly state, *E. coli* cultivated with lactate and nitrate in the absence of air actually grows aerobically, the lactate being oxidized by the nitrate which is reduced to nitrite. "It is generally accepted to-day that the biological significance of the reduction of nitrate is that by it oxygen is supplied to an organism when free oxygen is no longer available." Furthermore, when one applies the reduction of methylene blue as a criterion of anaerobiosis, Broh-Kahn's data will be seen to support the view that anaerobic, reducing conditions interfere with sulfanilamide bacteriostasis.[3, 4] Applying this test to the conditions used by Broh-Kahn, methylene blue was introduced, either initially or after growth had occurred, into cultures of *E. coli* in the media of Quastel *et al.* In Table I are summarized the results of these experiments together with the data reported by Broh-Kahn.

The table shows clearly, as pointed out by Quastel, Stephenson and Whetham, that in the simple lactate medium reducing conditions prevail. Here sulfanilamide has no effect. In the "anaerobic" lactate-nitrate medium in which the methylene blue remains unre-

[1] R. H. Broh-Kahn, SCIENCE, 90: 543, 1939.
[2] J. H. Quastel, M. Stephenson and M. Whetham, *Biochem. Jour.*, 19: 304, 1925.
[3] C. L. Fox, Jr., B. German and C. A. Janeway, *Proc. Soc. Exp. Biol. Med.*, 40: 184, 1939.
[4] C. L. Fox, Jr., *Am. Jour. Med. Sci.*, 199: 487–494, 1940.

TABLE I

	Medium	Results obtained by Broh-Kahn in sulfanilamide culture	Results obtained in culture containing methylene blue (no sulfanilamide present)
Aerobic	lactate	No bacteriostasis	complete reduction
Anaerobic	lactate + nitrate	Good bacteriostasis	no reduction (nitrite formed)

duced the bacteriostatic action of sulfanilamide is clearly manifest.

The unsatisfactory effect of sulfanilamide therapy of closed space infections, empyema, and mastoiditis may be explained by correlating the above data with the demonstration by Menkin[5] that similar experimental infections are accompanied by anaerobic glycolysis, the extent of which depends upon the severity of the induced infection.

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AN ILLUSTRATED CATALOGUE OF MESOZOIC AND EARLY CENOZOIC PLANTS OF NORTH AMERICA

THE accurate identification of fossils is considerably facilitated by the use of illustrated card catalogues. Up to the present no such catalogue of fossil plants is known to exist in this country. During the past three years the writer has compiled a catalogue containing the figures and descriptions of all plant species of the Mesozoic and Paleocene of North America. It is hoped that the compilation may gradually be enlarged to include the remaining Cenozoic species of North America and at least the holotypes of foreign species of both the Mesozoic and Cenozoic.

In compiling the catalogue duplicate copies of all available publications on Mesozoic and early Cenozoic plants were first secured by purchase. To date, 46 monographs and over 80 shorter reports have been utilized. From each of these the figures and descriptions of species were cut out and pasted on the front and reverse sides, respectively, of specially printed 8 by 10 inch cards. In addition to the figure the front of each card contains the following: the original name of the species and its founder, the formation in which the specimen was found, the geologic system to which the formation belongs, the kind of type specimen represented, the name, date and author of the publication from which the figure and description were clipped and the subsequent changes in name and synonymy of the species. The back of each card contains the description and precise locality of each figured specimen.

[5] Valy Menkin and C. R. Warner, *Am. Jour. Path.*, 13: 25, 1937.

If duplicate copies of publications were not available for clipping, the figures of species were photographed and the descriptions transcribed from library copies. The catalogue is kept up to date by clipping new publications as soon as duplicates can be obtained.

For both convenience and efficiency the catalogue of over 4,500 cards has been separated systematically into numerous small groups, each of which contains species of generally similar characteristics. In the case of dicotyledonous leaves, for example, well-defined differences in shape, venation and marginal characters are the principal bases of separation into 52 distinct groups. An artificial key, with line drawings and short descriptions of each group, accompanies the catalogue. By means of the key a specimen to be identified is easily and quickly referred to a particular group. An examination of the cards of a particular group (generally not over 50 in number) shows whether or not the specimen can be identified as a previously described species.

The catalogue has demonstrated its usefulness in several ways: (1) the time required for the identification of a specimen has been reduced from the previous 6 to 8 hours by the usual haphazard methods to about 30 minutes by the use of the catalogue; (2) for age determinations each small group of cards contains relevant stratigraphic information about both identical and related species; (3) for taxonomic studies it is advantageous to have in the easily handled, compact groups of cards the figures of numerous specimens of generally similar characters, as well as the discussions of various authors regarding botanical affinities; (4) for studies of modern plants it may quickly be determined whether or not a certain type of leaf or seed is represented by similar or comparable forms in the Mesozoic or early Cenozoic.

For added efficiency it is planned to accompany the catalogue by three cross-indices: stratigraphic, systematic and alphabetic.

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The completed catalogue may be consulted in the department of geology, Princeton University.

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THE PEACE RESOLUTION OF SCIENTIFIC WORKERS

IN the Peace Resolution of the American Association of Scientific Workers printed in SCIENCE of May 3 much is said to which every scientist can assent.