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AMERICAN CONTRIBUTIONS TO ANTHROPOLOGY[1]

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AMERICAN anthropology has been in large measure shaped by its opportunities, which implied duties. The New World presented an apparently distinct variety of the human species with great physical, linguistic and ecological diversity. After their discovery these indigenes were threatened at times with extinction or miscegenation, everywhere with a possible obliteration of their mode of life. The obvious task was "to save vanishing data." As a result sheer collection or description bulks large in American anthropology. One thinks of the impressive series of annual reports and bulletins issued since 1879 by the Bureau of American Ethnology; the vast collections of crania and skeletons amassed by the late Dr. A. Hrdlička in the U. S. National Museum; the intensive reports on Californian tribes due to A. L. Kroeber and his disciples.

[1] Address of the retiring vice-president and chairman of the Section on Anthropology, American Association for the Advancement of Science, Cleveland, September, 1944.

Of course, Americans have not shied away from other areas on principle. Honolulu, with its Bishop Museum, has been a natural spring-board for Oceanian investigations, and other institutions have now and then financed transoceanic research. A. B. Lewis, Margaret Mead, Hortense Powdermaker have studied Papuans and Melanesians; Martha Beckwith, H. L. Shapiro, E. W. Gifford, Ralph Linton are associated with various Polynesian projects; Wm. Lloyd Warner and D. S. Davidson have, respectively, investigated Australian sociology and technology; Raymond Kennedy, E. M. Loeb, Cora DuBois are specializing in Indonesia; and George Herzog, Melville J. Herskovits, Wm. R. Bascom are reckoned Africanists. However, in the nature of the case most of us have remained predominantly Americanists.

Our saturation with the concrete data of the New World has given a distinct flavor to American work during the last half century. To outsiders we have

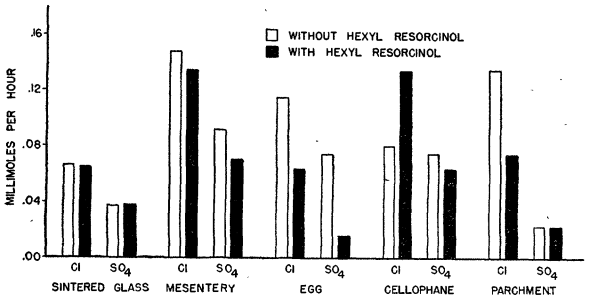

FIG. 1

and an increase in chloride diffusion through Cellophane) chloride and sulfate diffusion was inhibited by the presence of this phenolic substance.

It is possible that surface tension is involved in these studies. Hexyl resorcinol by virtue of its property to lower surface tension (decrease free energy) accumulates in the surface of water, and supposedly stops up the pores of the membrane keeping the ion from going through. If this interpretation of the data is accurate it is necessary that a revision be made in the general ideas of surface tension and passage through a dialytic membrane. A substance which lowers surface tension should not increase the passage of another substance through a membrane unless the two substances are miscible.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

ENDAMOEBA INVADENS AS AN AID IN THE STUDY OF ENDAMOEBA HISTOLYTICA

WHEN it is desired to make more than a perfunctory examination of living trophozoites of *Endamoeba histolytica,* a method must be employed to maintain the microscope slide at a warm temperature. In large classes this is not practical, and the methods used detract from the study of the organism. For this reason, some laboratories have found it advantageous to introduce the exercise by studying a reptilian amoeba, *Endamoeba invadens,* since this parasite is adapted to survival at a temperature range of 10–33° C. Moreover, in most essential features of morphology, life cycle and pathogenicity, this organism very closely resembles the human pathogen.

With the exception of a few minor differences, the morphology of the trophozoite stage is strikingly similar to that of *E. histolytica.* The cytoplasm is dense, the karyosomal granules of the nucleus are situated centrally, and the nuclear membrane is lined with a thin, evenly distributed layer of discrete chromatin granules.[1] The quadrinucleate cysts likewise are very comparable to those of *E. histolytica,* and their size, as well as the size of the trophozoites, is within the range of that of the human parasite.

The life cycle and pathogenicity of this reptilian amoeba also have been studied in detail.[2, 3] The processes of encystation, excystation and metacystic development resemble very closely those published for *E. histolytica.* This is true particularly for excystation, where even minute details are in agreement entirely with those reported by Dobell for the human amoeba.[4] The disease produced by *E. invadens* is comparable in its essential features to amoebiasis in man. However, in reptiles, irregularly outlined, undermining ulcers of the colon do not develop; liver involvement is more common in reptiles; and lesions of the stomach and upper part of the small intestine are peculiar to the reptilian disease.[3]

Endamoeba invadens can be cultivated easily at room temperature on a medium consisting of 0.3 per cent. gastric mucin in 0.5 per cent. aqueous "ground alum" salt, to which is added about 2 mg of sterile rice starch.[3] For the convenience of laboratories not equipped to maintain stock cultures, this organism now can be obtained from the General Biological Supply House, and by placing orders in advance, it is possible to receive the material for class use without the necessity of subculturing.

It is recommended that laboratory exercises on *Endamoeba histolytica* be introduced by a preliminary study of *Endamoeba invadens,* since this reptilian amoeba so closely resembles the human pathogen, yet can be observed for long periods without the inconvenience of warming the microscope slide.

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[1] H. L. Ratcliffe and Q. M. Geiman, SCIENCE, 79: 324, 1934.

[2] Q. M. Geiman and H. L. Ratcliffe, *Parasitology,* 28: 208, 1936.

[3] H. L. Ratcliffe and Q. M. Geiman, *Arch. of Path.,* 25: 160, 1938.

[4] C. Dobell, *Parasitology,* 20: 357, 1928.

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