ficed at intervals of one, three, four and six hours. Excysted specimens were observed at the end of three hours in the jejunum and ileum, and at the end of four and six hours in the ileum and caecum. These observations prove that the factors necessary for the excystation of *Iodamoeba williamsi* are present in the digestive tract of the guinea pig and that excystation may occur at least by the time the cysts reach the jejunum and within a period of three hours. No excystation was observed within one hour after cysts were introduced into the stomach of the experimental animals. The fact that a number of guinea pigs, including young amoebae-free specimens, that were fed repeated doses of viable cysts, did not become infected, indicates that the excysted amoebae are ordinarily unable to set up an infection in this animal. This is due, probably, to factors that render the medium within the guinea pig intestine unfavorable for their growth and reproduction.

Excystation in vitro: The method of escape of *Iodamoeba williamsi* from the enveloping cyst wall can be brought about under a cover glass by supplying the proper stimuli, and has been observed by the writer many times. Material containing washed cysts was diluted with physiological saline solution and sealed under a cover glass. Slides prepared in this way, containing cysts that had been passed about fifteen hours previously, were placed in an incubator at 37° C. for two hours, and then removed to a warm stage. Usually about three hours later some of the cysts were observed to be undergoing excystation. Small, irregular spaces appeared between the protoplasm and the cyst wall. Movement within the cyst consisted of the formation of minute pseudopodia. One of these would eventually find its way through the cyst wall, whether *via* a pore or an opening due to the activity of the amoeba was not determined. Sometimes this pseudopodium would be followed by the gradual emergence of the entire animal; in some cases, however, a partly extruded animal would return within the cyst, and, after a brief period, would again attempt to make its escape from the cyst wall, finally succeeding. The excysted amoeba is much more active than descriptions of the trophozoite of this species would lead one to expect. Pseudopodia were thrown out constantly; in one case, for at least forty minutes.

From these studies it is evident that the stimuli necessary for excystation are moisture and a suitable temperature for a certain period. The required temperature seems to be about 37° C., and the time that the cysts must remain at this temperature about five hours.

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THE PHOTOGRAPHIC STUDY OF THE INFRA-RED SPECTRUM OF MERCURY[1]

IN a previous work in 1922 the author attempted to photograph the infra-red spectrum of mercury with dicyanine stained plates and a prism instrument. The success was limited to the detection beyond $\lambda = 8{,}200$ A.U. of only the wave-length $\lambda = 10{,}141$ A.U. The discovery of a new sensitizer neocyanine by the Eastman Research Laboratory revived hopes for a more successful investigation. Using, as before, a Hilger constant deviation spectrograph, the mercury spectrum was photographed a number of times. The results of the present investigation in general are in good agreement with those of previous authors in the region below wave-length $\lambda = 8{,}200$ A.U. Above this wave-length the present work is entirely in conflict with a photographic study recorded in the literature, although it verifies the radiometrically detected lines. The plates revealed the existence of nineteen lines between $\lambda = 8{,}196$ A.U. and $\lambda = 13{,}670$ A.U. Nine of the lines of wave lengths, 10,141, 10,363, 10,765, 10,920, 11,288, 11,887, 12,850, 13,572, 13,670 A.U. were registered previously by means of various radiometric devices, the other ten of wave lengths 8,291, 8,443, 8,520, 8,704, 8,788, 9,012, 9,053, 9,258, 9,499, 10,243 appear to be detected for the first time. Beyond the last line measured $\lambda = 13{,}670$ A.U. four more lines were photographed. The means in the author's possession were not sufficient to determine the wave-lengths of these lines. The application of Canchy's formula leads to a very startling result for the last line in the neighborhood of 27,000 A.U.

The line $\lambda = 10{,}141$ A.U. presents a special interest. This line was first detected radiometrically by Paschen and was described as a single sharp line. Later it was suggested that it might be a double line with a separation of about 35 to 40 A.U. between the components. The present work corroborates the original observation of Paschen that it is a single, very strong line and of the wave-length as given by Paschen. The ease with which the line $\lambda = 10{,}141$ A.U. could be photographed in the present work suggested the study of the absorption of line $\lambda = 10{,}141$ A.U. by non-luminous vapor of mercury. In this respect the investigation corroborates later data in the conclusion that strong absorption of this line is out of the question.

A more detailed account of this work is soon to appear elsewhere, and the complete paper will be published in the University of Colorado Studies.

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