

showed a nucleus and a thick granular mass at one end of the nucleus in the general cytoplasm (C. F. D'Hollander's "yolk nucleus of Balbiani" observed with classical methods). In this area particularly, in more advanced oocytes, could be seen the following three structures (Fig. 1).

(1) A large number of small bodies, some of which are spherical, with a clear core in the middle, and others, very minute crescent-shaped structures, embracing a little dense archoplasm (G.B.). These we identify as Golgi bodies. We get exactly similar

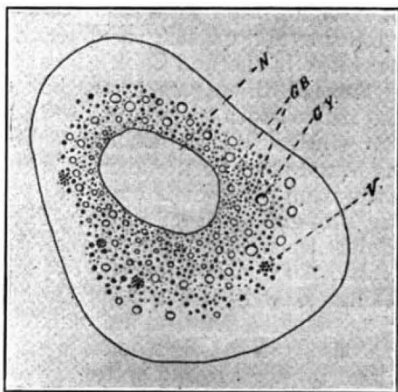


FIG. 1.

bodies occupying the same position in material fixed with silver nitrate formalin or osmic methods.

(2) Prominent and highly refractive bodies each surrounded by two or three crescents of the nature of Golgi bodies referred to above. We identify these as Golgi yolk (G.Y.).

(3) Dispersed in between the Golgi elements are groups of vesicles which take a cherry red colour with dilute neutral red, and are evidently Parat's 'vacuome' or Gatenby's 'vacuoles' (V.).

After the red vacuoles had appeared, we added a little 2 per cent osmic acid, but observed no special change in the cells, except that the osmiophilic portion of the Golgi bodies got a little darker. *The vacuoles remained unaffected.* We then tried the reverse process, that is, we first examined the ovary in 2 per cent osmic acid solution. We could observe the Golgi bodies and refractive Golgi yolk but *no vacuoles*. On adding the dilute neutral red solution, the vacuoles appeared in about fifteen minutes. This evidently shows that the red bodies are not osmiophile and therefore are something totally different from Golgi bodies, which always respond to the well-known specific tests.

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Sept. 20.

Lethal Action of Ultra-Violet Light on Micro-Organisms in a High Vacuum.

In comparing the action of low velocity electrons on micro-organisms with that of ultra-violet light, the question arose as to what the action of ultra-violet light on micro-organisms in a very high vacuum would be. It was rather expected that the lethal action *in vacuo* and in air might be different, since, in a high vacuum, the organisms are of necessity in a very dry state and in open air they may be very moist. In order to get a general idea of the lethal action *in vacuo* the following experiments were tried.

Slides of platinum and glass, coated with a thin

smear of *Staphylococcus albus*, were placed in a vacuum of 5×10^{-6} mm. of mercury and exposed for various periods, through quartz, to the full radiation of a 110 volt A.C. quartz mercury arc at a distance of 24 inches. After exposure, the slides were removed from the vacuum, coated over with a thin strip of moist solid agar and incubated for from twenty-four to forty-eight hours. The results obtained are as follows:

1. *Staphylococcus albus* on glass or platinum in a vacuum of 5×10^{-6} mm. is readily killed by ultra-violet light. This may indicate that the lethal action is a direct one rather than due to some chemical change taking place.

2. Comparison of slides exposed simultaneously *in vacuo* and in air show that the lethal action in a vacuum is just as great as in air. D. A. WELLS.

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Witchcraft and the Black Mass.

IN the notice of Dr. Kittredge's "Witchcraft in Old and New England" in NATURE of Oct. 5, the reviewer says: "One of the accused gave evidence that he had carried away from Mass a part of the Host, which points to a knowledge of the ritual now known as the Black Mass". Surely this inference is very precarious. G. G. Coulton gives numerous examples of the use of the Host as a vaguely powerful charm, quite apart from any ritual except such as is implied in the use of any charm whatever; for example, it was sometimes scattered over the fields to promote the growth of the crops. Such practices would seem to be the raw material out of which ritual is manufactured, and suggest that the Black Mass would be a later development. H. WALLIS CHAPMAN.

Whitethorns, King's Road,
Berkhamsted, Oct. 17.

JAMES DEVICE's statement must be taken in its context. If the Host had been required merely for the purpose of a charm, he would scarcely have been instructed to hand it over to "a Thing" which he thought would have torn him to pieces when he failed. It is, therefore, legitimate to infer something more vital to the witches' organisation. As Boguet only a few years before had had the Witches' Sabbath and the Satanic Mass under investigation, and Gaufredi's case was raising the same issue, a reference to that ritual becomes still more probable, though whether due to the witness's own knowledge or to the suggestion of his examiners remains an open question. On the Continent the existence of the Satanic ritual had been recognised for centuries.

THE REVIEWER.

Dipterous Parasites of Tsetse Flies.

IN a recent issue of the *Bulletin of Entomological Research*, Major E. E. Austen has a very interesting paper on the flies of the genus *Thyridanthrax*, which are parasitic on tsetse flies, and are the only Diptera known to be parasitic on *Glossina*. I thought at once of the species of *Glossina* fossil in the Miocene of Colorado, and of the numerous genera of Bombyliidae also fossil in the same shales. These, or some of them, may well have been parasitic on *Glossina*, and may have had something to do with its extinction in America. It is interesting to note, however, that *Thyridanthrax* belongs to a series of Bombyliidae little related to the fossil genera, and can have no connexion with them. T. D. A. COCKERELL.

University of Colorado,
Boulder, Sept. 13.