

be stained in a concentrated aqueous solution of methylene blue for thirty seconds, wash in distilled water, dry and mount as before; or better, in eosine for thirty seconds, wash in distilled water and then stain in methylene blue. The parasites take a bluish tint, with the staining much paler than the nuclei of leucocytes. The blood corpuscles retain their normal color, except those which contain parasites: these may be some paler. If the patient has malaria and has not been recently treated with quinine, the parasite in some form is almost always found.

*Description of the Hæmatozoon.*—Laveran found (a) spherical bodies, (b) flagellate organisms, (c) crescentic bodies, (d) rosette-shaped and segmented bodies. Within the corpuscles are found hyaline or very finely granular, spherical, amœboid bodies, pigmented and unpigmented; also vacuoles, some with small and others with large masses of pigment. Rosette-shaped bodies are sometimes found within the shell of the corpuscle, so to speak, or may be free, as are also the crescentic segmented, and flagellate bodies; and some small pigmented spherical bodies which are probably products of segmentation, are also found free. Free flagella have also been seen by Laveran. This observer thinks that there is one polymorphous organism, the unpigmented spherical body being the first stage, and the others more fully developed parasites. The spherical bodies are of various sizes, and there may be one or more in a corpuscle, and with or without pigment. Laveran concluded that they were simply attached to the corpuscles; Marchiafava contends that the parasites are particles of protoplasm which, resembling a small amœba, enter into the blood corpuscles and convert the hæmoglobin into melanin. Notwithstanding the fact that Laveran still claims that they are not endoglobular, every other observer agrees with Marchiafava that they are. Osler has described various changes in the shape arrangement of pigment and position of the endoglobular bodies by observations taken at intervals of a few minutes. The same changes he has found to exist in the shape and position of the hyaline unpigmented bodies. Golgi has traced very accurately the development of rosette forms, and from them the complete segmentation of the intracellular organisms, which enlarge, filling up the corpuscles.

The pigment becomes collected in the centre, the parasite becomes segmented, the shell bursts, and the result is a mass of free pigment and round hyaline bodies. The crescentic bodies are generally free, but sometimes found within the corpuscle. They are hyaline, with pigment either at one end or in the centre of the crescent. The flagellate organisms are spherical or ovoid pigmented bodies with long flagella, which in the fresh state are seen to possess rapid lash-like movements. The flagella free themselves, and are sometimes found among the corpuscles.

Laveran claims that the hæmatozoon of malaria is one polymorphous parasite, and that the nature of the attack of fever depends upon the rapidity with which the organism passes through its evolutionary cycle. Golgi and Canalis have claimed an individual parasite for tertian, quartan and irregular fevers. Golgi also determined that the beginning of a paroxysm was synchronous with the stage of sporulation of the parasite.

Some of the proofs for asserting that the hæmatozoa described are the pathogenic cause of malaria:

1. The hæmatozoa have been found in malaria patients of all countries with the same characteristics, and there is a remarkable agreement between the already numerous descriptions given of them.

2. These hæmatozoa have never been found in non-palustral blood.

3. The development of the hæmatozoa is intimately connected with the appearance of the melanæmia, which is the characteristic lesion found.

4. Quinine causes the hæmatozoa and the fever to disappear at the same time.

5. The disease has been communicated to a non-palustral patient, taken at a time when the parasites were present. The period of incubation is from two to fourteen days or more. The organisms may then be found in the blood of the patient experimented upon.

The form in which the hæmatozoa are found in the external media and mode of infection: It is not to be wondered at, that, even knowing the hæmatozoa as they appear in the blood, we should have difficulty in locating the parasites in the surroundings, because of the conceded fact that they take up the pigment from the red blood corpuscles