

parasites each has three distinct cycles, the human asexual cycle, the mosquito sexual cycle and the cycle of reproduction by inter-corpuscular conjugation. The last cycle giving an explanation of relapses, latency and chronicity in malaria.

When the infected mosquito bites man it injects into his blood, elongated organisms called sporozoits. These parasites endowed with the power of amœboid movement, immediately attack the red blood cells and penetrate them, and there feeding upon the cells pass through the asexual cycle of their existence, reproducing themselves by a process of segmentation and sporulation. Usually but one parasite attacks a cell, but there may occasionally be several.

The parasite upon its entrance into the cell begins to grow and to acquire pigments, at first in small amounts but later in considerable quantities. This pigment is obtained from the haemoglobin of the disintegrating red blood cell. Gradually this pigment which shows active movement, due to protoplasmic currents within the parasite, becomes collected near the centre of it which by this time has filled the red cell and swollen it to twice its normal size. How fine dividing lines may be noted extending from the centre of the organism to the periphery. These lines to the number of 12 and 24 divide the plasmodium into as many small ovoid cells, each with a fragment of the original nucleus. The red corpuscle now ruptures and liberates this new generation of sporozoits into the blood stream where they, in their turn, attack fresh corpuscles and thus repeat the cycle once more. The liberated pigment is taken up by the liver. The repetition of this process in a given number of hours gives us periodicity in malaria.

In examining the blood of malarial patients it will be seen that a certain number of the full grown parasites do not segment and sporulate. It is in these forms when taken up by the mosquito commence the sexual life cycle of the organism.

If a mosquito of the species *Anopheles* obtains blood from a malarial patient containing only spores, these soon perish, but if the blood contains mature gametes of both sexes they go on to the formation of sporozoits by sexual conjugation in the mid-gut of the mosquito. The male cell, if we may call it such, when it reaches the intestine of the mosquito throws out flagella which lash around until they free themselves from the main cell. These flagella are, in reality, spermatazoa. These cells processes conjugate with the female cell and the result is a sporont. This sporont becomes motile, penetrates the intestinal wall and lying between the basement membrane of the intestinal epithelium and the muscular coat becomes spherical in shape and forms a cyst. Within the cyst are developed spherical bodies called sporoblasts. The 7th day these sporoblasts have formed delicate filaments and are called sporozoites. The cyst now rup-