

migration of the white blood corpuscles. Fortunately, however, for English reputation this was an old English discovery revived. In 1839 Addison discovered and described this emigration in inflammation. Now adays the prevailing theory of inflammation is, that associated with this condition there is migration of the white blood corpuscles and increased activity in the movements of the wandering cells normally present in connective tissue, also, cells which under ordinary circumstances are motionless send out processes and assume all manner of shapes.

Within the last two years, much additional light has been thrown upon the purposes served by serous membranes. Formerly held to have no other function than that of furnishing a smooth and well lubricated surface, enabling parts that are subject to movement to glide easily over each other, they have been demonstrated by Recklinghausen to represent great lymphatic sacs, and to possess a highly complicated structure, and very important relations. Dr. Klein of the Brown Institution, London, has been able to demonstrate that the endothelium of the free surfaces of serous membranes, as the pleura, mediastini, omentum and others, possess other than the flat tessellated epithelium; there is present what he calls "germinating epithelium"—spheroidal cells resembling lymph corpuscles. These lymph cells make their way into the lymphatic system through small openings distributed over the membrane bounded by peculiar cells, which in their general appearance have some resemblance to the stomata seen on the under surface of the leaves of plants. We have thus opened to our view in serous membrane, a lymphatic gland covered with germinating cells which develop into white blood corpuscles ministering to the production and development of blood.

And yet, speaking generally of these white corpuscles, they do not remain in the blood-fluid. They are moved along by the forces which circulate it, until they again enter into the composition of the solid tissues by penetrating the walls of the bloodvessels, when they wander about freely in these tissues in the manner described a few minutes ago. The floating blood cells are really the very cells which once formed the substance of the lymphatic glands, serous membranes, spleen and other organs.

How very different these ideas are from what was taught but a very few years ago!

A very important late discovery is the inhibitory power possessed by certain nerves, or according to some physiologists, inhibitory centres; that is to say, a restraining centre possessed by some, if not by all

nerves,—a centre which when excited overrides the motor centre and suspends its influence. The vaso-motor nerves, for instance, formerly considered to possess fibres whose only office was to keep in a state of moderate tonic contraction the smooth muscles of the blood vessels to which they were distributed; recent advances in physiology show that these nerves also possess in part of their course fibres which when brought into activity diminish the vascular tonicity. The vaso-motor nerves present in their course and near their extremities certain ganglia and connected with these ganglia are fibres or according to some physiologists other nerves possessing an inhibitory or restraining power over the generation or discharge of their motor force. If these be excited, the action of the motor ganglia is suspended, and the vessels no longer receiving the force requisite for their contraction, yield to the pressure of the blood and undergo dilatation. A very striking instance of this inhibitory power is the suspension of the ordinary tonic contraction of the blood vessels of the abdominal viscera by irritation of a certain nerve (the "cardiac depressor" of Cyon) which runs from the heart to the medulla. Another instance of this inhibitory influence is the remarkable power which the pneumogastric nerve possesses when stimulated of arresting the heart's action—not in systole, not, as it were, in a state of cramp; but in diastole, that is to say in a state of relaxation.

This, with many other interesting facts in physiology and pathology, you will have practically demonstrated to you during the session.

At the present day, perhaps no single subject is engaging the attention of scientific Medical Men as much as the part played in disease by that low vegetable organism called bacterium, and described according to the species under the various names of Micrococcus or Microzymes, Spirillum, Vibrio, Bacillus and Spirochæta. That these organisms exist and are sometimes found in the blood, all pathologists seem to agree, but as to how they get there, there seems to be a great divergence of opinion. Some able authorities say they arise *de novo*, that they are actual pathological products, being engendered within the body; while others, equally able, say they do not originate from the normal tissues but are derived from without. They further say that bacteria exist in the exudative fluid of all acute infective inflammations, and that they may also be found in the blood of the infected animals. This contagious nature of bacteria is by no means settled. Nevertheless it is now generally acknowledged by pathologists that a few