

A third form, which is the most abundant of all, is spherical, varies much in size, and is surrounded by red granules.

In the fourth form delicate, somewhat granular filaments extend outward from the central blue body and are inserted into the surrounding protoplasm of the cell.

Bodies also occur in the form of a half-moon, sickle, spindle, etc.; they are not infrequent, appear later than the spheroid forms, stain light to dark or purplish-blue, and are found close to the nucleus only. Usually they are not naked, but are surrounded by at least a few reddish granules.

Other forms than those mentioned are met with, but are rare. Careful study shows that all of these bodies undergo the same degenerative changes. They swell and stain more lightly, a progressive formation of vacuoles takes place within them, and they often become lobulated. The bodies in breaking down form granules and drops which stain red.

The cells containing these bodies may be well preserved when the bodies show marked degeneration, and *vice versa*. Sometimes the protoplasm of the cells shows a filamentous structure.

Fifteen corneae were examined on a warm stage immediately after excision. The same bodies seen in hardened preparations could be made out. Careful examination of them failed to show any change of form or evidence of motion.

Of the micro-chemical reactions of these bodies the most interesting, perhaps, are that when treated with a saturated solution of common salt they disappear, while 5 per cent. acetic acid brings them out very sharply.

The second part of the work deals with the various hypotheses in regard to the nature of the vaccine bodies. Salmon believes that they are masses of chromatin derived from leucocytes which have gotten into the wound from the conjunctival sac. Others think they are derived from the nuclei of the epithelial cells or from extruded nucleoli. Many others, like Guarnieri and L. Pfeiffer, believe that these bodies are protozoa which are multiplying in the cells.

In the third part of his work Hückel advances the view that these various bodies are derived from the protoplasm of the epithelial cells, because while most of them lie in vacuoles in the protoplasm a few do not; these latter are usually sharply defined, but occasionally fade off into the surrounding protoplasm. On this account he believes that the bodies are derived directly from the cell protoplasm, and he finds additional proof for this view in the filaments which sometimes connect the bodies with the surrounding protoplasm.

He regards the various bodies as of equal importance; they arise in the same way, all lie generally close to the nucleus, react alike to reagents, and undergo the same degenerative changes. Various combinations of the different forms and transition stages between them are met with.

With various irritants it is possible to produce red but no blue bodies within the epithelial cells of the cornea. He therefore concludes that the blue bodies arise through the specific action of the vaccine poison, because they cannot be produced in any other way. He says that while his work is negative as to the nature of the vaccine virus, and throws no light on this question, it has cleared up the nature of the so-called vaccine bodies.

The Epidermoids and Dermoids of the Arachnoid of the Brain and Cord. — TRACHTENBERG (*Virchow's Archiv*, 154, ii. 274) reports a case of multiple cholesteatomata which certainly seems to be unique. A man, fifty-five years of age, suffered from progressive paralysis of his lower extremities for two or three years before his death. A clinical diagnosis of compression myelitis was made. The post-mortem examination showed a large number of firm, yellow granules and nodules of various sizes scattered along the posterior surface of the cord. At the lower end of the cord was a cystic tumor measuring 4 cm. long and 1 cm. thick, and filled with yellow, gruel-like material. Small nodules similar to those along the cord were found also at the base of the brain, over the left frontal lobe, and in the lateral ventricles; in the right they were especially numerous and large.

Examination of the tumor at the lower end of the cord showed its soft contents to be masses of fat. No epithelial lining to the cyst could be found. In the wall were fibrous tissue, smooth muscle-fibres, sebaceous and coil glands, fat-tissue, ganglion cells, and nerves. Some of the small cysts in the ventricles were lined with epithelium. The writer believes that some developmental disturbance must have occurred the whole length of the cord at the time of the closure of the neural canal; this view is strengthened by the fact that the tumors are all on the posterior surface of the cord. He concludes that his case strongly favors the views advanced by Bostroem in regard to cholesteatomata, namely, that those which contain no hairs are due to aberrant fetal epidermic cells alone, while those that contain hairs are due to aberrant cells of the epidermis and cutis.

Bostroem believes that such a wandering in the central nervous system of fetal epidermic cells, either alone or in combination with cells of the cutis, occurs quite frequently, but that the cells can develop only when they come in contact with the vascular pia or a plexus.

The New Formation of Elastic Fibres in the Intima.—JORES (*Ziegler's Beitr. z. path. Anat.*, 1898, xxiv. S. 458) publishes his interesting studies on the new formation of elastic tissue in endarteritis. He concludes that endarteritis is a compensatory process not only in the sense in which Thoma uses the term, but also with regard to the new formation of a functionally active elastic tissue for the vessel wall.

He produced, by ligating arteries in animals, a condition analogous to endarteritis in man. The ligated carotid arteries of rabbits killed twenty days after the operation showed a definite thickening of the intima. The intima appeared very cellular, and the cells were surrounded by a fine network of elastic tissue. This picture changed but little in the further course of the process. The elastic fibres developed early and not, as formerly held, in the late stages of endarteritis. The first formation was noted eight days after ligation. The elastic tissue appeared as extremely fine punctate lines in close relation to the protoplasm of the connective-tissue cells.

By Weigert's method he was able to demonstrate that the formation of elastic fibres occurs regularly in endarteritis thrombotica. In a vein of an amputation stump, six months after the operation, and often in phlebitis, he found numerous fine elastic fibres in the intima.

Jores does not hold the commonly accepted theory that the elastic tissue

is formed from intercellular substance, but believes that it arises directly from the protoplasm of the connective-tissue cells. He bases his view upon the following: (a) The early appearance of the elastic tissue; (b) the close relation of the youngest fibres to the cells.

General Infection by the Diplococcus Intracellularis of Weichselbaum.—GWYN (*Phila. Med. Journ.*, vol. ii. No. 24) reports a case in which, during life, the diplococcus was demonstrated in the cerebro-spinal fluid obtained by lumbar puncture, also in thick, yellow, stringy pus obtained from the knee-joint, and finally in the circulating blood. At the autopsy the micro-organism could be demonstrated only in cultures from the lesions in the meninges.

[This is the first case in which this micro-organism has been found in the circulating blood, and one of the very few in which it has been found in the joints.]

The Bacteriology of the Simple Posterior Basic Meningitis of Infants.—STILL (*Journ. of Bact. and Path.*, vol. v. No. 2) states the results of bacteriological examinations in eight cases of the above disease. In one case (in the healing stage, one hundred and fourth day) cultures were sterile. In the other seven he found a flattened diplococcus (in pure culture in six cases) corresponding, except in a few minor differences, to the morphological and cultural characteristics of the diplococcus intracellularis found in epidemic cerebro-spinal meningitis. The differences which he found were a great vitality, a more abundant growth in broth, and a less certain virulence. These differences are so slight, however, that he believes they may be accounted for by a natural variation, and considers the organism found by him to be identical with the diplococcus intracellularis of Weichselbaum. The cases of simple basic meningitis of children are, therefore, to be regarded as sporadic cases of epidemic cerebro-spinal meningitis. Clinical observation as well as the gross anatomy and the results of bacteriological examinations favor this view.

In four of the cases there was no peri-arthritis. A bacteriological examination was made in one case, and the exudate was found to contain the same micro-organism as was found in the meningeal exudate.

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