By this method elastic tissue is stained black, while connective tissue, fibroglia, myoglia, neuroglia, myelin, and fibrin, take the eosin stain. Nuclei take the hematoxylin stain with an intensity depending on the duration of the staining. Fixation in Zenker's fluid is preferred, but other fixatives give good results. Mercurial precipitates if removable are removed by the staining fluid.

To prevent precipitates it is important to avoid the addition of water to the staining fluid. The measuring graduate and the staining receptacle even if dry, should be washed out with a little alcohol previous to use. It is also necessary to have a nice adjustment of the proportion of ferric chlorid. If too little ferric chlorid is added, the elastic tissue will fail to stain; too much produces precipitates and overstaining. It is possible that different samples of hematoxylin may require a slightly different proportion of ferric chlorid, but this may easily be determined by trial. For ordinary purposes, however, none of these precautions is necessary, since precipitates may be readily removed in the differentiating process.

THE PARTHENOGENETIC DEVELOPMENT OF OVA IN THE MAMMALIAN OVARY AND THE ORIGIN OF OVARIAN TERA- TOMATA AND CHORIO- EPITHELIOMATA *

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Some years ago, I described¹ peculiar structures that are found in the ovaries of guinea-pigs, and expressed the opinion that they originated in ovarian follicles. Soon after I had published my observations, certain considerations suggested to me that these structures owe their origin to parthenogenetically developing ova.

Inasmuch as at that time I had not yet seen early stages of the structures referred to, I was unable to regard this hypothesis as sufficiently well founded to warrant publication. I continued my investigations in this direction, however, and recently I succeeded in finding in two animals the desired early stages. They must be interpreted as embryos developing parthenogenetically within the ovary of the guinea-pig. We see in each case a chorionic vesicle with trophoblast, and plasmodia and syncytia penetrating into the neighboring tissue. There is also a structure present which is probably to be interpreted as the neural tube.

Aberrant blastomeres cannot be seen in the ovaries of guinea-pigs and, inasmuch as the embryonic structures, described in my former communication, are relatively frequent, occurring in approximately 10 per cent. of all guinea-pigs below the age of six months, and, furthermore, inasmuch as they are situated in the cortex of the ovaries at a place where follicles lie normally and are found within follicle-like cavities, they can be derived only from ova developing parthenogenetically. Fertilization through spermatozoa can be excluded, inasmuch as the history of some of these animals is known to us and precludes such an interpretation. It is very probable that the parthenogenetic development sets in soon after ovulation, the altered conditions in the ovaries at that time (variations in blood-pressure, in intrafollicular

pressure, changes in oxygen supply) supplying the necessary stimulus. This interpretation agrees well with my former observations² concerning the parallelism existing between the first segmentations taking place in ova within the ovary and certain stages of atresia of follicles. At the time of ovulation an almost general degeneration of the Graafian follicles sets in as I have shown³ recently. It is also of interest to note that frequently the changes described in this communication are multiple, several ova undergoing parthenogenetic development in the same ovary.

It may be concluded, therefore, that in at least 10 per cent. of all guinea-pigs parthenogenetic development of ova within the ovary starts at some period of the life of the animal. The later stages of these developing embryos bear some resemblance to chorio-epitheliomata. During ovulation, these structures are occasionally injured by hemorrhages and they are ultimately invaded and supplanted by the neighboring connective tissue.

These observations demonstrate that chorio-epitheliomata and teratoid tumors that are found in the ovaries are not derived from misplaced blastomeres, as Bonnet and Marchand believed, but that the older view is correct according to which at least the teratoid tumors of the ovary are derived from parthenogenetically developed ova, an opinion which I, also, expressed on previous occasions.

A RARE MANIFESTATION OF EMPHYEMA NECESSITATIS *

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A. H., aged 16 months, female, whose family history and past personal history were negative, on Dec. 15, 1910, developed a "cold" which was associated with a stubborn cough, chilliness, and vomiting. On the following day there was added marked dyspnea, anorexia and all the physical signs of a lobar pneumonia involving the entire right side, anteriorly and posteriorly. The temperature was 103 F., the respirations 60 and the pulse 170. December 17, the left lung became similarly involved with the exception of that portion underlying the last three ribs posteriorly. In the early morning of December 18, the child suddenly developed alarming symptoms of collapse, with marked cyanosis, exaggerated dyspnea, rapid running pulse and prostration. The patient was in a moribund condition. Physical examination revealed a marked dilatation of the heart. After several hours of continuous stimulation by mouth, skin and rectum, in which large doses of strychnin, strophanthin, and nitroglycerin were employed, the cardiac condition was restored.

The patient ran a typical course of a very severe type of pneumonia, until on December 29, when an apparently slow lysis was interrupted by a rising of the pulse, respiration and temperature. The respiration reached a maximum of 110, the pulse 180, and the temperature 104.5 F. Physical examination revealed complete flatness over the entire right chest posteriorly, with absence of breath sounds and tactile fremitus. There was marked Skodaic resonance from the fourth to the seventh rib, and from the right sternal margin to the mammary line anteriorly. Exploratory puncture in the seventh interspace, midaxillary line, December 29, brought the expected pus. Microscopic examination of this pus showed the presence chiefly of streptococci, with, also, numerous pneumococci and staphylococci. We were dealing, therefore, with a streptococcic pneumonia. Repeated aspirations demonstrated

* From the Department of Pathology, The Barnard Free Skin and Cancer Hospital, St. Louis.

1. *Archiv. f. mikros. Anat.*, lxx, 1905.

2. *Progressive Changes in the Ova in Mammalian Ovaries*, Jour. Med. Research, 1901, i.

3. *Jour. Morphology*, 1911, xxii, No. 1.

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