ations were made on one of the controls and on one of the tubes inoculated with each kind of bacteria mentioned. Cultures at this time showed the presence of great numbers of the species used, with no admixture of other species. The remaining tubes were left in the incubator for several months, when cultures proved to be sterile. The results of physico-chemical examination of these sera are tabulated below:

HORSE SERUM A.

	Sterile Controls.	*Inoculated with Staphylococcus.*
1903	°C	°C
May 19	$\Delta = 0.580$; K = 0.009394	$\Delta = 0.585$; K = 0.009370
May 26	$\Delta = 0.580$; K = 0.009491	$\Delta = 0.585$; K = 0.009674
1904		
Jan. 16	$\Delta = 0.590$; K = 0.009684	$\Delta = 0.640$; K = 0.010128

HORSE SERUM B.

	Sterile Controls.	*Inoculated with Staphylococcus*
1903	°C	°C
May 21	$\Delta = 0.560$; K = 0.009516	——— ———
May 28	$\Delta = 0.560$; K = 0.009516	$\Delta = 0.580$ ———
1904		
Jan. 15	$\Delta = 0.600$; K = 0.009897	$\Delta = 0.640$; K = 0.010372

These data show but slight changes in the molecular concentration of the sera, and such changes as had occurred occasioned an increase in the electrical conductivity as well as in the depression of the freezing-point, showing that dissociable bodies had been produced. The experiments, therefore, failed to explain the high molecular concentration of the serous fluid from the chest, but it is possible that further investigation in this direction will be more successful.

29. **"An experimental study of the eosinophile cells during infection with an animal parasite — Trichina spiralis": EUGENE L. OPIE.** [Presented by **JAMES EWING.**]

The administration of *Trichina spiralis* to the guineapig causes an increase of the eosinophile leukocytes in the blood, comparable to that which accompanies human infection. There is no constant alteration of the number of these cells until the end of the second week after infection, when the relative and absolute number rapidly increases and reaches a maximum at the end of the

third week. At this time embryonic trichinæ are in process of transmission from the intestinal mucosa, by way of the lymphatic vessels and the blood through the lungs, to the vascular system.

Eosinophile cells accumulate in the mesenteric lymph glands and in the lungs, and form foci resembling small abscesses, in which polynuclear leukocytes are replaced by eosinophile cells. These cells are provided with polymorphous nuclei and do not differ from the eosinophile leukocytes of the circulating blood. Accumulation of the eosinophile cells in the mesenteric lymph glands and in the lungs is explained by the transmission of the embryonic parasites through these organs.

Increase of eosinophile cells in the blood and in other organs is accompanied by characteristic changes in the bone marrow. The fat is diminished in amount and cellular elements replace it. Cells with eosinophile granulation are present in immense number and particularly numerous are the eosinophile myelocytes, cells peculiar to the bone marrow. Eosinophile cells undergoing mitotic division are more numerous than usual.

The number of eosinophile leukocytes in the blood always diminishes before death, so that the proportion is usually less than 1 per cent. Infection with a very large number of trichinæ causes a rapid diminution of the number of eosinophile leukocytes, and is quickly fatal. The eosinophile cells of the bone marrow exhibit degenerative changes, of which nuclear fragmentation is most characteristic. Similar changes may affect the eosinophile cells of the intestinal mucosa and of the mesenteric lymph glands. Mild infection stimulates the eosinophile cells to multiplication, but severe infection causes their destruction.

30. "Subcortical expressive reflexes and their spinal pathways": ROBERT S. WOODWORTH.

The author reported on some experiments done in collaboration with Professor Sherrington in the latter's laboratory. It was shown that in a recently decerebrated cat, powerful sensory stimuli evoked reactions such as in a normal animal would be expressive of pain, anger, and other similar emotions. Such reactions are therefore primarily subcortical reflexes and not dependent on the organ of consciousness. The "ether cry" also appeared in decerebrate animals. The sensory spinal pathway, by which