DIRECTOR'S REPORT FOR 1931

THE WHITE CELLS IN CULTURES OF THE BUFFY COAT OF HUMAN BLOOD

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Within half an hour after the cultures were put in the incubator many neutrophiles were migrating from the little piece of buffy coat onto the coverglass and within an hour occasional monocytes were seen. During the next two or three hours more neutrophiles than monocytes migrated from the tissue. In the course of the next five or six hours the migration of monocytes increased while that of the neutrophiles decreased. By the time the cultures were from 12 to 24 hours old there were few or no neutrophiles and many monocytes on the coverglass. There were in addition often many cells which seemed at first glance to be transitionals between the two types. Many of the neutrophiles lost many or all of their granules, had somewhat swollen nuclear lobules and cytoplasm which stained grey or grey-blue with Wright instead of the usual pink color. The monocytes also became modified. The nuclei of some of them became more or less lobulated, occasionally with three or four lobules connected together by slender bridges. The cytoplasm developed a central area, which stained pink with Wright. Such modified neutrophiles and modified monocytes resembled one another to such an extent that it was not always easy to differentiate between them, but repeated reexamination of our preparations led to the conclusion that there was no transition between these two types of cells. In addition to these changes numerous other changes occurred such as the accumulation of neutral red staining granules and vacuoles and various types of cell degeneration and death. That a great variety of changes took place was to be expected since there are in the blood stream cells of various ages and of different metabolic conditions. The migration of lymphocytes was very rare but eosinophiles and basophiles were frequently seen. They retained their usual complement of granules which stained in the usual manner with the Wright stain even when the neutrophiles revealed few or no granules. This would seem to indicate that there was an actual reduction of the specific granules of the neutrophiles. Parallel with the migration of cells from the explant on the coverglass great hordes of cells oozed out of the explant to the lower surface of the drop. Some of them migrated about and most of them underwent various changes.

REPORT OF WORK DONE IN 1931 By Isidor Greenwald, New York University

The work consisted chiefly in the collection of material for the following four purposes.

1. An attempt to trace the origin of creatine. It is well known that the muscles of vertebrates contain creatine but the substance has