

great practical importance in so far as the explanation of the occurrence of rickets in the human being is concerned.

5. Cod liver oil, on the contrary, as our experiments have repeatedly shown, is powerful in its anti-rachitic properties.

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Subcutaneous tubes for chemotactic studies and leucocyte collection.

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For the study of the chemotactic influences of various substances, including bacteria and their products, and for the collection of phagocytes and other wandering cells, small glass test tubes of about 5 c.c. capacity have been placed in the loose subcutaneous tissues of the rabbit. The procedure is as follows.

The mouths of test tubes, 1.2×5 cm., are covered with drum heads of fine bolting silk, tied on with thread, which permit free interchange of liquids with the subcutaneous tissues and the migration of cells and bacteria. The chemotactic material or the organism to be studied, either in agar (1 c.c.) overlaid with Ringer's solution, or in fluid form is then added to the sterilized tubes through a hollow needle. A tube may be placed in each flank through a single dorsal incision, after blunt dissection of the loose subcutaneous tissue. Surgical anesthesia and asepsis are required for the operation. Removal of the tube contents is accomplished by hypodermic puncture through the cloth heads of the tubes, after careful cleansing of the skin with iodine and alcohol. The needles of two 20 c.c. syringes are plunged into the tube. One syringe is already filled with Ringer's solution or other liquid to replace the tube contents as it is drawn into the second syringe. Thus the tube is washed out and left full of fresh material. The tubes themselves are practically non-irritating and their contents may be recovered daily, or at longer intervals, for weeks or months.

From such tubes, containing a small amount of aleuronat in agar and filled up with Ringer's solution, leucocytes for phagocytic experiments may be collected daily over a long period. During the first day few leucocytes enter the tubes, but after 48 hours, and subsequently, a 15-20 c.c. specimen of ground glass opacity may be recovered from each tube. Practically all of these cells are polymorphonuclear leucocytes and about 80 per cent. of them are viable, as observed in a hanging drop in which the dead cells are stained with aqueous carmine or trypan blue. Of the living cells, 15 per cent. or less will die during the 24 hours after removal, indicating that 65-75 per cent. of the cells are in good condition, an observation which is confirmed by their phagocytic activity.

The introduction of bacteria into the tubes furnishes an opportunity for the observation of certain phases of the struggle between invader and host. In general, the method seems applicable to a variety of studies in chemotaxis and resistance to invasion.

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Experiences with thyroidectomy and ligation of the thyroid arterie in depancreatized dogs.

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The absence of glycosuria and the high sugar tolerance in myxoedematous individuals led us to undertake the experiments cited in this brief report.

Dog No. 100, male, weight 14 kilo., partial pancreatectomy performed January 12, 1921. Urine positive for sugar the following day. It persisted in amounts of from 2 to 3 per cent. until January 19, when both inferior thyroid arteries were ligated. Glycosuria continued until January 26, 1921, when complete thyroidectomy was done, sparing the parathyroids. Urine became negative for sugar on the following day and continued so. On February 5, 1921, with blood sugar 95 mgms. an additional 3.4