In another patient a tracing obtained with insulin on a previous occasion shows essentially the same reaction. There is seen a normal hunger contraction period ending in strong type iii contraction. In none of the control tracings for this individual was there such an extended rest period. Insulin was given at B which represents about one-half of the normal rest period. No definite activity was seen for 2 hours. Although the blood sugar was lowered from 63 to 43 to 47, no increased activity occurred. At the end of this experiment the patient was extremely weak, nervous, and had a marked desire for food.

In one instance we noted a definite prolongation of the contraction period. Insulin was given at B during a period of gastric activity. No rest period occurred during the entire experiment. At the end of 2½ hours the patient suddenly developed a severe insulin reaction which necessitated discontinuing the tracing.

Our studies thus far have failed with 2 exceptions to show any very definite or striking stimulation of gastric activity as the result of insulin. These 2 exceptions were cases in which there was increase in the length of the contraction period but not in the intensity of the contractions. Types ii and iii contractions were rather frequently seen without insulin, but in no case were they seen after the injection of insulin, even at the height of the reaction.

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Experimental Infarction of Bone Marrow.

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In the course of a study of the etiology of solitary bone cysts, a series of experiments was performed, the object of which was to infarct large areas of bone marrow and to determine whether or not a cystic degeneration takes place in these areas with formation of lesions similar to the solitary bone cysts of man.

The animals used were young and adult dogs. Under ether anesthesia and careful aseptic precautions, the periosteum over nearly the entire femoral shaft between epiphyseal lines was elevated, thus severing all blood supply and drainage. Small areas of periosteum were left intact near the extremities of the shaft to afford a ready source of blood supply for revascularization of the infarcted areas.

Twenty-four hours following operation no change was noted.

Four animals sacrificed at various intervals from 4 to 8 days following operation show grossly infarction of the marrow of the shaft as evidenced by its pale dull yellow color in contrast with the red-brown appearance of normal marrow in the unoperated extremity. Near the epiphyseal lines are small sharply demarked red areas corresponding to the uninfarcted marrow beneath the small areas of intact periosteum. Microscopically, the marrow in the infarcted regions is necrotic, and the bony trabeculae well within the infarcted areas are dead. In the zone between infarcted and living marrow, there is, in places, a wide area of dense leucocytic infiltration, elsewhere the necrotic and living marrow are sharply demarcated without a zone of leucocytic infiltration.

A specimen studied 30 days after operation exhibited a porous cortex and red-brown normal appearing marrow in the metaphyses. In the upper portion of the shaft, the marrow cavity was filled by dense white fibrous tissue. Microscopically, this fibrous marrow is seen to vary considerably in density, and in degree of infiltration by leucocytes. In one region there was considerable new bone formation from the endosteal surface of the cortex. No cystic structures were present.

The femur of a case 60 days following operation exhibited considerable subperiosteal bone formation with normal marrow in the metaphyses but rather firm fibrous tissue in the central portion of the shaft, (*i. e.*, at greatest distance from metaphyseal arteries). Microscopically, the inner portion of the cortex of the shaft was seen to be dead and undergoing creeping substitution by new bone from the subperiosteal newly formed bone. The fibrous marrow is rather dense and is sharply demarcated from the adjacent fatty and cellular marrow. The outstanding feature, however, is that scattered throughout this region are numerous large and small rounded empty cavities, the walls of which are formed by condensation of fibrous tissues. There is little infiltration in the fibrous marrow and no foreign body giant cells. None of these cystic spaces bear any resemblance, histopathologically, to the solitary bone cysts of man.

Another specimen was studied 59 days following operation. This experiment was complicated by a healing fracture through the central portion of the shaft. Fibrous marrow without small cyst formation was present in the central portion of the shaft above and below the callus.

In 15 adult dogs with closed epiphyseal lines, no infarction was obtained by the above procedure. The reason for this no doubt is the adequate anastomoses between shaft and epiphyseal vessels.

The negative results obtained in the above series of experiments are reported because in the clinical literature on solitary bone cysts, trauma causing profound vascular disturbance, is repeatedly emphasized as an important etiologic factor.

Healing of sterile infarcted areas in the long bones of dogs does not result in lesions resembling solitary bone cysts in man. However, fibrosis of the marrow with multiple small cystic cavities lined by condensed fibrous tissue may develop.

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Is Sodium Salicylate Excreted in the Bile?*

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In the course of studies on the excretion of various chemicals by the liver, it was discovered that sodium salicylate and the sodium salt of diiodosalicylic acid did not appear in the bile of the rabbit in determinable quantities after the intravenous administration of 4 cc. of a 1% solution per kilo of body weight.[1] In view of the consequent discrepancy regarding the cholagogue and bactericidal action of salicylates on the biliary system, it seemed worth while to investigate the biliary excretion of salicylate in man. Three patients, 2 with drainage tubes in the common hepatic duct following cholecystectomy and choledochotomy, and one with a cholecystostomy, received by mouth a single dose of 20 mgm. of sodium salicylate per kilo of body weight. Samples of bile and urine were obtained before administration and after administration, namely 12, 40 and 79 hours respectively. The salicylate was determined colorimetrically by a modification of the Millon reaction.[2]

Studies made in one case: Housewife of 66, cholecystectomy for chronic cholecystitis and cholelthiasis, choledochotomy for stones in the common duct, and catheter in the common duct. The bile and urine were collected in hourly samples for 12 hours. The flow of bile averaged about 26 cc. per hour (with a minimum of 8 and a

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[1] Halpert, Béla, and Hanke, Milton T., *Anat. Rec.*, 1929, xlii, 49.

[2] Folin, O., and Ciocalteu, V., *J. Biol. Chem.*, 1927, lxxiii, 627. Hanke, M. T., *J. Biol. Chem.*, 1928, lxxix, 587.