400 gm. of liver, 50 gm. of pancreas, 60 gm. of sucrose and 4 units of insulin daily for a further 17 days, after which time it collapsed and died 2 days later. At autopsy a subdiaphragmatic abscess was found, associated with a terminal peritonitis. Prior to this development the animal had been well and lively, and at the time of death it weighed 8.1 kilos. No adrenal or pancreatic tissue was found at autopsy.

In this animal the removal of one adrenal had apparently no effect on pancreatic diabetes. This conclusion is reached since after the unilateral adrenalectomy the same amount of insulin was required with the same diet to keep the glycosuria at the same level.

After removal of all adrenal tissue the most striking feature was the ability of small amounts of insulin, one-quarter to one-fifth the original amount, to keep the glycosuria at a very low level, in spite of feeding of as much as 60 gm. of sucrose daily in addition to 450 gm. of meat. The available carbohydrate of this diet was about 127 gm. yet only 4 units of insulin were required to keep the urine almost sugar free.

On the other hand it is quite apparent from a study of the periods when insulin is withheld that the animal did not possess a normal capacity to metabolize carbohydrate. How long such an animal would have survived if not treated with insulin remains to be determined.

7695 P

Indirect Method for Determining Blood Pressure in Small Animals.

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Experimental problems requiring the repeated taking of blood pressure have, in the past, required the use of fairly large animals. Various indirect methods suggested for small animals have, as a rule, proven unsatisfactory. Griffith and Collins[1] reported an indirect method for obtaining blood pressure in man by capillary observation with simultaneous arterial compression. This method has now been modified for use in small animals.

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[1] Griffith, J. Q., Jr., and Collins, L. H., Jr., *Am. Heart J.*, 1933, **8**, 671.

White rats under nembutal anesthesia were used. The dorsum of one foot was depilated, either with barium sulphide or, better, with a razor. A special blood pressure cuff was then wrapped about the thigh and fastened with adhesive. This cuff is 2.7 cm. wide and encloses a circular pressure bag 2.4 cm. in diameter. This cuff conforms in design to a portion of a ring enclosed between 2 concentric circles, the outer circle having a radius of 5 cm. and the inner a radius of 2.3 cm. The 'ring' or cuff is thus seen to be 2.7 cm. wide, and any convenient length may be used, 25 cm. measured along the greater circle being quite satisfactory. The pressure bag is inflated from a rubber bulb which is compressed by a thumb screw, the whole system being connected through a T-tube to a mercury manometer. This type of cuff shows little tendency to slip, but if it does a stitch or two can be taken through the skin.

The foot is now gently supported by a mould of plasticine, and a drop of immersion oil placed on the shaven area. A strong light, cooled by passing through water, is focused on this area, and it is observed under the low power objective of the microscope.

Ordinarily in such a preparation the field will be full of vessels, many of which will show distinct flow. For the purpose of this communication we will make no attempt to differentiate between arterioles, venules, and capillaries, but simply refer to them all as minute vessels. Roughly, there are 2 general types of vessel visible: (1) very red, very distinct vessels with relatively wide channels, rarely showing distinct segmentations in their homogeneous stream, and either flowing very slowly or not flowing at all; (2) relatively thin and faint vessels in which the flow is very fast and the stream invariably granular in appearance. Readings using the first type of vessel are inaccurate. A vessel of the second type is therefore selected and the pressure in the cuff is slowly raised until all flow stops. After cessation of flow is complete the pressure is lowered 3-5 mm. at a time and the level where distinct flow begins is recorded. This end point in a favorable case is extremely sharp. Usually 3-4 such vessels can be observed in a single field, and it is surprising how nearly identical the time of onset of flow is in each. This reading should be repeated several times, using other vessels, and, in readings made a few minutes apart, there will usually be agreement within 5 mm. (provided the anesthesia is constant). Theoretically, the point of cessation of flow as the pressure is raised and of return of flow as it is lowered are identical. Actually, the point of return is by 3-5 mm. the lower.

Blood pressure readings were obtained by this method in over a

hundred rats. The figures obtained varied between 140 and 60, with 9/10 falling between 80-100 mm. It was then thought advisable to compare readings obtained by this method with those secured by direct needling of an artery. Both readings were made in the same 10 minutes, in an animal which remained in apparently the same stage of anesthesia, and in which the direct reading was obtained virtually without blood loss.

TABLE I.
Blood Pressure in Millimeters of Mercury.

Animal	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Indirect†	68	97	85	91	112	74	96	105	75	65	102	88	110	70	88
Direct‡	74	91	76	94	102	78	88	112	81	77	98	80	112	75	94

† Using left femoral artery.
‡ 1-5 inclusive using abdominal aorta, 6-15 inclusive the left carotid.

7696 P

Observations with Oerskov's Milk Bacillus.

L. DIENES.

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Oerskov[1] reported that in the cultures of certain *fluorescens* strains isolated from milk, if the media contains saccharose, masses of tiny non-stainable granules develop which multiply independently from the bacteria. The cultures on ordinary agar plates correspond in every respect to the cultures of other *fluorescens* strains; on saccharose agar plates the colonies consist mostly of an amorphous substance in which strands of bacteria are embedded. By direct examination under the microscope or by the usual bacterial staining methods in the amorphous substance, no form elements are visible. In dark background preparations it seems to consist of innumerable tiny granules small enough to pass a Berkefeld filter. If the development of the colonies is examined under the microscope, it is seen that the bacilli and the amorphous substance start to grow separately. The amorphous substance grows in tiny round transparent colonies with a more refractile zone at the center. Most of these colonies coalesce later with the colonies of the bacillus and those which remain free grow only to a size of 0.1-0.2 mm. Oers-

[1] Oerskov, T., *Zentrbl. f. Bakt. I. O.*, 1931, **120**, 310.