River Township, Itasca County. The results are given in the accompanying table.

Results. Out of a total of 3,183 animals tested, 88.3% were negative, 5.9% were suspicious and 5.8% were positive. There were 181 herds of cattle with an average of 17.6 animals per herd. Of these herds, 66.3% were entirely negative, 12.7% had one or more suspicious animals but no positive animals, and 21.0% had one or more positive animals. Only one herd showed 100% of suspicious and positive animals. There were 13 animals in this herd, all more than 3 months of age.

These figures indicate that Bang's disease is much less prevalent, both in percentages of animals and herds affected, than has previously been estimated. Also, that Bang's disease does not usually affect all of the animals in a herd.

6859

Presence of Bact. Abortus Bang in Raw Milk, Butter and Ice Cream.*

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The milk ordinances of two municipalities were examined. One municipality required all milk sold as "raw" to come from cattle negative to the agglutination test for Bang's disease, while the other ordinance had no such requirement. Eighteen quart samples of milk were collected from the commercial distributors of each city, representing 17 dairies in one and 18 dairies in the other. Three to 5 cc. of gravity cream from each quart was inoculated intraperitoneally into 2 guinea pigs. The pigs surviving the inoculations were autopsied 4 weeks later. The spleen of each was cultured for *Bact. abortus* and the blood tested for agglutinins for this organism.

Bact. abortus was not isolated from any of the quart samples of milk from the 18 dairies in the city, the ordinance of which required raw milk to come from cattle tested for Bang's disease. Two guinea pigs, representing one dairy, died as a result of the inoculation before the end of the 4-week incubation period, so that satis-

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factory results could not be obtained. Agglutinins for *Bact. abortus* were not demonstrated in any of the milk from this city. Guinea pig inoculations of the milk from dairies supplying milk to the other city were as follows: Six pairs of pigs inoculated with milk from 6 dairies, died in from 1 to 10 days after injection and satisfactory incubation periods for *Bact. abortus* were not obtained. Agglutinins for *Bact. abortus* were demonstrated in the milk from 2 of the above dairies in the 1:50 dilution. Therefore, milk containing these agglutinins was being used to make up these milk supplies. Usually milk from a single udder with this amount of agglutinin does not contain *Bact. abortus;* however, these agglutinins were no doubt diluted many times with milk from negative animals and this low agglutination of the mixed milk probably indicated infection in the herd. Milk from the remaining 12 samples gave the following results: *Bact. abortus* was not isolated from 6 samples and was isolated from 6. The latter samples represented 5 dairies as duplicate samples were obtained from one dairy.

The fact that *Bact. abortus* may be found in milk has been known since Smith and Fabyan[1] and Schroeder and Cotton[2] described the lesions produced in guinea pigs by the injection of milk containing this organism. Our preliminary experiments and work of other investigators (Huddleson,[3] Carpenter and Baker[4]) indicate that gravity cream is the best portion to use for isolation of *Bact. abortus.* For this reason products containing large quantities of raw cream would also be expected to contain this organism. Carpenter and Boak[5] collected 17 samples of market butter but did not isolate *Bact. abortus* from any of them. They found, however, if butter was artificially inoculated with this organism that it would survive from 32 to 142 days at 8°C. Van der Hoeden[6] examined 20 samples of sour cream butter made from naturally infected milk but did not isolate *Bact. abortus.* He was of the opinion, as was Carpenter and Boak that this organism was destroyed as the acidity approached a pH of 5. Lerche[7] isolated *Bact. abortus* 5 times from

[1] Smith, T., and Fabyan, M., *Centralbl. f. Bakteriol.*, 1912, **61**, 549.

[2] Schroeder, E. C., and Cotton, W. E., *Rep. Bureau Animal Industry, U. S. Dept. Ag.*, 1911, **28**, 139.

[3] Huddleson, F., Halsey, D. E., and Torrey, J. P., *J. Inf. Dis.*, 1927, **40**, 352.

[4] Carpenter, C. M., and Baker, D. W., *Cornell Vet.*, 1927, **17**, 236.

[5] Carpenter, C. M., and Boak, R., *Am. J. Pub. Health*, 1928, **18**, 743.

[6] Van der Hoeden, J., *Tijdschr. v. Diergeneesk.*, 1929, **56**, 217. Ref. *Berl. Tierärztl. Woschr.*, 1930, **46**, 86.

[7] Lerche, *Z. f. Infektionskr.*, 1930, **38**, 253.

14 samples of butter made from infected cream and once from 11 samples of buttermilk. He was unable to isolate *Bact. abortus* from 12 samples of cottage cheese made from infected milk.

In our own experiments cream was collected by gravity separation from milk of cattle known to be shedding *Bact. abortus*. The gravity cream was not pasteurized and while still sweet was made into butter; however, commercially prepared butter is commonly made from pasteurized cream. One-half of the butter made from the cream was salted (3%) and one-half was not. The buttermilk was also collected. Guinea pigs were inoculated with these products shortly after they were made. Three such experiments were performed. *Bact. abortus* was isolated from the buttermilk, the salted and the unsalted butter. Two experiments have now been completed in which *Bact. abortus* was recovered from ice cream prepared from cream known to be naturally infected. Experiments are in progress to determine how long *Bact. abortus* will survive in butter and ice cream.

6860

Isolation of Mesobiliviolin from Human Feces. Its Origin and Nature.

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Coincident with the isolation of crystalline stercobilin,[1, 2] a substance resembling mesobiliviolin as first described by Fischer and Niemann[3] was regularly found in human feces.[2] Mesobiliviolin, as described by Fischer and Niemann,[3] exhibited absorption in the region of 600 and 500 mm. and showed green fluorescence with Zn acetate, the solution of the zinc salt having absorption at 626, 573, and 500. The similar substance found in feces had very similar characteristics,[2] and was consequently given the name kopromesobiliviolin.

It has now been determined that this substance still contained stercobilin as an impurity which accounted for the absorption in the region of 500 mm. as well as the green fluorescence of the zinc salt.

[1] Watson, C. J., *H. S. Z.*, 1932, **204**, 57.

[2] Watson, C. J., *H. S. Z.*, 1932, **208**, 101.

[3] Fischer, H., and Niemann, *H. S. Z.*, 1924, **137**, 292.