

# The Bacterial Flora of the Normal Non-Gravid and Gravid Bovine Uterus

By W. A. CLARK<sup>1</sup> and W. G. STEVENSON<sup>2</sup>

**T**HERE is considerable divergence of opinion regarding the incidence of bacteria in the bovine uterus. Conklin *et al* (1) isolated one or more microorganisms from 71 of 80 gravid uteri, although only 19 of the 80 exhibited gross pathological lesions. Seventeen species of bacteria were isolated.

Williams (2) reported that "18 non-pregnant uteri yielded bacterial cultures (streptococci, staphylococci, bacilli) while 25 gravid uteri yielded cultures in 8 animals". He also states that Hagan isolated bacteria from 8 of 10 non-gravid uteri and from 12 of 14 gravid uteri. The material studied by Hagan was all from dairy discards.

Fitch and Bishop (3) cultured 125 uteri and isolated microorganisms from 28, or 22 per cent. They suggested that the abundance of organisms isolated by certain investigators was due to faulty technique and concluded that "the healthy bovine uterus is, in general, free from bacteria".

It is difficult to understand why this difference of opinion exists. To obtain additional data on which to base judgment, the following study was undertaken.

## Materials and Methods

Thirteen non-gravid and 9 gravid uteri were obtained from animals slaughtered in a federally inspected establishment. The ovaries, fallopian tubes and vagina were removed with the uterus, placed in a clean, non-sterile container and returned to the laboratory. No information was available regarding the breeding efficiency of the animals from which specimens were obtained.

## Bacteriological Technique

The outer surface of the 13 non-gravid uteri were seared with a hot iron; then a Pasteur pipette, containing nutrient broth, was inserted through the sterilized area into the uterine cavity. The broth was discharged from the pipette, flushed back and forth a number of times in order to secure representative washings, which were used to inoculate liquid and solid media.

The outer surface of the 9 gravid uteri were seared. With a Pasteur pipette, approximately 5 cc. of amniotic fluid was obtained and used to inoculate liquid and solid media.

Using aseptic technique, the uterine musculature was incised, the fluid permitted to escape and cultures made at random from the intercotyledonary spaces and the cotyledons.

The foetal stomach contents of five of the larger foetuses were obtained by aseptically exposing the stomach, inserting a Pasteur pipette containing broth through the walls. The broth was then expelled and

1. Research and Biological Laboratories, Ayerst, McKenna & Harrison Ltd., St Laurent, Quebec.  
2. Veterinary Division, Ayerst, McKenna & Harrison Ltd., St. Laurent, Quebec.

flushed back and forth several times before removal. These washings were used to inoculate liquid and solid media.

Rabbits' blood agar plates and meat infusion broth with chopped meat (4) were used in all tests. One blood agar plate and two tubes of meat mash media were used for each specimen. Following inoculation the cultures were incubated aerobically for 7 days at 37°C.

#### Results

Twenty-one of the 22 uteri cultured were sterile. An aerobic Gram positive rod was isolated from one tube of the two tubes of meat mash media but not from the blood agar plate following inoculation with the washings from one of the non-pregnant uteri. This organism was assumed to be a contaminant introduced due to faulty sampling technique.

#### Discussion

Bacteria were not isolated from 9 gravid uteri. It would, therefore, appear that, during a normal gestation, bacteria are not present in the uterus.

No bacteria were isolated from 12 of 13 non-gravid uteri.

The results obtained support Fitch and Bishop's observation (3) that the healthy, non-gravid or gravid bovine uterus is bacteria free.

#### References

1. CONKLIN, R. L., MCCARTHY, J. B., THOMPSON, R. R., AND PUGSLEY, L. I. *Clinical Bacteriological and Physicochemical Studies of the Pregnant Bovine Uterus*. Cornell Veterinarian 21, 177 (1931).
2. WILLIAMS, W. L. *The Diseases of the Genital Organs of Domestic Animals*. Published by the author, Ithaca, N.Y., 1943, page 296-297.
3. FITCH, C. P., AND BISHOP, C. M. *Bacteriological Study of the Gravid and Non-Gravid Uterus*. Cornell Veterinarian 22, 225 (1932).
4. WADSWORTH, A. B., *Standard Methods*, Division of Laboratories, New York State Dept. Health. Published by Williams and Wilkins Co., Baltimore, Md., 1939, page 87.

---

## Wilfrid Doyle Baskette, V. S.

THE DEATH occurred in Victoria Hospital, London, Ontario, on the evening of February 22nd last of Dr. W. D. Baskette, Health of Animals Division, Woodstock, Ontario.

Dr. Baskette was born on September 6, 1897 at Norwick, Ontario, and graduated from the Ontario Veterinary College in 1920.

He joined the Health of Animals Division on February 8th, 1922, and had been employed continuously with the Division since that date, for the most part in the Province of Ontario.

## W. Reid Blair

ON MARCH 1, 1949, in New York City, the death occurred of Dr. W. Reid Blair, at the age of 75 years. Few veterinarians are so well known as Dr. Blair. His long association with the New York Zoological Park and his splendid contributions towards a knowledge of the diseases of animals in captivity earned him a reputation which was world-wide. He was graduated from the Faculty of Comparative Medicine and Veterinary Science of McGill University in 1902. To show its appreciation for the great credit brought the University by one of its graduates, McGill, in 1928, conferred on him her highest honor, the LL.D. degree.

---