it is far above the average given by Clapp for wells of this type in Maine. So far as I can learn, no test was made to see how far above the surface the pressure would raise the water. An interesting fact is that the 315-foot well drilled in the same year was a flowing well until the 286-well was drilled; when this began to flow, the other ceased. It would seem, therefore, that these two, at least, have a common joint plane or system of joint planes as their reservoir. This is in spite of the fact that in the later wells care was taken to space the wells a hundred feet or more apart to avoid this very thing.

Conditions adjoining these wells are such that it is not strange that an occasional flowing well should be encountered. The mills are situated on a fragment of a terrace about 80 feet above sea level. Back of them is an abrupt rise of about 80 feet to another terrace. The face of the scarp is of clay, but the slate rises through the terrace at elevations above about 160 feet. Wells drilled in the face of the scarp strike ledge after passing through 10 or 15 feet of clay showing a gradual rise of the slate underneath the terrace[6] as though marking the bank of a pre-glacial valley of more mature development. A small stream flowing down the scarp shows the same feature. This rise of the slate ledge behind the mills offers as favorable conditions as could be expected for a flowing well in a region where the reservoir consists of the joint planes of a comparatively localized area, as is generally considered to be the case in wells of this type.

It may be of interest to mention briefly a well drilled recently for the Waterville Country Club located about four miles west of those just described and in the town of Oakland. This contrasts with the Winslow wells in that it is on the summit of an almost bare slate hill 440 feet high, the highest point for several miles. Yet a well drilled here yielded a little water at 10–15 feet, and a sufficient supply at 147 feet. It was decided to continue to 150 feet, and just before reaching that depth a copious supply was encountered which rises to within 15 feet of the surface.

[6] The present course of the Kennebec River through Waterville-Winslow is between vertical slate walls.

HOMER P. LITTLE

COLBY COLLEGE,
WATERVILLE, MAINE

SCIENTIFIC BOOKS

Principles and Practise of Milk Hygiene. By LOUIS A. KLEIN. Philadelphia and London, J. B. Lippincott Company. 1917. Pp. 320, with 40 illustrations.

The book is intended primarily as a text for students pursuing a course in milk hygiene, but should serve a much broader purpose. It presents a well-balanced and concise résumé of facts which have an important bearing on the production of wholesome milk.

The work of others is drawn upon liberally, rather than the author's own theories and experiences, and parts of the book are replete with valuable references. The subject matter is divided into nine chapters, namely; Physiology of Milk Secretion, Colostrum, Milk, Bacteria in Milk, Milk Defects, Influence of Disease upon Milk, Dairy Farm Inspection, Pasteurization, and Methods of Examining Milk. There is also an appendix of 18 pages on Methods and Standards for the Production and distribution of Certified Milk.

A large part of Chapter VI. is given over to a discussion of tuberculosis of cows and transmission of infection to man through the milk. The theories and experimental facts leading up to the present status of the controversy are illuminating from the standpoint of completeness and organization. The hand of the veterinary pathologist may be seen in the descriptions of symptoms and pathology of bovine diseases, especially of the udder and related organs.

Chemistry and bacteriology also receive their due share of attention. The restricted emphasis put on the bacteriological methods of controlling sanitary milk production will be perhaps somewhat disappointing to those who regard the enumeration of bacteria by the direct microscopic or the plating process as of inestimable value. Correspondingly undue em-

phasis will appear to be placed on inspection, the limitations of which have in very recent years been recognized.

The book is remarkably free from grammatical and typographical error. Furthermore, the good quality of paper, the large bold type and the pleasing cover should make the book a welcome addition to the library of the dairyman, dairy inspector, milk examiner, milk distributer, public health official and others who are at all interested in the field which the author has covered.

Leo F. Rettger

SPECIAL ARTICLES

THE OVIPOSITION HABIT OF GASTROPHILUS NASALIS L.

In a short article recently published in the *Canadian Entomologist,* Vol. L., No. 7, July, 1918, pp. 246–248, entitled "Note on Oviposition of *Gasterophilus nasalis* L.," Dr. C. H. T. Townsend makes the statement that he has observed this species darting at the muzzle of a horse, leaving "whitish eggs with their sharp bases penetrating and adhering in the skin of the upper lip." Unfortunately for the proof of this observation the eggs were lost, but the author states that similar eggs were dissected from the abdomen of the fly. In the same note the author remarks that the egg of *nasalis* "is practically the same size and shape as that of *intestinalis* and that by reason of the moderately pointed anal end it is capable of penetrating tender skin." Dr. Townsend concludes that the attachment of the eggs of *nasalis* to the hairs of the host only happens inadvertently when the fly misses its true mark, namely, the tender skin of the lips.

It is not unlikely that Dr. Townsend may be capable of distinguishing the eggs of *G. hæmorrhoidalis* from those of the other two species by reason of its black color, but it is rather unfortunate that he should say that the egg of *G. nasalis* is of the same size and shape as that of *G. intestinalis.* The eggs are absolutely distinct both as regards shape and attachment to the hair, and the egg of *G. nasalis* is certainly not adapted for the penetration of the host's skin.

Far from the deposition of the eggs of *G. nasalis* on the hairs of the throat being accidental, it has been my experience that this is almost invariable. Occasionally, as many as six to eight eggs have been found on a single hair. The adult fly so far as I am aware, has never been seen to strike at the lips but always at the hairs of the skin between the mandibles and sometimes on the hairs of the cheek.

The eggs of all three species are transversely striated, a fact to which Dr. Townsend probably refers when he remarks on the transversely corrugated structure of the chorion of the egg of *G. nasalis.* But to add that these striations in the case of the latter egg serve to retain the egg in the skin after it is inserted is purely fictitious. It is undoubtedly true that the stalked egg of *G. hæmorrhoidalis* which is invariably found attached to the short hairs of the lips, often appears to penetrate the skin. Repeated examination has shown, however, that the clasping stalk may sometimes enter the hair follicle and thus give the impression that it is actually inserted in the skin.

In summing up, it is my opinion that Dr. Townsend has conceived of his ideas from observations that are quite inaccurate and that in a more detailed study of the habits of botflies he would find *nasalis* never "strikes" at the lips of the horse, and certainly in my experience it has never been known to oviposit there.

A. E. Cameron
University of Saskatchewan

SCIENCE

A Weekly Journal devoted to the Advancement of Science, publishing the official notices and proceedings of the American Association for the Advancement of Science

Published every Friday by

THE SCIENCE PRESS

LANCASTER, PA. GARRISON, N. Y.

NEW YORK, N. Y.

Entered in the post-office at Lancaster, Pa., as second class matter