believed to be the same as his 'Funduszellen', types (*c*) and (*d*) being the 'Mündungszellen'.

The type IV alveoli (Fig. 1*A* and *B*) are found in adult males only, scattered amongst type III. They are composed of a number of similar cells, type (*g*), which become filled with purple-staining granules after the tick starts to feed.

A more detailed description of the salivary alveoli and of the changes which they undergo during the life-cycle of the tick will be published at a later date.

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W. M. Till

Department of Entomology,
South African Institute of Medical Research,
Johannesburg.
June 22.

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BACTERIOLOGY

Bacteriophage Typing Applied to Strains of *Brucella* Organisms

Surface antigens usually limited to one taxonomic group are the main factors determining the bacteriophage sensitivity of bacterial species[1]. By such sensitivity, species of *Salmonella* can be distinguished[2] and the degree of sensitivity is used for typing strains of *S. typhi* [3,4,5] and strains of other bacteria[6].

Brucella phages were discovered only after rigorous search[7] and they have apparently not yet been described in detail. A *Brucella* phage grown on strain 19 *Brucella abortus* in a shake flask culture has now been found to be active on cultures of *Br. abortus* laboratory strains, but not on *Br. melitensis* and *Br. suis*. This phage was obtained by growing a single plaque taken from the end point dilution of a phage suspension kindly supplied by Dr. A. W. Stableforth from Weybridge, England.

The phage produces irregular plaques of small diameter, the smallest only being recognized as spots in the bacterial mat on 'Albimi' agar. These spots and the edges of the plaques appear to consist of extremely rough colonies of the *Brucella* strain attacked.

The technique found most practical is as follows: A 72-hr. aerated liquid culture of phage is cleared by centrifugation at 3,000 r.p.m. for 75 min. and the supernatant heated at 60° C. for 60 min. to destroy any remaining bacteria. The phage suspension is stored at 4° C. and serially diluted ten-fold before use. The phage dilutions are spotted on dry 'Albimi' agar plates by means of a 1 mm. diameter platinum loop. After drying the spots are covered with a suspension of young cells taken from surface culture and made up to a density of approximately Brown's tube 1, in a diluent of distilled water containing 0.1 per cent (w/v) carboxy-methyl-cellulose. The 0.02-ml. dropper pipette is used for depositing the suspension over the site of the phage spot. After standing in the dark for 1 hr. the plates are incubated at 37° C. in inverted position for 24 hr. or longer and if necessary in an atmosphere of 10 per cent carbon dioxide. An example of the results is given in Table 1.

Table 1.
DIFFERENTIAL SUSCEPTIBILITY

Titration of *Brucella* Bacteriophage

Phage dilution	*M* 16*M*	*A* 544	*S* 1330	*A* S19	*Er.* Sh. Sem.
Undiluted	—	++++	—	++++	—
10^{-1}	—	++++	—	++++	—
10^{-2}	—	+++	—	+++	—
10^{-3}	—	++	—	++	—
10^{-4}	—	+	—	+	—
10^{-5}	—	—	—	—	—
10^{-6}	—	—	—	—	—

++++, confluent lysis.
+++, plaques and spots.
++, spots.
+, less than 5 spots.
−, no phage activity.

Here it was found that *Br. melitensis* strain 16*M* and *Br. suis* strain 1330 which are World Health Organization reference strains were completely resistant as was also a stock culture of a local *Brucella* variant isolated from sheep semen.

The aerobic *Br. abortus* strain 19, and the carbon dioxide dependent *Br. abortus* strain 544 which is a World Health Organization reference strain were equally susceptible to the phage.

These results show that phage typing may have important taxonomic and possibly also epidemiological value in the field of *Brucellosis* research.

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G. C. van Drimmelen

Faculty of Veterinary Science,
University of Pretoria

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Induction of Phage Formation in the Lysogenic *Escherichia coli K*-12 by Mitomycin *C*

Mitomycin *C*, a newly isolated antibiotic, is receiving special attention because of its anti-neoplastic activity as well as its selective inhibitory action on the synthesis of bacterial deoxyribonucleic acid.[1] It has also been observed that the impaired deoxyribonucleic acid synthesis of cells of *Escherichia coli B* treated with mitomycin *C* can be promptly restored by infection with the bacteriophage *T2r*[2]. These properties suggested that this antibiotic could induce the development of active phage from the prophage state in lysogenic bacteria, since they are similar to ultra-violet effects. This communication concerns the lytic process of *Escherichia coli K*–12 induced by mitomycin *C* added externally.

Cells growing in salts-glucose synthetic medium were harvested at the logarithmic phase of growth, resuspended in a similar fresh medium in the presence of various concentrations of mitomycin *C*, and incubated at 37° with vigorous shaking. Samples were taken at intervals, and turbidity was measured photometrically at 660mμ. When exposed to 0·05 μgm. of mitomycin *C* per ml., growth proceeded at