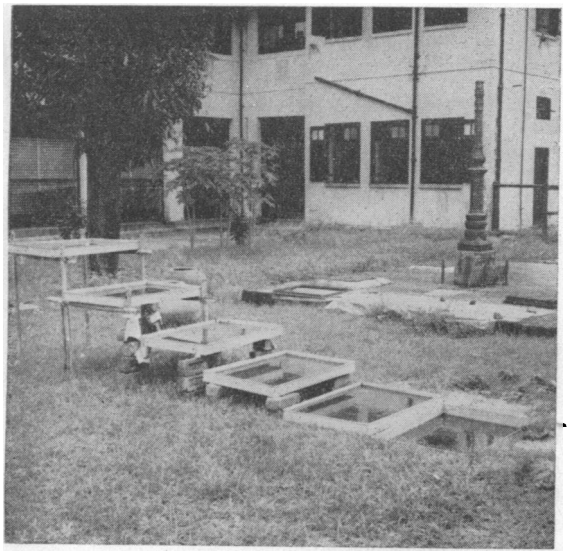
the three trays. Obviously there was an overwhelming preference for the tray at ground level.

Experiment 2: six trays separated by short vertical distances. In this experiment identical trays each measuring about 3×2×0.3 ft (90 cm×60 cm×9 cm) were used. The first tray was sunk so as to bring the water surface approximately level with the ground; the rest of the trays were then raised one above the other as shown in the accompanying figure.

The results are shown in the table.

ARRANGEMENT OF TRAYS FOR EXPERIMENT 2 [a]



[a] Six trays with septic-tank water arranged one above the other to a height of 44 in (112 cm) above ground level. The first tray is sunk in the ground; 80% of the rafts were deposited on it.

NUMBER OF RAFTS OF *C. FATIGANS* DEPOSITED OVER 6 CONSECUTIVE NIGHTS AT DIFFERENT HEIGHTS ABOVE THE GROUND

Tray No.	Height above ground [a]		No. of rafts deposited
	in	cm	
1	0	0	1 942
2	2	5	78
3	7	18	163
4	14	36	78
5	26	66	96
6	44	112	56
Total			2 413

[a] Approximate height of water surface above ground level.

The results amply confirm Kennedy's work and show that, as in the species Kennedy worked with, *C. fatigans* females prefer to oviposit at ground level.

A variety of ways of exploiting this peculiarity in the behaviour of gravid *C. fatigans* immediately suggest themselves, e.g., traps for assessment of the gravid population before, during and after control campaigns, or even for extermination of the species under certain circumstances. Obviously, the stronger the attractant used in the trap the more adults will be caught; the identification of the active principle and its production in a pure and concentrated state thus calls for immediate investigation.

The observations recorded here also indicate that traps for adults, that ordinarily rest well above ground level, may not give a true picture of population structure.

Accidental Human Infection in the Laboratory with the Nichols Rabbit-adapted Virulent strain of *Treponema pallidum*

by C. W. CHACKO, *Professor of Serology, Central VD Reference Laboratory, Institute of Venereology, Medical College, Madras 3, India*

This note reports another case of an accidental laboratory infection of man with the Nichols strain of *T. pallidum*. The strain, which was isolated from a human case of syphilis and has stayed pathogenic in rabbits since 1912, was brought from the WHO Reference Centre, Statens Seruminstitut, Copenhagen, and established in the rabbit colony at the Central VD Reference Laboratory, Madras, in 1954.

Since then the strain has been passed intratesticularly through about 500 rabbits in order to maintain it for research experiments and as a source of virulent treponemal antigens for use in TPI and FTA tests in this laboratory.

Furthermore, this strain of *T. pallidum* was transported to Colombo in infected testes of live rabbits and established by the author in the rabbit colony of the venereal disease centre there, during his assignment as a short-term consultant for WHO.

A week before his departure for Colombo from Madras, in September 1964, the author was personally infecting one of the rabbits intratesticularly, using a needle and syringe containing a suspension of live and motile treponemes, freshly extracted from the infected testes of another rabbit. Suddenly, the rabbit got loose from the laboratory attendant holding it, and the needle slipped, accidently puncturing the dorsum of the author's left thumb, which held the testes of the rabbit. Following immediate application of rectified spirit locally, the accident was ignored.

About three weeks later, while the author was in Colombo, an indurated, painless nodule was noticed on his left thumb at the site of the puncture. This appeared to grow larger day by day and caused local irritation. The regional epitrochlear and axillary lymph-nodes were not found to be enlarged on palpation.

The nodule was incised with a sharp razor blade to provide blood and serum for dark-field microscope examination. Spiral live organisms morphologically resembling the Nichols strain of virulent *T. pallidum* were identified and demonstrated in the exudate from the lesion. The serological tests for syphilis (VDRL slide and FTA tests) performed on a sample of the author's serum were negative. A diagnosis of *sero-negative, dark-field positive, extragenital, primary lesion of syphilis accidently acquired* was made.

Specific antisyphilis treatment was then given in Colombo in the form of a single intramuscular injection of 2.4 mega-units of benzathine penicillin. The author has since been under surveillance at Madras for the past two years, with periodic clinical and serological examinations (VDRL, FTA and TPI) without any sign of seroreactivity or clinical relapse of the infection.

Comments

There has been some discussion among workers in the field of treponematoses concerning the degree of infectiousness of the Nichols strain of *T. pallidum* for man, after about fifty years of periodic transfer from rabbit to rabbit. Instances of accidental laboratory infections with these treponemes have been known to occur. The latest case reported in this category [a] appeared in a man who accidently acquired a specific infection of his right upper eyelid while assisting in the intratesticular inoculation of a rabbit with the Nichols strain of *T. pallidum* at the Statens Seruminstitut, Copenhagen, in 1962. Earlier accidental infections with this treponeme have been described by Buschke,[b] Graetz & Delbanco,[c] Gahylls,[d] Wakerlin [e] and Durel & Sausse.[f] Magnuson et al.[g] inoculated subcutaneously human prisoner volunteers in the United States of America with the Nichols pathogenic strain and successfully infected them, producing syphilis lesions. It was thus reliably demonstrated experimentally that the Nichols treponeme has maintained a high degree of infectiousness for man, in spite of its adaption in rabbits over the years.

Thus, there has been sufficient and continuous evidence against the possibility that the virulence of human pathogenic treponemes may be attenuated through animal passage, at least with the Nichols strain in the rabbit, as suggested by Metchnikoff, Levaditi, and others.

We are fortunate now to have long-acting penicillin to deal most effectively with professional hazards involved in treponematoses research.

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[a] Nielsen, H. A., Unpublished data, 1965.

[b] Buschke, A. (1913) *Dtsch. med. Wschr.*, **39**, 1783.

[c] Graetz, F. & Delbanco, E. (1914) *Med. Klin.*, **10**, 420.

[d] Gahylls, D. (1924) *C. R. Soc. Biol. (Paris)*, **91**, 911.

[e] Wakerlin, G. E. (1952) *J. Amer. med. Ass.*, **98**, 479.

[f] Durel, P. & Sausse, A. (1954) *Bull. Soc. franç. Derm. Syph.*, **61**, 139.

[g] Magnuson, H. J. et al. (1956) *Medicine (Baltimore)*, **35**, 33.