Recent evidence[2, 3] seems to indicate that antigenic polysaccharides are heat labile. This conclusion is not borne out by our observations. It may seem obvious that the antigenic component of the polysaccharide prepared by acid extraction is heat stable since the use of heat is involved during the process of extraction and final drying of the substance. The heat stability of the antigenic component of the polysaccharide prepared by spontaneous autolysis of bacterial cells is proved by the experiment in which 0.1% solution of the polysaccharide was heated in boiling water either alone or in the presence of 0.5% of potassium hydroxide. Immunization of rabbits with fractions prepared in this manner showed that only the alkali-treated polysaccharide failed to immunize.

The above findings indicate that 2 polysaccharides identical in immunological properties but differing in their absorptive power can be prepared from the cultures of *B. rhinoscleromatis,* and that the rôle played by acetic acid in the process of extraction is merely one of preserving the antigenic property of the substance.

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Isolation of Typhus Fever Virus from House Rats in Peiping.

CHAO-JEN WU AND SAMUEL H. ZIA.

From the Department of Public Health and Department of Bacteriology and Immunology, Peiping Union Medical College, Peiping.

In our previous studies[1] on the typhus fever virus isolated from local patients, two distinct types were encountered, one simulating the classical epidemic type and the other, the endemic variety of the New World. At that time it was suggested that these two types of typhus fever might simultaneously exist in Peiping, though the popular impression hitherto was that typhus fever seen here was of the epidemic form. Recently Chung and Chang[2] studied a strain of virus isolated from a patient and identified it to be *Rickettsia prowazekii,* thus confirming the existence of the classical epidemic type. It occurred to us that if our contention regarding the coexistence of endemic typhus fever should be correct it would be of

2 Landsteiner, K., and Chase, M. W., *Ann. Rev. Bioch.,* 1937, **6**, 626.

3 Haworth, W. N., and Hirst, E. L., *Ibid.,* 1937, **6**, 104.

1 Wu, C. J., and Zia, S. H., *Chin. M. J.,* 1938, Suppl. II, 221.

2 Chung, H. L., and Chang, J. H. M., *Chin. M. J.,* 1938, **53**, 513.

considerable interest to determine if local rats served as reservoir host, a fact already found to be true in the United States, Mexico, and countries surrounding the Mediterranean Sea[3] and in Manchuria.[4] This communication reports the result of study on this phase of the typhus problem.

The common house rats were collected from different households in the city, mostly from the district in which the College is located. Lots of 2 or 3 rats were killed with ether and their brains removed aseptically and emulsified in physiological saline. Half of the total suspension was injected intraperitoneally into one guinea pig. According to the usual technic employed in experimental typhus studies the body temperature of inoculated pigs was taken daily, and passage in guinea pigs was carried out with brain or blood-brain mixture of those animals showing definite elevation of temperature over 40°C. All surviving guinea pigs were kept under observation for one month and were then discarded if showing no fever.

We have studied in this manner 139 house rats. From one lot of 3 rats we obtained a strain of typhus fever virus on which a few preliminary studies have been made and further studies are still in progress. These rats were caught on March 25, 1938, from a meat shop. The guinea pig which was inoculated with the brain emulsion developed fever on the ninth day and typical, though not marked scrotal swelling on the tenth day when the animal was sacrificed for serial transfer. We have now carried the virus in guinea pigs for 7 generations. The infection is manifested by fever after an incubation period of 7 to 8 days and also invariably by scrotal swelling in the male guinea pigs. From tunica scrapings of one animal each of second and fifth generation passages typical Rickettsia bodies were seen on smears and grown in both Maitland and Zinsser's tissue agar cultures.[5] Cultures of the tunica tissues on the ordinary media for bacteria have been sterile. Blood sera from 3 third generation pigs have been tested for the presence of agglutinins for Weigl vaccine and found to be positive to the titer of 1:40 in 2 specimens and 1:10 in the third. Two of these animals showed complete protection against the Mexican virus while the third animal died a few days after the test inoculation. The virus was also infective for the local rat-mole[6] giving rise to fever and positive Weil-Felix reaction.

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[3] Zinsser, H., *Am. J. Hyg.*, 1937, **25**, 430.

[4] Kodama, M., Takahashi, G., and Kohno, M., *Kitasato Arch. Exp. Med.*, 1932, **9**, 87.

[5] Zinsser, H., Wei, H., and Fitzpatrick, F., PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 285.

[6] Zia, S. H., and Hu, C. H., PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 26.

From the results so far obtained it seems justifiable to conclude that we are dealing with a strain of typhus fever virus isolated for the first time from local house rats.

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Influence of Genetic Relationship on the Success of Homeoplastic Transplants of Adrenal Glands in Albino Rats.

DWIGHT J. INGLE AND GEORGE M. HIGGINS. (Introduced by J. L. Bollman.)

From the Division of Experimental Medicine, The Mayo Foundation, Rochester, Minnesota.

It has been demonstrated in studies by Wyman and tum Suden[1] and by us[2] (with Nilson) that homeoplastic transplants of adrenal glands may be successful when carried out between adult rats of inbred strains. This is in contrast to the consistent failure of adrenal transplants to become established as functional grafts when carried out between animals of different strains.

The present report is concerned with a further investigation of the problem of homeoplastic transplants of adrenal glands in a Wistar strain of rats which had not been inbred. Three series of experiments were carried out in which the adrenal glands were exchanged between 20 pairs of siblings, 20 pairs of first cousins, and 20 pairs of rats more remotely related than second cousins.

The animals used were all adult female rats of an albino strain. The animals were matched into pairs according to body weight and were operated under ether anesthesia employing aseptic technic. The adrenal glands were removed from one animal through a lumbar incision and sutured to the ovaries of the other animal of the pair. The adrenals of the second animal were removed and likewise sutured to the ovaries of the first. All animals were given maintenance doses of cortin for 10 days after the operation. A standard diet was fed which contained 0.24% sodium and 1% potassium. All grafts were removed surgically from those animals which survived for 120 days. These animals were again given maintenance

[1] Wyman, L. C., and tum Suden, C., *Endocrinol.*, 1937, **21**, 523.

[2] Ingle, D. J., Higgins, G. M., and Nilson, H. W., *Am. J. Physiol.*, 1938, **121**, 650.