

Nature of the Substance Causing Staphylococcus Food Poisoning.

EDWIN O. JORDAN AND WILLIAM BURROWS.

From the Department of Hygiene and Bacteriology, University of Chicago.

The difficulties experienced in studying staphylococcus food poisoning when the only available subject for experimentation was the human volunteer have been in part overcome by the observation that monkeys can be fed staphylococcus filtrates in such a way as to insure a certain proportion of definite and characteristic gastrointestinal reactions.¹ Utilizing monkey feeding as a crude method of determining the presence or absence of the significant principle, some data bearing on the nature of this principle have been obtained. In all the tests here reported only animals showing actual vomiting have been set down as yielding a positive reaction; other symptoms such as pallor, diarrhea, and evident distress have been noted but not recorded as indicating an unmistakable positive result. Not all monkeys react to the active principle inducing vomiting and consequently, before using an animal for experiment we have fed it with a filtrate of known potency. Negative results were controlled by subsequent feeding with potent filtrate. The possible development of tolerance has also been controlled.

The following results have been obtained: 1. The active principle will not distill. 2. It is not readily dialyzable. 3. It is markedly unstable to N/100 NaOH. 4. It is unstable to heat in N/100 HCl solution. 5. It is not identical with the hemolytic substance present in many staphylococcus filtrates nor does it produce a skin reaction. 6. It is completely removed from acid aqueous solution by extraction with ethyl ether or chloroform as judged by our method of assay. 7. It may be extracted from alkaline solution with ethyl ether or chloroform but the deleterious effect of alkali tends to mask such removal.

Feeding with a neutral saline or aqueous solution of the ether or chloroform extracts from which all traces of the solvent had been removed by warming *in vacuo* caused typical vomiting in monkeys. The extracted residues caused no symptoms. Monkeys injected intravenously with 5 cc. of saline solution of acid ether extract of potent filtrate vomited and manifested the usual signs of acute distress of the gastro-intestinal tract but showed no other symptoms.

¹ Jordan, Edwin O., and McBroom, Josephine, *PROC. SOC. EXP. BIOL. AND MED.*, 1931, **29**, 161; Daek, G. M., and Woolpert, O. C., *J. Inf. Dis.*, 1933

The same solution given intravenously to guinea pigs, rabbits, cats, and dogs produced no ill effects whatever.

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Neutralization of Poliomyelitis Virus by the Serum of Native Chinese of Peiping.*

EDWIN H. LENNETTE AND N. PAUL HUDSON.

From the Department of Hygiene and Bacteriology, University of Chicago.

The studies of Frost,¹ Aycock,² and others on the epidemiology of acute anterior poliomyelitis have led to the opinion that the virus is more widely distributed than the incidence of clinical cases indicates. Aycock and Kramer³ found that 86% of serums from 21 normal adult persons of Atlanta, Georgia, possessed virucidal properties; these results suggest that immunity as measured by the neutralization test is extensively present in the warm southern latitudes, as other investigations have shown in the cooler northern latitudes. Recent investigations into the incidence of neutralizing serums in tropical and subtemperate regions where clinical poliomyelitis is uncommon have extended the findings of Aycock and Kramer. Hudson and Litterer⁴ observed that 84% of the serums of 25 normal adults of Nashville, Tennessee, were capable of neutralizing the virus; Soule and McKinley⁵ found that the serums of 8 adult Porto Ricans without history of attack or exposure to the disease were virucidal in every instance; and we⁶ recently reported that 18 out of 19 serums from normal Liberian negroes were able to inactivate the virus.

To obtain data on the extent of immunity in cooler climates where the occurrence of frank cases of the disease is seldom re-

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¹ Frost, W. H., *Hyg. Lab. Bull.*, No. 90, 1913, Washington, D. C.

² Aycock, W. L., *J. Prev. Med.*, 1929, **3**, 245.

³ Aycock, W. L., and Kramer, S. D., *J. Prev. Med.*, 1930, **4**, 201.

⁴ Hudson, N. P., and Litterer, W., unpublished experiments.

⁵ Soule, M. H., and McKinley, E. B., *PROC. SOC. EXP. BIOL. AND MED.*, 1931, **29**, 168.

⁶ Hudson, N. P., and Lennette, E. H., paper read before the Epidemiological Section of the American Public Health Association, Washington, D. C., October 24, 1932. To be published.