

Occurrence and Significance of Certain Strains of *B. Dysenteriae*
in Bacillary Dysentery for New Orleans Area.

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While it is well known that many of the dysenteric infections of the far South are caused by *Endamoeba histolytica*, there undoubtedly are a considerable number of cases in which this protozoon has no etiologic relationship. In such cases, we find some one of the strains of *B. dysenteriae* playing the sole causal rôle. It was first suggested to Doctor C. W. Duval by Doctor Simon Flexner (personal communication) that the bacillary dysentery incidence should be determined for the New Orleans area, particularly as this region presents at all times many cases of amebic colitis.

Material for this study was obtained from approximately 100 sporadic cases of dysentery in which no protozoa or other animal parasites were detected in the dejecta. The clinical aspects of these cases have been previously reported.¹ The group comprises acute, subacute, and chronic forms of the disease. The specimens, with few exceptions, were fresh bowel scrapings obtained directly by means of proctoscopic examination. Fletcher and Jepps² pointed out that material for bacteriologic studies obtained in this manner is far more desirable than the stool, because the likelihood of culturing the causal agent is greatly enhanced. Plating of the fresh mucosal scrapings was carried out in the usual way and suspected colonies of *B. dysenteriae* transferred to differential culture media. The recovered dysentery cultures were further identified with respect to strains and then tested with homologous immune sera and the serum from the particular case to determine etiologic relationship.

Bacteriologic investigations into the cause of acute infectious dysentery have been thoroughly studied for epidemic outbreaks in the United States by Flexner and his coworkers,³ and distinct strains

¹ Silverman, Daniel N., and Harris, Wm., *Trans. Am. Gastro-Enterol. Assn.*, 1931, in press.

² Fletcher, William, and Jepps, Margaret W., *Studies from the Institute for Medical Research, Kuala Lumpur, Fed. Malay States, No. 19.* John Bale, Sons and Danielson, Ltd., London, 1924.

³ Flexner, Simon, and co-workers, *Studies from the Rockefeller Institute for Medical Research*, 1904, 2.

of the Shiga bacillus have come to be recognized. Duval⁴ reported the finding of another strain of the Shiga group which differed from the strains previously identified in that it fermented lactose. The findings of Sonn ⁵ and of Castellani⁶ confirmed those of Duval. While Sonn  gives due credit to Duval for first pointing out that a lactose fermenter causes bacillary dysentery and was the outstanding strain in the cases reported by him, subsequent writers, particularly Nelson,⁷ incorrectly refer to the lactose fermenter as the Sonn  bacillus.

In my series, several strains of *B. dysenteriae* were isolated and identified from the cultures prepared from the fresh mucosal scrapings. The great majority (60-65%) were of the Flexner type. Next in number were the lactose fermenter of Duval. Not more than 3% were of the true Shiga strain. It is noteworthy that the Hiss-"Y" strain was not encountered. One case yielded the strain known as the Flexner-Harris type of organism, which was agglutinated only by the blood serum of the patient from whom the organism was isolated. The various strains of *B. dysenteriae* recovered reacted significantly with their homologous sera and, in lower dilutions, cross agglutination reactions were also obtained.

Strains of *B. dysenteriae* Isolated from 100 Cases of the Series.

B. Flexner	75	B. Shiga	4
B. Duval	20	B. Flexner-Harris	1

From my series the prevailing type of bacillary infection is due to the Flexner strain of the dysentery bacillus. On the other hand, it is significant that, for the relatively small number of cases studied, many of them yielded the lactose fermenting bacillus of the dysentery group. They were not only recovered from adults but from children and infants. This is of interest because it indicates that the lactose fermenter also plays an etiologic r le in infantile diarrhea. The recovery of the Shiga type of organism in so few of my cases is consistent with the findings of others elsewhere in respect to sporadic bacillary dysentery.

⁴ Duval, C. W., *J. Am. Med. Assn.*, 1904, **46**, 381.

⁵ Sonn , C., *Zentralb. f. Bakt. I., Abt. Orig.*, 1915, **75**, 408; **76**, 65.

⁶ Castellani, Aldo, and Chalmers, A. J., *Manual of Tropical Medicine*, William Wood and Co., New York, 1910.

⁷ Nelson, R. L., *J. Bacteriol.*, 1930, **20**, 183.