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Stability of Group-Specific Characteristics in a Hemolytic Streptococcus.

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The recent work of Lancefield[1] and others in establishing the host-origin of individual strains of hemolytic streptococcus is a distinct forward step in our knowledge of this group of organisms which is responsible for so many human and animal diseases. Lancefield's group A, determined by a precipitin-test, seems surely indicative of human origin, whether from carriers or from actual infections. Another property indicating a human strain is its specific power to dissolve human fibrin, as shown by the method of Tillett and Garner.[2]

Some uncertainty as to the stability of these characteristics has been raised by the experiments of Reich,[3] who apparently succeeded in transforming, by rabbit-passage, a human strain of streptococcus so that it lost its "human" specificity. On subculturing such a transformed strain, however, it reacquired the characteristics that we associate with human origin.

In view of these results, which differ in the technic involved from our own experiments, it seems worth while to report that a human strain ("H") of *Streptococcus pyogenes* (Holman), obtained 19 years ago from a case of human empyema following measles and bronchopneumonia, has retained all of its original characteristics as regards human source in spite of the fact that it has been passed, at irregular intervals, through the pleural cavity of no less than 187 rabbits. It has acquired a high pathogenicity for rabbits that it did not at first manifest, although this pathogenicity fluctuates somewhat with the age outside the body of the particular pleural fluid used for reinoculation. This strain "H" has been used for years in studying the mechanism of natural resistance and immunity to the streptococcus (Gay[4]). In short, this rabbit-passage strain of human origin not only conforms in biochemical characteristics to its original culture, but it retains its human characteristic of lysing human fibrin but not rabbit fibrin, and it precipitates with antiserum to Lancefield's group A. In other words, this passage-strain differs, since its isolation, only in the acquisition of a specific pathogenicity for rabbits, but it is still clearly identifiable as of human origin.

[1] Lancefield, R. C., *J. Exp. Med.*, 1933, **57**, 571.
[2] Tillett, W. S., and Garner, R. L., *J. Exp. Med.*, 1933, **58**, 485.
[3] Reich, T., PROC. SOC. EXP. BIOL. AND MED., 1935, **32**, 639.
[4] Gay, F. P., *J. Am. Med. Assn.*, 1931, **97**, 1193.