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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

M. Edwin O'Neill

"Bacterial Fingerprints"

The curious occurrence of identifiable fingerprints outlined in bacterial colonies was recently reported to this Journal by Dr. Lloyd Arnold, Professor of Bacteriology and Public Health at the University of Illinois College of Medicine.¹ As an experiment in the study of the bacterial flora of the skin, the thumb was sweated in a moist, warm chamber and then pressed gently upon the surface of a nutrient agar plate three successive times. The plate was then incubated to grow the bacteria, with the result shown in the accompanying illustration.



FINGERPRINT OUTLINED IN BACTERIA COLONIES
ON NUTRIENT AGAR

Because of the limitations of half-tone illustrations, the fingerprint details which appear distinctly in the original are not clearly reproduced.

¹ Communication to the Editor, dated May 12, 1941.

Only the first impression resulted in an entire and identifiable fingerprint; the second is a fragmentary impression containing only a few fingerprint ridges, and the third shows no pattern traces at all. Dr. Arnold reports that the clearly formed design of the first impression is composed of small pinpoint colonies derived from bacteria normally living in the deeper parts of the cornified layer of the skin and can be demonstrated only by the type of experiment described, in which the cornified layer becomes swollen and spongy as in the familiar "wash-woman's hand." The larger colonies which are seen in the upper part of the photograph originated from contact of the first, second, and third fingers with the agar, and represent only the superficial living staphylococci. Some of these surface forms appear also in the thumb prints, especially in the third thumb impression at the bottom of the photograph. Dr. Arnold states that during these experiments no bacteria were placed upon the skin and that the colonies which are seen in the photograph are "endogenous" or normal inhabitants of the skin.

So far as the Editors of this Journal are informed, this is the first recorded observation of fingerprints outlined in bacteria. Because of the conditions which must be satisfied for the proper growth of bacteria, it does not seem likely that this development will have immediate practical utility in criminal investigation. However, it may be possible that further research along this line will lead to new developments in the field of personal identification.