

Nature Never Repeats Itself

Editorial

The phrase "*Nature Never Repeats Itself*" is often used in support of the basic fingerprint tenet of individuality. At a recent SCAFO workshop on courtroom testimony, the instructor was challenged with an inquiry as to the origin of that profound statement. The instructor supported the axiom, but neither he nor any of the workshop participants were able to readily cite the source.

Upon returning home from this scholarly adventure, a review of standard references led to the discussion by John Thornton in a 1986 letter to the editor entitled "The Snowflake Paradigm". In this discussion Thornton states:

The assumption of absolute uniqueness on the part of all tangible objects is a doctrine that has pervaded the interpretation of physical evidence. The doctrine generally takes one of two forms. The first is the metaphysical argument advanced by a number of classical philosophers (Heraclitus, Parmenides, Zeno, and Plato), and further developed in the 17th century by Leibniz. This argument states that an object can be identical only to itself.

The second form of the uniqueness argument is the one invoked for forensic science purposes. It too is generally accepted as true, but since it has an empirical component it is probably not susceptible of direct testing. This form of argument is frequently voiced as "Nature never repeats itself," and is attributed to the Belgian statistician Quetelet. (As an aside, what Quetelet actually said was that "Nature exhibits an infinite variety of forms.")¹

In addition to the succinct form of the metaphysical argument by classical philosophers, academe has supported this tenet for centuries. In 1788, the German doctor and anatomist J.C.A. Mayer published an atlas of anatomical illustrations. Each plate or illustration was accompanied by a brief explanation. The plate of finger print drawings was accompanied by the first clear enunciation of the basic fingerprint tenet, which read:

*Although the arrangement of skin ridges is never duplicated in two persons...*²

A 1916 treatise, *Personal Identification*, provides another historical observation from the academic community. It stated:

Finally, there is never the slightest doubt of the impossibility of the duplication of a finger print, or even of the small part of one, on the part of any one who has carefully studied the subject at first hand, whether finger--print expert or anatomist; the only doubters are those who have never taken the trouble to look for themselves, and who argue from the basis of their own prejudices and preconceived opinions.³

A review of the more recent but long--standing reference *Finger Prints, Palms and Soles -- An Introduction to Dermatoglyphics* by Cummins and Midlo (Professor and Associate Professors at Tulane University) provides the following discussion:

It is a familiar observation that the structures of plants and animals are widely variable. Corresponding parts of the same species may seem to present little or no difference if the inspection is merely casual. But many unlikenesses become apparent if the objects are examined closely, and the number of differences increases as attention is directed to more and more minute characters. The philosopher Leibniz contended, as have many others before and after him, that "there are never in nature two beings which are exactly alike, and in which it is not possible to find a difference." Thomas de Quincey relates that Leibniz was once explaining the matter to a royal personage; to give point he turned to a gentleman in attendance with a challenge to produce from any tree or shrub two leaves duplicating each other in

venation. The challenge was accepted but the duplicate leaves could not be found. As with leaves, so it is with finger prints. The London newspaper, News of the World, was quite safe when in 1939 it offered a prize of £1000 to the person having a finger print identical with any one of a series of prints published for the contest.

The unique character of every biological aggregate—a single leaf, a finger print, an ear of corn, the striped pattern of a zebra—has been recognized in the axiom, "Nature never repeats." Without questioning the intended meaning of this axiom, the suggestion might be offered that it read "Nature never repeats exactly." If nature did not repeat at all, there would be no multiples of the same class—trees and men, whorls and loops, and indeed no universe of fingers to bear whorls and loops. Such repetition, however, is confined to the general molds of things, and in the last analysis of detail "Nature does not repeat."

In spite of diligent search, an instance of duplication of two finger prints never has been found. This is not unexpected in view of the operation of the law of simple probability, or chance. The occurrence of minutiae at specific points is governed at least in large part by developmental processes which yield random results. Accordingly, the presence and locations of forks, ends and other ridge details may be considered from the same mathematical approach which applies, for example, to the chance of throwing a particular face of a die, or the head of a coin. To some degree finger--print minutiae are subject to control through inheritance (Chaps. 12--14), but even the maximum possible "loading" by inheritance is insufficient to counteract the random production of these details.⁴

Apart from the classical philosophers and academic or scientific verification of what has been known by experienced fingerprint examiners for over a century, jurisprudence has repeatedly accepted the premise.

A 1945 article discusses the appropriate opinion rendered by the Honorable Tom Beauchamp (Judge of the Texas Court of Criminal Appeals) in the 1941 matter of Grice vs. The State of Texas. The article states:

After an exhaustive review of finger print cases in the State of Texas and other jurisdictions, the Judge made the startling and timely proposal, that in the light of present day knowledge and experience, those who hold that there CAN BE two identical finger patterns "should assume the burden of proving their position."⁵

The basic tenet of individuality or "*Nature Never Repeats Itself*" is well accepted within our particular field, by the scientific community and by the public in general. It has been further validated in the daily computerized searching of single prints against databanks with millions of fingerprints. However, since defense attorneys often lack a legitimate defense and desperately need an area in which to create a smoke screen, we should always be prepared to offer explanations and authoritative citations which can support this fundamental tenet for friction ridge identification.

Alan L. McRoberts
Editor--*THE PRINT*

References:

1 Thornton, John I. (Forensic Science Group, Department of Biomedical and Environmental Health Sciences, University of California, Berkeley, CA.), "The Snowflake Paradigm" (letter to the editor), Journal of Forensic Science 31 (2), April 1986, 399.

2 Wilder, Harris Hawthorne, Ph.D. (Professor of Zoology, Smith College) & Bert Wentworth, Personal Identification, The Gorham Press, Boston Mass, 1918, pg 13.

3 *ibid*, pg. 328.

4 Cummins, Harold Ph.D. (Prof. Of Anatomy and Assistant Dean, School of Medicine, Tulane University), & Charles Midlo M.D. (formerly Associate Professor of Microscopic Anatomy Tulane

University), Finger Prints, Palms and Soles —— An Introduction to Dermatoglyphics, Research Publishing Co., South Berlin Mass., 1976 (originally published in 1943), pg 150.

5 Mairs, G. Tyler. (Finger Print Technician, Magistrates Courts, Brooklyn, N.Y.), "Can Two Identical Ridge Patterns Actually Occur——Either on Different Persons or on the Same Person?", Finger Print Magazine, November 1945.

Suggested Further Reading:

Tuthill, Harold FCIS. Individualization: Principles and Procedures in Criminalistics, Lightning Powder Company, Inc., Salem, Oregon, 1994.

*This article was originally published in "THE PRINT"
Volume 12(5), September/October 1996, pp 1-3
and has been obtained from the online library provided by the
Southern California Association of Fingerprint Officers
<http://www.iinet.com/market/scafo>*