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## **"The Fingerprint Legacy: Colonialism, Marginalization, and the Untold History of Fingerprint Science in India"**

### **ABSTRACT**

The story of fingerprint science in India is a nexus of marginalisation and colonial appropriation by the West. Before the science took its defining shape in criminal investigation in the late nineteenth century, studies about its significance and uniqueness had been going on all over the world for a much longer time. Yet its indigenous roots in ancient Indian texts like Arthashastra and Sariraka Shastra documenting the same uniqueness, are often not much talked about. Instead, our ingenuity and contributions have been overshadowed by the systemic erasure. In a narrative dominated by the Europeans, names of Azizul Haque and Hem Chandra Bose, the real pioneers of Henry's Classification, are merely the primary reason for attention to the scientific community. Without Haque and Bose's mathematical underpinnings, the widely acclaimed Classification System of Fingerprints might never have seen the light of the day. This text attempts to critically examine the historical context behind the birth of fingerprint science in criminal proceedings and advocates for the posthumous recognition of Haque and Bose. Their story is also a reminder of the human cost of unacknowledged genius.

**Keywords-** Fingerprint science, Forensic Science, Henry's Classification, Colonial appropriation, Hem Chandra Bose, Azizul Haque, Handprints.

### **METHODOLOGY**

The following methodology traces the trajectory of my understanding of India's contribution in fingerprint science in the historical context:

- Literature review: a comprehensive review of existing literature on the history of fingerprint science which includes a detailed study of scholarly articles on both Western and Indian sources.
- Secondary Source Analysis: Various journals, books, translated texts, colonial-era records etc that have undervalued the contribution of Haque and Bose in Forensic Science.
- Critical Theory Approach: Applying a post-colonial or subaltern theory to analyze how the west has acclaimed its glory and marginalised non-Western voices in the narrative.

### **INTRODUCTION**

Almost baffled by the dexterous prowess of Sherlock Holmes, the world often only attempts to credit Sir Conan Doyle's protagonist to be a pioneer in the field of forensic science. However, if one recalls their literature well, Holmes from Baker Street is only a fictional character, painted in the most lucrative and intriguing way possible. It is futile to praise the work of fiction without accrediting the real life stories and heroes. Regrettably, the field of forensics often places an excessive emphasis on Western discoveries, erasing the contributions of other regions. Is it fair to attribute every groundbreaking find solely to the West?

J Edgar Hoover (1874-1964), the Director of Federal Bureau of Investigation of the US Department of Justice, defines fingerprints as impressions made by the papillary ridges on the ends of the fingers and thumbs. This use of the ridge skin as a means of identification began in the United States only in 1902, whereas it had been used as a person's proof of identity in ancient India, China and Japan as early as 300B.C. In the western world, the infallible means of identification had previously been the Bertillon system of Anthropometry which took in account the full and precise measurement of body parts, profile photographs (mugshots) and a detailed description of the individual. However, its reliability came into question after the incarceration of Will West and William West between 1903-1909. This coincidental lore of two individuals having similar profile and body measurement sparked a revelation in the scientific community and the world demanded a new and more concrete form of identification. Skeleton sizes could overlap and the science of anthropometry is limited. This paved the way for adoption of fingerprint science by the police force. Soon fingerprint identification became one of the most reliable methods of identifying and validating a fugitive.

## HISTORY

One of the first usage of fingerprints as an identification method was mentioned in Kautilya's "*Arthashastra*", written 2300 years ago. Indians studied various patterns of the papillary lines, thousands of years ago. It is believed that ancient cultures were aware of the persistence and uniqueness of fingerprints, using them as a form of signature to authenticate documents or transactions. Handprints were known as 'Tarija' and were often associated with authentication. In the context of Harappan civilization, while there is no concrete evidence of literal handprints as part of their art or utility, the intricate designs and uniformity suggest a symbolic or representational approach in their creative and administrative processes.

The Indian Sanskrit text of "*Sariraka Shastra*" includes Vedic stanzas that describe how "*Hasta SamudrikaShastra*" (translated as "body knowledge of the hand") or the body knowledge of the hand also describes 12 different finger patterns just like any modern fingerprint system. This branch of Indian palmistry examines and interprets a person's character, fate and future through the study of their hands. *Samudrikashastra* also deals with the analysis of a hand's shape, texture and proportion. Along with hands, it also delves into the study of the length, shape and angles of fingers and fingernails. The cultural and historical significance of palmistry appear in classical texts such as the **Brihat Samhita** by Varahamihira that connect physical features with metaphysical principles.

In north-western China, earthenware with ridge skin impression, as old as 6000 years old, were excavated from an archeological site. Around 200 BCE, the Chinese document titled "**The Volume of Crime Scene Investigation—Burglary**" details how handprints were employed as evidence in criminal investigations. Following the invention of paper by the Chinese in 105CE, it became customary to use the ridge skin for signing documents. Impressions were placed on contracts to ensure their validity.

During the Mughal Period, handprints were used as an official document. Emperors put their handprints or *farman* on prestigious proclamations or invitations as a sign of due respect, often accompanied by luxurious robes of honour. According to records from **Rare Book Society of India**, 'Farman is of supreme legal significance'. However, its use was only limited to political and social frameworks and not associated with criminal proceedings.

### **19th & 20th CENTURY**

*"What Bengal thinks today, the world thinks tomorrow"*

A British Indian Civil Service officer William Herschel in 1916, published a book titled, "**THE ORIGIN OF FINGER-PRINTING**" where he explains the use of fingerprints on contracts when he was stationed at Jangipur around 1858. He started using handprints as a form of signature. Herschel's intention was to prevent fraud and ensure the contract's validity, as he believed fingerprints were unique and immutable. Over time, he extended this practice to other administrative documents and contracts in Bengal, setting a precedent for the use of friction ridge impressions in legal and criminal identification systems. His findings correlate with the later more amorphous and widely accepted system, i.e. '*fingerprints possess a strict individuality and a stubborn persistence of the patterns on our fingers*'. Herschel however did not mention any legal use of fingerprints in Forensic Science until the publication of his book.

The actual significance of fingerprints as a proper method of identification can be timed precisely around the same time period, in the four walls of a 400 sq ft room in Writer's Buildings in Calcutta. In that room sat Edward Henry, inspector general of police in lower provinces of Bengal, whose contribution unerringly stood out in the history of criminal investigation. Much before DNA analysis ever came into play, "**The Henry Classification**" is the pioneer of such criminal proceedings, such that even after 125 years of genesis, it continues to be one of the classical ways of identifications. But why is this widely accepted scientific theory referred to as 'The Henry Classification' when it owes its existence to the indispensable contribution of two Bengali sub-inspectors without whom it would have remained obscured?

In what came to be recognised as the world's oldest Fingerprint Bureau in Calcutta (1897), sub-inspectors **Rai Bahadur Hem Chandra Bose** and **Khan Bahadur Azizul Haque** devised a mathematical formulation to sort fingerprints. Haque evolved the formula to

supplement Henry's idea of sorting slips in 1024 pigeon holes, based on fingerprint patterns. Bose made further contributions to the fingerprint science by evolving an extended system of sub-classification, *a telegraphic code* for finger impressions and a system of single-digit classification in 1916. In 1901, almost after four whole years, when England opened its first fingerprint bureau under the Metropolitan Police Headquarters, London, they accepted the so-called Henry Classification. Stockley Collins of Scotland Yard, widely acknowledged as the father of fingerprint telegraphic technique, published his own findings in 1921 much later than what Bose had already done in Calcutta five years ago.

Following such triumphant discoveries, the colonisers deliberately shunted away the accreditation of Bose and Haque by awarding them each 5000 rupees and titles of Rai Bahadur and Khan Bahadur (respectively) that soon became obsolete after independence (abolished under an Act of Constitution). The British Government bargained their honour in the field of science with monetary incentives and in a way diminished their fate to mere subordinates to Edward Henry.

In 1899, while presenting his paper at the British Association for the Advancement of Science, Henry was asked if the fingerprint system was an invention of his own, to which he replied, 'Yes'. Contrary to such claims of owning the proprietorship of this novel invention, an excerpt from *Fingerprint World* (July, 1979) reads: *It seems that Haque over a period of weeks, devised the basis of the classification system we now know, and took it to his boss, Edward Henry, who studied it for couple of weeks.* Throughout the beginning of the twentieth century, the system was published in numerous editions, science journals, offices but sadly without any word of thanks given to neither Bose nor Haque.

By 1920, Haque and Bose, having received no acknowledgement, represented their case to the government with little or no success. After his retirement, in a letter to the Governor of Bihar and Orissa, Khan asked for a little piece of land in return for his valuable service. He attached clippings of an article in *The Statesman* dated 1925 with the following words: '*A Muhammeden Sub-Inspector played an important and still insufficiently acknowledged part (in fingerprint classification)*'. This plea was passed onto the Government of India to consider an honorarium for Khan, instead of getting him land. However in the later years, we learn that neither Government of India nor Government of Bengal could affirm if Haque was truly deserving of such a reception. Khan was then subjected to scrutiny, in lieu of his claims, before a committee of experts to test his anthropological knowledge (and the fingerprint science).

In 1926, after twenty nine years of confrontations, Khan was finally granted Honorarium by Henry himself upon calling their ingenious invention as 'team work'. This sheds light on the shift in the atmosphere in the colony by the end of 1920s, that led him to negate any room for plausible deniability.

Four years later, Henry accepted the contributions of Khan's colleague Bose and an honorarium was presented to him as well. After his endorsements by Henry, Bose was also

unofficially regarded as the first in the field of telegraphic code in 1929, which he had smartly worked out as a classification formula years before anyone.

In the same year of the establishment of World's First Fingerprint Bureau in Calcutta, the police made use of the Classification system in the judicial affairs of the 1897 Emperor vs. Kangali Charan case, when the manager of a tea estate was *brutally murdered and robbed* in his bungalow on 16th August 1897. The matter was a simple occurrence of hate-crime imposed upon the victim by revenge from his once dismissed employee Kangali. The sole physical evidence retrieved from the scene of crime was an almanack, which bore two prominent brown smudges (indicating dried blood). Henry, with the help of a magnifying glass reported that the smudged on the almanack was identical with the right thumb impression of Kangali. This investigation led the police to arrest Kangali. However his trial acquitted him of murder (convicted of theft charges only) as the classification was a novel technique and the law did not hold account of such evidence. But in the course of history, this case was sufficient to evoke a sense of utility about fingerprints in the lawmakers.

The Central Fingerprint Bureau Kolkata (then Calcutta) has housed a museum unit since 1957, with a collection of ancient documents, tools, instruments and photographs pertaining to the history of fingerprints. The collection includes a 'state document with the impression of Shahajahan's 'Panja' and seal (*farman*)' ; 'a copy of the first agreement in history made between William J. Herschel and Rajyadhar Konai made in Bengal in 1858 using fingerprints as the means of signature of personal identification' ; 'three German made microscopes used in fingerprint examination'.

Had Haque not asked to be recognised, Henry alone would have embezzled his name in the history of fingerprint science, ensuring no admiration for Bose's work as well. Haque's fight resulted in their collective struggle to be identified as equals and in most parts, more capable than their superior.

Today as the Writer's Building, the place where their creations took birth turned more than a decade old, it no longer houses the Fingerprint Bureau. There isn't any statue uplifted in honour of Haque and Bose, in any part of India or the World and Henry Classification never became **Henry-Haque-Bose Classification**. Their justice delayed, is justice denied.

### CONCLUSION

Do you think an incentive of 5000 rupees or a piece of land is enough to mask the act of irreparable injustice done to the police constables by lowering their likes to just footnotes in a Wikipedia page? Scientific discoveries demand recognition in bold letters. Haque and Bose are just two of the thousand such names in the pre-independence era whose work the Europeans stole without any hesitation. As G.S Sodhi and Jasjeet Kaur wrote in their exemplary publication: *Their only fault was that they were born in a subjugated country. Yet they were loyal and honest officers.*

With the loss of their titles, Haque was marginalised to poverty. And so was Bose. Yet they can be posthumously laden with their deserving prosperity by making it official as not just accomplices but the rightful inventors of the system.

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