

A BRIEF HISTORY OF FINGERPRINT IDENTIFICATION

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The ability to identify a criminal, either to link him to his previous criminal history or to link him to a particular crime, is of paramount importance in any form of criminal investigation. Before embarking on the history of fingerprints it is worth reflecting on how our predecessors coped with the difficulties of personal identification.

Probably the first person in this country to make any attempt to maintain some form of criminal record was Sir John Fielding, who established at Bow Street a central register of burglars, housebreakers and receivers in about 1755. These records were presumably of a local nature and, unfortunately, faded into obscurity after a while. A likely explanation for this was the large scale transportation of criminals to the colonies during the last half of the eighteenth century and the first half of the nineteenth which lessened the need for such records.

It was the Habitual Criminals Act 1869 which first established the Habitual Criminals Register. This was the only agency especially established by Parliament and was intended for general use throughout the country in the work of identifying old offenders. This Act was very soon repealed and partially re-enacted by the Prevention of Crimes Act 1871. Section 6 of that Act stated that:-

Registers of all persons convicted of crime .•• shall be kept in such form and contain such particulars as may from time to time be prescribed .•• by the Secretary of State ... The Register for England shall be kept in London, under the management of the Commissioner of Police of the Metropolis, or such person as the Secretary of State shall appoint.

At first the register included all persons convicted of crime, but it was soon found that the registration of criminals was being carried out on far too large a scale, and the results obtained were altogether disproportionate to the labour involved. A large proportion of the persons

registered were not habitual criminals in any ordinary sense of the term, many of them were first offenders and children convicted of trivial thefts. The Prevention of Crimes Amendment Act 1876 was therefore passed and power was given to the Secretary of State to determine what classes of prisoners should be registered. By Lord Cross' Regulations of 15 March 1877, the register was confined to 'every person convicted on indictment of a crime, a previous conviction being proved against him.'

The Habitual Criminals Register was published annually and contained details of all habitual criminals and convicts who had been liberated between 1 January and 31 December of the previous year. All the names were in alphabetical order, and gave, in columns opposite to each name, the prisoner's full description at the time of his discharge, including his distinctive marks, the particulars of his last conviction, his destination on discharge and the number of his previous convictions, with references to entries in previous registers.

From details gleaned from the Habitual Criminals Register, a Register of Distinctive Marks was also produced. This register was published annually, but contained details of criminals who had been released in the preceeding five years. The entries in this register were classified by the position of the marks on the body under nine main divisions: the head and face, the throat and neck, the chest, the belly and groin, the back and loins, the arms, the hands and fingers, the thighs and legs and, finally, the feet and ankles. These were again sub-divided; for instance, under the heading 'arms' were such headings as: loss of arms, tattoo marks, distortion from fracture or dislocation, loss of power and scars from wounds or burns.

The work of identifying criminals in the Metropolitan Police District was managed by the Convict Supervision Office, a department originally formed to deal with convicts and others under sentence of police supervision within the Metropolitan District, but which gradually increased its activities to deal with the whole of the crime records and other habitual criminals within the Metropolitan District. They maintained albums of photographs of all convicts and other habitual criminals. In the earlier volumes the photographs were arranged chronologically as they were received, but gradually the photographs were sub-divided according to the age and

stature of the person concerned and the type of crime he committed. A very elaborate register of distinctive marks was maintained, which, unlike the published version, was divided generally by the parts of the body, that is to say, all criminals who had distinctive marks on their right arm were logged together and so it continued through various other parts of the body. Supplementary to this was an alphabetical register of tattooed initials and names.

Although this method of identifying criminals had a limited success, it was quite apparent by 1893 that there was a high degree of urgency to find a more effective method of identifying criminals. One Chief Constable was so impressed by the difficulties of identifying criminals that he volunteered the desperate suggestion that the only common sense was to tattoo the arm of the criminal about to be discharged with a letter, number and the year of his discharge.

On 21 October 1893 the Home Secretary, the Rt. Honourable H.H. Asquith appointed a committee to enquire into: (a) the method of registering identified habitual criminals now in use in England, (b) the anthropometric system of classified registration and identification in use in France and other countries and (c) the system of identification by means of a record of finger marks as suggested by Francis Galton.

The anthropometric system was devised by Monsieur Alphonse Bertillon and had been introduced into France in 1885. The principle of the system was to record certain measurements of various portions of the body of each prisoner. These measurements consisted of: height, span of arms, height of trunk (sitting height), length of head, width of head, length of right ear, width of right ear, length of left foot, length of left middle finger, length of left little finger and length of left forearm. The cards on which these particulars were recorded were so classified that each could be found by means of the measurements and without the name of the person, and then by taking the measurements of any person arrested it was possible to ascertain his identity if he was already included among the records under any other name whatever.

The fingerprint system suggested by Francis Galton was a development of the method first suggested by Sir William Herschel.

Herschel's interest in fingerprints began in 1858 while he was serving in the Indian Civil Service in Jungipoor on the upper reaches of the Hooghly river. Many years later, in 1877, he was appointed as Magistrate and Collector at Hooghly, near Calcutta. This appointment gave him control of the criminal courts, the prison and the department for the registration of deeds. He was responsible for various minor duties, including the payment of government pensions. With such diverse responsibilities, the ground was set for the introduction of fingerprints.

He first introduced the taking of fingerprints of pensioners to prevent their impersonation by others after their death. In general they appeared to approve of the new system. Even the clerks enjoyed the fun of explaining to the pensioners the 'sahib's hikmat (skill).' He next introduced this system into the office of the Registrar as the final act during the processing of a legal document. After all legal formalities had been completed the Registrar required the person to record the impressions of their right fore and middle fingers simultaneously on the document, and again in a register kept by the Registrar. Many years later Herschel wrote:-

As long as I was at Hooghly I was satisfied that no will or other deed registered there with the new safeguard would ever be repudiated by the actual executant.

Herschel finally introduced fingerprints into the prison. At that time it was not uncommon for a prisoner or his family to hire a substitute to serve the prescribed prison sentence. Sham death and a conveniently purchased corpse was another method of defeating the rigours of a prison sentence. To ensure that the prisoner could always be accounted for, his fingerprints were placed on the court record, and on the warrant to the gaoler.

Satisfied with the effectiveness and efficiency of the new system, he wrote to the Inspector of Jails and the Registrar-General detailing his ideas and asked them to give the system a trial in other areas.

He only received one reply and that was not particularly encouraging. In 1878, having completed twenty-five years service in India and suffering poor health, Sir William Herschel returned to England.

Galton's interest in fingerprints did not surface until 1888. Using material supplied by Herschel, he gave the first public demonstration of the persistence of ridge characteristic data at a Friday night lecture to the Royal Institution. The prints he used were from the right forefinger and right middle fingers of Sir William Herschel taken in 1860 and again in 1888.

In the following seven years Galton was to do more than any other man of his time to promote and encourage the use of fingerprints. He produced the first authoritative book on the subject, entitled 'Fingerprints', in 1892. It was a masterpiece of analysis and understanding.

Although Galton was able to demonstrate to the committee that fingerprints could be divided into three classes, the arch, the loop and the whorl, he was unable to demonstrate the ability to sub-classify fingerprints to deal with a collection greater than 2500 persons.

The committee produced its report on 12 February, 1894, and recommended an amalgam of both systems, classification of prisoners by their measurements and identification of prisoners by their fingerprints. It was recognised that this system was far superior to the methods previously used, but, for a number of reasons the system was not used as much as it could have been.

Meanwhile, in 1891 Edward Richard Henry, a doctor's son, was appointed Inspector General of Police for the Lower Provinces in India. He made one of his priorities the improvement of an inadequate identification system. By the beginning of 1892 he had started experimenting with the anthropometric system, using ten measurements and noting the colour of the eyes. In January 1893 he refined this system to only six measurements and the inclusion on the record card of the left thumb-print.

The left thumb was chosen because it was assumed that as most persons were right-handed the ridges on the left hand would not be as worn, and would therefore give a clearer impression.

Henry was reasonably satisfied with this modification, but he did have strong doubts about the accuracy of the measurements being submitted, as strict supervision was extremely difficult. He was convinced that a record system based solely on fingerprints would solve many difficulties. To increase his knowledge of the subject he wrote to Galton, and thus started a friendship which was to last for many years. In the latter half of 1894 when he returned to England on leave, he lost no time in visiting the Convict Supervision Office, Galton's laboratory and of course Galton himself.

When Henry returned to India he was determined to find a formula which would enable a fingerprint collection of many thousands to be formed. His first action was to arrange for all ten fingerprints of each prisoner to be taken in addition to the anthropometric measurements. Fortunately, among his staff at the Central Anthropometric Office were a number of Indian officers who took a keen interest in fingerprints. Among them were Azizul Haque and Chandra Bose, who were to make a substantial contribution to the development of the fingerprint system.

Eventually, after much hard work, Henry and his team were successful. A classification which allowed all fingerprints to be filed in 1,024 primary positions with secondary and tertiary sub-divisions within each of the primary positions was devised. Although Galton was pleased with Henry's success, he was a little sceptical, and indicated that he would like to see the system tested on a really large collection of 100,000 fingerprint forms. In years to come he was to see the system tested many times in many countries.

Early in 1897 Henry made application to the Government of India for the appointment of an independent committee to inquire into and report upon this system. In March of that year General Strahan, R.E., Surveyor-General of India, and Mr. A. Pedlar, F.R.S., Director of Public Instruction, were selected to form a committee.

They inquired into both systems, and submitted a report to the Government of India, the concluding paragraph of which stated:-

In conclusion we are of the opinion that the method of identification by means of fingerprints, as worked on the system of recording impressions and of classification devised by Mr. Henry, may be safely adopted as being superior to the Anthropometric method; (1) in simplicity

of working; (2) in the cost of the apparatus; (3) in the fact that all skilled work is transferred to a Central or Classification Office; (4) in the rapidity with which the process can be worked; and (5) in the certainty of the results.

On the 12th June, 1897, a Resolution signed by the Governor-General in Council directed that the system of identification of criminals by finger-impressions be adopted generally in British India. Needless to say, the two systems had to operate side by side until full sets of fingerprints were obtained for all those persons with an anthropometric record only. At the time of the changeover it was estimated that between 150,000 and 200,000 anthropometric cards had been collected.

In 1899 with the system well in use in India, Henry was invited to read a paper on his system to the British Association for the Advancement of Science. In 1900 his book, 'Classification and Uses of Fingerprints' was published, ironically at the request of the Governor of India. On 5th July, 1900, the Secretary of State appointed a committee under the chairmanship of Lord Belper to enquire into the working of the method of identification of criminals by measurements and fingerprints. The report was completed in December 1900. This recommended that the present system (measurement and fingerprints) should be maintained for such reasonable time as may be necessary to enable the Department to decide how far Henry's system, with or without any modifications, could safely be adopted, and the present system gradually superseded, but that active steps should be taken towards the immediate introduction of the Henry system.

The steps taken were active indeed. On 31st May, 1901, Henry was appointed Assistant Commissioner in charge of the Criminal Investigation Department. On 1st July, 1901 the Fingerprint Branch at Scotland Yard was formed with three officers, Detective Inspector C.H. Stedman, Detective Sergeant C.S. Collins and Detective Constable F. Hunt. They tackled their task with enthusiasm and dedication. The Commissioner in his annual report for 1901 wrote:-

Owing to the greater effectiveness of the new method it has been found possible to dispense with the attendance of officers from Divisions at prison identification parades, much saving of time and men resulting.

With man's natural ingenuity, it was soon discovered that by applying a powder to a hard smooth surface a latent fingerprint could be made visible to the naked eye and recorded by a camera. Armed with a photograph of a fingerprint left at the scene of crime, the next obvious step was to search the fingerprint collection to identify the perpetrator of the crime. With such a system available, the method of criminal investigation took a mighty step forward.

On 13th September, 1902, Henry Jackson gained a place in English criminal history. He had been identified by his thumb print found at the scene of a burglary in Dulwich. He pleaded not guilty when he was tried at the Central Criminal Court. However, after Detective Sergeant Collins had identified the thumb-mark as that of Jackson, the jury returned a verdict of guilty and he was sentenced to seven years penal servitude.

It was not until 1905 that fingerprint evidence was given in an English murder trial. On 27th March of that year Mr. and Mrs. Farrow were brutally murdered in Deptford. A cash box from the scene was examined for fingerprints by Inspector Collins. The thumb print he found on the box was not that of any of the people who could have handled the box legitimately. During police enquiries, suspicion centred on two brothers, Alfred and Albert Stratton. When their prints were checked, the thumb-print on the cash box was found to be identical with the right thumb of Alfred Stratton, the elder of the brothers. Each brother denied that he had committed the murders and tried to blame the other brother. At their trial, evidence of the thumb print was given by Inspector Collins. The brothers were found guilty and subsequently hanged.

By 1905 small fingerprint bureaux had been started in England at Blackburn Borough, Blackpool Borough, Bradford City, East Suffolk Constabulary and York City.

In the early days of fingerprint identification a strict requirement for a specific number of characteristics was not enforced. The early experts relied on quoting how many sets of fingerprints they had in the collection, and how many comparisons they had made without finding a duplicated fingerprint. It was not until 1920 that Scotland Yard introduced the present standard of sixteen characteristics for all fingerprint identifications

placed before the courts. This, incidentally, is one of the highest fingerprint standards in the world.

A slow but constant escalation in the crime-rate led to more arrests, which in turn increased the size of the National Fingerprint Collection and made it imperative by the mid-sixties that computerised systems for fingerprints should be developed. Parallel to this ran an intensive programme of research into new techniques for the development of crime scene prints.

Today, the National Fingerprint Collection forms part of the data base on the Police National Computer and automatic scanning of fingerprints has been introduced into New Scotland Yard for processing and comparing fingerprints recovered from crime scenes.

The ability to develop latent fingerprints at crime scenes has been enhanced over the years by the introduction of ninhydrin, a physical developer, radio-active sulphur dioxide, metal deposition, cyanoacrylate fuming and the argon-ion laser.

The fact that all fingerprints are different and capable of being identified is taken very much for granted these days, but occasionally, it is as well to reflect on the efforts of those tenacious early pioneers who provided the firm foundation for this most perfect of personal identification systems known to man.