The use of fingerprints for identification purposes has been known of since Egyptian times and fingerprints have been found on wads of clay used for business transactions in ancient Babylon. China has also been aware of fingerprinting for thousands of years. Even the Bible makes two references to it. In chapter 16, verse 8, Job states, “And thou hast filled me with wrinkles which is a witness against me and my leanness rising up in me beareth witness to my face.” As if to prove this is no fluke misunderstanding he also states in chapter 37, verse 7, “He sealeth up the hand of every man that all men may know his work.”

Whilst knowledge of fingerprints have existed for thousands of years, the missing key to using fingerprints for identification lay in devising a method of itemising the distinguishing features inherent in each print to create a method of recording and cataloguing that could be quickly referenced, something that was not achieved until the mid 19th century. In the interim the only reliable method of recording an individual’s physical identity used basic colour of hair, eyes and skin, height and build, plus disfigurements such as scars or amputations.

In 1870 it was Alphonse Bertillon, a clerk in the Paris Prefecture of Police who turned this simplistic method into a reliable science by intricately measuring the body using a system known as Anthropometry, or Bertillonage as it became popularly known. This when linked with the old methods, created a reliable identification system for the first time and it was introduced into France in 1882, then eagerly adopted world wide.

Bertillon holds an honoured place in international police history for in addition to this, he also organised a standardised system of police photography by developing the "Portrait Parle," or double photographs of full face and side profile recording still used today and was also one of the first to study handwriting identification.

As the use of photography evolved some agencies, including New Zealand, still relied a great deal on the physical characteristics of the individual and this is displayed in the early official “mug” shots taken of prisoners here. Many of these individuals were seamen and in the days of rope
and tackle rigging it was common for some to have lost one or more fingers, so their hands were displayed across their chests in each photo.

The Bertillon system was generally accepted for thirty years, but it never recovered from the events of 1903 when a man named Will West was sentenced to the U.S. Penitentiary at Leavenworth, Kansas. It was discovered that there was already a prisoner at the penitentiary at the time whose name was William West and the two men who looked exactly alike. Their Bertillon measurements were close enough to identify them as the same person and a fingerprint comparison quickly and correctly identified them as two different people. It was later discovered the West men were apparently identical twin brothers and it led to fingerprinting gaining favour.

Studies into the science of fingerprinting were being conducted by many people around the world. In India, Sir William Herschel was able to prove that over a 28 year period the impressions of a man’s hand did not alter. Others found devising systems of cataloguing took years to prefect and many failed in the process. The development of a powder fine enough to be used to locate fingerprint traces at crime scenes was also slow and delayed the introduction of forensic science.

Born in Croatia in 1858, Juan Vuletich emigrated to the Americas in 1884 and at the age of 26 became the head of the Statistical Bureau of Police in Argentina in 1891. Within a year he succeeded in creating a simplistic method of numerically cataloguing the individual characteristics of each fingerprint. As a result of his work, in 1894 the Argentine Police became the first to officially adopt such a system. In fact it was so successful that the government subsequently decided to fingerprint their entire population, but the political furor that resulted saw the idea and the system scrapped in 1917. For his immense contribution to crime fighting, Vuletich was honoured by a number of overseas nations in 1913. He died of cancer and tuberculosis in 1925.

Meanwhile in England the Commissioner of the Metropolitan Police in London, Edward Henry (later knighted), had been working with renowned criminologist Francis Gorton to develop their own method of cataloguing and coding fingerprints. It was their system that was introduced into the English police and used by Scotland Yard. It was also ultimately adopted by the New Zealand Police although we were rather slow on the uptake.

Born in County Kerry, Ireland in 1865, Garrett Fitzgerald was sworn into the New Zealand Police on 8 September 1885 and apart from a brief period at Wellington, served in the South Island until retiring medically unfit in 1909, as a result of injuries received during multiple arrests of violent offenders during his service as one of this country’s most effective detectives. Whilst serving his second term at Timaru he was granted special leave early in 1901 by the Commissioner to recover from injuries received in the line of duty and he used that time to visit his homeland of Ireland.
Whilst in London on his return journey home he met Detective Inspector Kane of the Metropolitan Police who told Fitzgerald about the new science of fingerprinting. At his invitation he began studying the system under Detective Chief Inspector Stedman and prior to leaving, was supplied with all the basic equipment necessary to operate the system. This included a folding magnifying glass, an ink roller, pad and special ink.

During the voyage home he practiced on his fellow passengers and on arrival in New Zealand he demonstrated the system to Commissioner Tunbridge who unfortunately was markedly reluctant to introduce fingerprinting into this country. Meanwhile news of the system reached the ears of the New South Wales police and they dispatched an Inspector to London to investigate it. On his return the system was immediately introduced there.

It was not until 1903 that Walter Dinnie became Commissioner that Fitzgerald was invited to introduce the system here, but by this time he was in ill health and was forced to decline the offer. Instead the Commissioner enlisted his son Edmund Dinnie to establish the Criminal Registration Branch (CRB) and gave him the rank of detective senior sergeant. As a result the Henry and Gorton system of Fingerprinting was first introduced into New Zealand’s prisons in March 1903, when all convicted prisoners were fingerprinted and the records passed over to the CRB. In July that year the role was taken over by the Police and prisoners began to be finger printed at the time of their arrest. In the first year some 3,500 prints were taken and record by Dinnie and his team of two clerks.

A major test of the system came at Auckland in 1920 following the robbery of the Ponsonby post office and the murder of its postmaster Augustus Edward Braithwaite. Senior Sergeant Dinnie examined a cash box found at the scene and located a palm print and a fingerprint, which when checked against the records system, matched fingerprints taken from a suspect gaoled for an offence under the WWII Military Services Act. This identified Dennis Gunn.

Inspector Ian Fowler an expert from the New South Wales Police was invited to assist and he located a partial print on a .38 calibre pistol, believed to be the murder weapon. This print also matched Gunn and he was arrested and charged with murder. During Gunn’s trial Fowler came under intense scrutiny from defence
counsel and in the witness box was given the partial print then handed 100 complete sets of anonymous finger prints, one of which was Gunn’s and he was asked to match them. In less than two hours he did so. Dinnie was tested in a similar manner and as a result of their efforts, Dennis Gunn became the first in the Commonwealth to be convicted and executed on the basis of fingerprint evidence.

Fingerprints increase the frictional ability of the skin and consist of raised areas called ridges and when they come into contact with another surface, the ridges have sweat gland openings on their apex that leave an impression called a fingerprint. Fingerprints today are a common tool used in the identification of individuals and in solving of crime. This evidence can be used to identify people present crime scenes, corroborate a person’s story, confirm the actions of an offender or victim and used to identify bodies and find the correct identity of arrested persons. In all evidential cases no less than twelve separate, individual matching points must be identified to achieve an acceptable match.

RIGHT: An electronic, computerised unit used for scanning the fingerprints of arrested suspects, recording them, then matching them with prints held on file. Clean and ink free it is a great leap forward in technology. Ken brewer photograph.

As science evolves and new technology is developed, police and security agencies around the world look towards facial recognition as a possible next step and there are a multitude of international research facilities actively working in that direction. As with early fingerprint development, the secret of success lays in the ability to break down and catalogue the many measurable features and filter them out for ease of access to quickly make accurate identification possible. In conjunction with modern CCTV systems this recognition would necessitate only milliseconds to scan electronic files to make an identification of a subject. Evolved around the development of military software that permits computers to identify and lock on to multiple targets simultaneously, the technology creeps ever closer to becoming reality when crowds can be electronically scanned remotely and the system then automatically lock on to a wanted subject.

First generation facial recognitions systems were used by the Metropolitan Police following the London bus and underground railway bombings in the hunt for the multiple suspects, but its success was limited. Disguises and the inability of cameras to reference onto a full facial view are problematic, but the system is steadily resolving those issues and will inevitably find itself in general use.

The only foreseeable delay in implementation in this country will be cost and those who put the rights of criminals ahead of the victim. Law enforcement agencies world wide are looking forward to the day when wanted criminals will never again be able to venture out in public without detection.