Studies in Forensic Odontology

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Forensic odontology has been defined as the application of dental science to the administration of the law and the furtherance of justice. It involves the correct handling, examination and presentation of dental evidence in both civil and criminal matters. Its principal role is in the personal identification of the living and the dead that may be the victims of criminal activity, mass disasters or accidental events. It is also concerned with the determination of age of persons and the investigation of tooth marks on skin and any other substance which may have forensic significance.

The importance of dental evidence as a means of identification has been recognised for many years. Modern forensic odontology dates back to the tragic fire in the Bazaar de la Charité in Paris on 4th May 1897, resulting in 126 deaths. The problem of identification of the victims was addressed by M. Albert Hans, the Paraguayan Consul, who proposed calling for the assistance of the dentists who had treated the deceased. Subsequently, Dr Oscar Amoêdo, a Cuban dentist living in Paris, using the experiences of these dentists, published a thesis entitled ‘L’Art Dentaire en Médecine Légale’ which soon became recognised as the standard textbook on forensic odontology.

I first became aware of the potential for identification by means of dental evidence when I was a child. One evening in October, 1939, my dentist father was called out by the police to attend at the city mortuary to view the body of a patient who had been decapitated by a train at a suburban level crossing. He was asked whether he could recognise gold inlays he had placed in the victim’s mouth and thereby identify him. He was not required to make a formal written report but merely a nod of the head was sufficient at that time.

My particular interest in forensic odontology, however, was inspired in 1961 when I attended a lecture arranged jointly by the Dental Board of South Australia and the Law society, presented by visiting Professor Gösta Gustafson, Professor of Oral Pathology at the Dental School, University of Lund, Malmo, Sweden, on the subject “Dental Aspects of Forensic Medicine”. I was fascinated by his graphic accounts of the cases he had undertaken, particularly those during the second world war when, as Sweden had maintained its neutrality, his expertise in identification had been utilised by both warring sides.

I was intrigued by his description of the method he used when called by the German High Command to determine the number of persons who had been present at the time of the explosion of a bomb in the bunker on the occasion of the unsuccessful attempt by a group of high ranking German generals to assassinate Adolph Hitler towards the end of World War II. He gathered all the victims’ teeth scattered about the walls inside the bunker, made ground transverse sections of each tooth, compared each section microscopically
War II. He gathered all the victims’ teeth scattered about the walls inside the bunker, made ground transverse sections of each tooth, compared each section microscopically and matched those which demonstrated the same pattern of enamel development.

In 1967, Inspector Ted Calder and Senior Sergeant Barry Cocks, on behalf of the South Australia Police Department, addressed a regular monthly meeting of the South Australian Branch of the Australian Dental Association, and appealed for a group of volunteer dentists to be formed to assist in emergencies requiring dental expertise, particularly in situations involving the identification of victims of major disasters. I was present at that meeting and submitted my name as a volunteer.

When some six months had elapsed without hearing anything further about this group, I phoned the secretary of the Dental Association who informed me that since only one member had volunteered, nothing more had been done about the proposal. I then phoned Sergeant Cocks and he invited me to join him next day for lunch at the staff cafeteria at Police Headquarters.

Sergeant Cocks urged me to join the South Australian Branch of the Forensic Science Society which was being organised under the chairmanship of Mr Andrew Wells, then Crown Prosecutor and later a Justice of the Supreme Court of South Australia. This I did and subsequently became a member of its steering committee.

When it became known that I was available as a volunteer to assist in cases requiring expertise in forensic odontology, I soon began receiving requests from the police to assist in cases requiring dental identification. The post mortem material from these cases was usually brought by police officers in person to my surgery, often in buckets carried through the waiting room. I would also receive calls from Dr Manock asking me to call at his office to collect skulls for identification. I would work on these cases at night in my home.

In South Australia, services in forensic pathology were originally provided by pathologists from the Institute of Medical and Veterinary Science (IMVS) located on the campus of the Royal Adelaide Hospital. Forensic autopsies were carried out in the City Morgue situated in the grounds of the West Terrace Cemetery until December, 1978, when its function was transferred to the new Forensic Science Centre in Divett Place, which included a modern mortuary on the ground floor. The Coroner and his courtroom were situated on the first floor of the same building which was named The Forensic Science Centre.

In 1968, Dr Colin Manock, a specialist forensic pathologist from England was appointed to the IMVS, and he was joined by Dr Ross James in
In 1973, the Criminal Law and Penal Methods Reform Committee was established by the Government of South Australia under the chairmanship of the Hon Justice Roma Mitchell. She immediately invited submissions on, *inter alia*, forensic science.

Acting on a suggestion by Sergeant Cocks, I prepared a submission on forensic odontology, proposing that a dedicated forensic odontology laboratory be established in the Dental School of the University of Adelaide. This would provide a specialised service to the Coroner and the Commissioner of Police. It would also provide facilities and an environment conducive to education and research in this field. When the Mitchell report was published, it included my submission word for word.

Since many of the cases that presented required attendance in courts of law, and as I had not received any special training or formal qualifications in forensic odontology, in order to satisfy the requirements of the courts for qualifying as an expert witness, I felt the need for further education in this subject.

At that time, however, forensic odontology was not widely recognised in Australia. It had not developed as a special branch of dentistry and there were no courses offered in this field here. My membership in the Forensic Science Society included a subscription to the *Journal of the Forensic Science Society*, and I also was able to obtain copies of *The Scandinavian Society of Forensic Odontology Newsletters*. From these sources I learned that forensic odontology was well advanced in Japan, Norway, Sweden, Denmark, Finland and Britain.

I was advised to apply for a Winston Churchill Memorial Fellowship which would enable me to undertake a study tour of relevant institutions in these countries. This I did, and I was awarded a Churchill Fellowship in 1976. (see special report: Brown Kenneth A. 1976. *The status of forensic odontology in Europe and Japan*.)

I continued to provide this service in an honorary *ad hoc* capacity from 1967. This situation was most unsatisfactory because it raised legal issues concerning the security of material evidence taken by myself to work on in my home, and it was most unfair to my family. When this situation came to the knowledge of the State Government at the end of 1979, funds were made available to establish a dedicated forensic odontology service within the Dental School in the University of Adelaide in accordance with the Mitchell Report.