Australia is the largest land mass in the Southern Hemisphere having an area of 8,000,000 square kilometres. Its isolation explains much of its strangeness of animal and plant life and also the very specialized ethnology of its original human settlers — the Australian Aborigine.

Although there may have been some Asian contact with Australia prior to documented history, the first evidence of outside influence came in the 17th century, initially with the Dutch and later by the British in 1770. French scientific expeditions in the South Pacific were also important at the time and indeed much of the early ethnology of the Australian Aborigines was recorded by German and French scientists (1).

Before the arrival of Europeans in Australia, Aborigines occupied the entire continent, including Tasmania. Their numbers were estimated at approximately 300,000. The densest population was around the coastline where food was more plentiful, but both the coastal and inland Aborigines were nomadic. Inland tribes required to use large areas to maintain their existence. These hunter-gatherers required therefore to exist in small groups and co-operate for survival. The hunter-gatherer (or palaeolithic) life exists even today in some Central Australian tribes. It is believed that palaeolithic cultures have evolved rich spiritual and religious traditions. An understanding of this religion and way of life is necessary to explain the Aborigines' attitude to health, disease and their ritualistic practices.

The Aborigines believed in an orderly traditional way of life. « Totemism » has always been a dominant and unifying concept among Australian Aboriginals; included amongst this was (and is) symbolization providing links between man, mythical things, physical animate and inanimate objects. For example, the Kangaroo totem. Amongst most Aboriginal tribes, men took part in the main ritual roles. Women had their own complementary roles, but where large ritualistic ceremonies were concerned the whole tribe took part.

Aborigines are ancient people and first reached the Australian continent by a land bridge from New Guinea and South East Asia some 30,000 years ago. Their palaeolithic and microlithic culture was isolated from external influences until about 2 centuries ago. Because of the size of the continent it is impossible to describe in detail all the ritualistic practices and disease distribution for every tribe. Indeed, information in many areas is lacking and inference must be made from anthropological studies and some sources often unscientific in their method. It is probably appropriate in this conference, to examine several of the very earliest historical practices in medicine, which was probably the norm in every culture throughout the world before recorded time.
For child birth the arrangements were primitive: a bush humpy or hut was erected away from the camp. Labour was conducted in the squatting position and was probably made easier by vulval initiation mutilation—carried out in adolescence. A tribal relative was in attendance and food was supplied during the puerperium by female relatives. The placenta was detached after its delivery and the cord cut with a stone or shell. Contemporary evidence would suggest that tetanus must have been common, although there is no proof of this.

Soft ti-tree bark was used as a diaper or napkin, as it was at the menstrual period. Babies were often suckled until they were four or five years old. Fish, if available, was the first food given to the child, at about one year, with mother chewing it before giving it to her infant. Mangrove pods were also given as food at this time, after being cooked in an earth oven, steeped with water and sieved through a small bag—resulting in a thick greenish pea soup.

Infanticide was common. If twins were born, the weaker one was killed, usually being choked with sand. Second babies born within three years of the last child usually met the same fate, allowing suckling to continue for four to five years. Palaeolithic people everywhere knew that for life to continue, the mother could only provide nourishment for one child under 3-4 years.

The system of personal mutilation was to a certain extent evolved for a child's mind to be imbued with the importance of hardening the body.

Simple mutilation was practised in childhood. Boys in some tribes would take a piece of burning coal from the fire and lay it on the naked skin of their forearm. It was left there until a blister was formed as the coal fizzled. Whilst this was going on the boy bit his lips together and clinched the fist of the suffering arm to suppress the pain. The resultant scar was a lesion which the boy possessed with pride. We see today, with tattoos, a residue of this earlier palaeolithic practice.

Initiation ceremonies played an important role in life. It was required of an Aborigine throughout Australia to pass through certain rites and ceremonies without which he would not be considered mature and therefore allowed the privileges of the adult community. The rules were particularly strict with respect to the males and the custom in Australia, but not elsewhere, was largely restricted to males. The ceremonies were always accompanied by a secretive ceremony.

Nose piercing was the first and least important and involved the lower flesh portion of the septum of the nose. Some tribes pinched a hole through the flesh with their fingernails whilst the child was still young. Others used sharpened bones, sticks or spears with the father usually operating on his son and the mother on the daughter. The perforation was kept open by means of a short rod, frequently turned about.

Tooth avulsion was usually carried out at adolescence when one of the front incisors was knocked out. Often the ceremony was carried out as a grand affair with many boys and girls being operated on at the one time. The gum was first separated as far down as possible with the fingernail and the end of a pointed stick: then a thicker, blunt stick was applied at right angles to the root and hammered with a stone. An upper tooth was always knocked out so as to allow the spirit to escape at death.

Circumcision was of momentous importance and was sometimes accompanied later by subincision, a gruesome practice in which the urethra was split a variable distance down its length.

Areas in which these operations were done varied as can be seen in the map. Circumcision was the occasion on which the truth of growing manhood was made clear to the boy. Amidst much pomp and ceremony the boy's mouth was
gagged, the legs forced apart and the foreskin hacked through with a stone knife, the crushing effect of this crude stone tending to stop haemorrhage. It is impossible to state true reasons for circumcision as so many myths surround its origin. These myths originated both from tribal folklore and various anthropologists' interpretations of these customs. Theories advanced include a symbolic return to a matriarchal society (7), a form of contraception (8), and that it resulted in the preventive practice for balanitis in dry environmental conditions, eventually becoming ritualistic practice prior to entry into manhood (9).

In some areas subincision, known as the « Miki » or « Kulpi » operation was practiced. It consisted generally, at the age of puberty, of cutting the lower wall of the urethra so that it was split completely open from below, the cleft sometimes extending only half way back, sometimes the whole way back to the scrotum. Sometimes a mere perforation was made. The organ was no longer a tube. The incision was made with a sharp edged piece of quartz, shell or flint. Bleeding was minimized with sand and the edges of the wound burnt with hot stones to cauterize, and kept apart to prevent adhering with bits of stick, wood, bark or bone. The result was a permanent slit, cleft or opening. The time varied at which this was done, from 8 days up to puberty and was even performed on adults.

It is difficult to be certain of the reason for this operation. Some state that it is necessary for a male to become a thorough male or « Kulpi », allowing him to appear before women in the nude state. Milne Robertson stated that it gave relief from inflammation of the urethra (10).

It has also been suggested that it was done so that a man could not have too many children and this was supported by the custom in these areas of pulling out the nipples of young women so that they could not suckle children. Some believed that it was performed as a totemic belief to imitate the kangaroo hero which has a small hypospadias (11). More recently Morrison (12) has suggested that it was performed to relieve structure of the urethra following circumcision.

Whatever the reason, the resultant effect was that the male had an unpleasant uriniferous odour and that, for micturition, the penis had to be raised by hand and the legs widely separated.

If we consider next the more common problems encountered, the most important are as follows.

Snake bite was treated by immediately pinching the part between the finger and thumb to squeeze out the blood. As soon as the blood ceased to flow, a possum skin which had been heated as hot as possible without being spoiled was applied. When this was cool, it was removed and the puncture was sucked while the animal skin was being reheated. This procedure was repeated for three quarters of an hour. A bite from a death adder, whose venom is extremely potent, was considered hopelessly fatal and no treatment was undertaken.

Stirling in 1896 records that the natives of Central Australia used to treat snake bite by tying a ligature above the puncture which they then sucked (13). In some parts singing by the medicine man was the method chiefly relied upon, but ligatures were also tied above the bite.

For minor ailments the services of tribal doctors were not called for and the natives applied their own remedies. These included human blood collected in a bag, then dabbed all over the body from head to heels. Axillary sweat was believed to have wonderful curative properties. Incisions were made over an inflamed and painful knee or shoulder with a stone scalpel. Poultices of box tree bark were applied to cure a bad headache. Amulets were worn to relieve obscure pain. This is comparable to today's practice of wearing copper bracelets, or carrying a hare's
foot in the pocket. An extract of wild strawberry juice was considered useful for dysentery, whilst the red sap of wild pear was used for stomach disorders.

For serious illnesses the tribal doctor was summoned. His method was to first impress the audience by various antics, massage the part troubled and press it until he extracted a substance which he said was the cause of the trouble. Here-sleight of hand came into play and usually consisted of producing pieces of quartz, stone, bone or charcoal from the affected part. This implicit faith exceeds the faith healing disciples of more cultured communities today.

Burns were often extensive due to carrying firesticks, or the practice of an infant lying between the fire and mother at night. In some areas the burn was dabbed with the fat of a carpet snake, whilst in others red ochre was applied.

The Aboriginal treatment of wounds seems to have been fraught with danger of sepsis, yet some of the most severe and extensive wounds recovered without much trouble. Their method of treatment was to lay a large feather, ideally an eagle-hawk's feather, at the bottom of the wound and over this was put powdered charcoal or ashes from the fire and then to fill the cavity with wet pipe clay. Over this was placed a bound pad of ti-tree bark and the wound bound with possum fur string. The dressings were changed as needed but kept on until the wound contents were gradually extruded. The eagle-hawk's feather was kept for further use.

For fractures, conflicting evidence exists with regards to their treatment. Some had no knowledge of setting fractures, others encased the limb in bark from trees such as ti-trees. A study of fractured bones from museum material showed that evidence of union after fracture was good even by modern standards, suggested a well considered method of treatment and immobilization.

In the areas of hygiene the natives were completely ignorant. Their urine and excreta were regarded as part of themselves, as the essence of their bodies, so they would not burn faeces because fire kills and they were afraid of killing the essence. They did not wash, certainly not for washing's sake.

It can be seen that a study of contemporary palaeolithic medicine provides a window to the origins of medical practice of modern western man. We see «with surprisingly little alteration» cultural overtones of modern medicine that have survived 10 or 20,000 millennia of potential modification.

In totemism we see the origins of modern genetics which although formalised as replication of DNA, nevertheless still unifies members of extended kindreds — in exactly the same way as a common totem spirit but in times gone by.

Palaeolithic infanticide has its echoes in contemporary debate concerning whether or not treatment should be offered to abnormal children.

Palaeolithic mutilation is reflected in modern ear-piercing, tattooing and cosmetic surgery all of which potentially involves us as doctors subjected to the demands of our patients influenced by the demands of fashion.

Initiation ceremonies such as «circumcision» remain practically unchanged for large sections of society.

The management of snake bite remains just as controversial today as must have been the case thousands of years ago as judged by the plethora of treatments in both ancient and modern medicine.
REFERENCES

3. Ibid.
8. A.P. Elkin, "Understanding the Australian Aborigine", Angus and Robertson, Sydney, (1938).
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