POLYNESIAN MEDICAL RESEARCHES.

by

WILLIAM H. GOLDIE, M.B.,C.M. (With distinction)

Formerly House Physician, (n.r.) Royal Infirmary, Edinburgh.
Buchanan Scholar in Obstetrics & Gynaecology.
University Medallist in Midwifery & Physiology.
proc. acc. to medallist in Pathology.
Senior Prizeman in Surgery (New School).
First Class Honours in Medicine, Midwifery, and Surgery, etc.

I.

MEDICINE.

Edinburgh.
1899.
Surgery.

Contents:

1. Introduction.
2. The Making of Medicine Men.
4. Ulcers.
5. Burns & Scalds.
7. Diseases & Deformities of Bones.
11. Amputations.
   (a) Stricture of the Urethra
   (b) Urinary Calculi.
   (c) Hydrocele.
   (d) Hernia.
   (a) Superincision.
   (b) Circumcision.
   (c) Subincision.
   (d) (Introcision)
   (e) Cokolosi & Tokolosi.
15. Surgery of the Testicle.
16. Gawso (Paracentesis Thoracis)
17. Elephantiasis.
INTRODUCTION.
POLYNESIAN SURGERY.

The surgery of the Polynesians, though generally rough and ready, is neither contemptible nor by any means ineffectual. Dealing however as we are here with several distinct races, scattered over a very wide geographical area, and in many cases broken up into perfectly isolated groups and tribes, it is not surprising that in different localities we should find surgical practice in very different stages of evolution. Among some sections of these peoples the knowledge of surgical principles is truly at its lowest ebb, in others again major operations are regularly and successfully performed, either for the alleviation of disease or in the consummation of some social rite or religious ceremonial.

It is in the treatment of wounds, abscesses, and ulcers, that they have had the most experience and have acquired the greatest skill. Living in a state of continual warfare, usually of the hand to hand order, spear and club wounds were of almost daily occurrence, and it is in the treatment of these we find the Tongan resorting to the operation of Qawso (paracentesis thoracis) - one of the most elaborate surgical procedures to which these savages attain.
Amputations and disarticulations of lower and upper extremities, were at times successfully accomplished, the method of operation varying widely in different localities. Depressed fractures of the skull were treated by removing the fragments of bone, and as a substitute for the trephine they used the sharp edge of a shell with which they scraped away the tables of the cranial vault and exposed the dura mater. They claim to have resected portions of injured and lacerated brain and to have replaced such by the brain substance of lower animals; we have only their word for this, and must accept it cum grano salis.

Simple fractures of the limbs, jaw, clavicle, etc., and dislocations, which though not so very commonly experienced by them, were quite successfully treated by splints or mud casings.

Circumcision, or some modification, such as superincision, as well as introcision in the female, and the severe operation of subincision, were performed over a wide area. Bleeding, that great resort of savages in pain and illness, grief and religious worship, was carried on to a terrible extent, blood flowing in streams either from mere skin cuts, or from actual venesection and arteriotomy. Their skill in the practice of massage is so well known that I need dwell
Surgery.

no further on it here. Berdoe has suggested that primitive peoples, in case of haemorrhage, "would bind a strip of fibre or a piece of the skin of a beast around the bleeding limb," they doubtless would if they knew of the secret of the circulation of the blood in the limb, or if they knew of the blood vessels and the precise nature of haemorrhage, but of these points they are very ignorant, and consequently do not (in Polynesia) usually stop bleeding by such means. They apply chemical (astringents) or mechanical (clay, leaves, etc.) substances to the bleeding point or surface, or hold the bleeding part in the dense smoke of specially selected plants which are burnt for the purpose.

The practice of surgery is under the special patronage and supervision of certain gods, and in some districts special gods preside over different branches of the Art. The Tahitian god of fractures and dislocations, is Tama, that of the Maories being Tiki. Gods of ulcers and wounds, etc., also exist.

Maori surgery, as far as it went, was efficient on the whole. They treated fractures and dislocations well enough, but in spite of their very extensive knowledge of naked-eye human anatomy, acquired during many years of anthropophagic practice, they were poor
Surgery.

operators, never amputating, and not even circumcision. They attempted nothing in the way of major operations or severe ceremonial mutilations. The secret of this is to be found, I believe, in their superstitious abhorrence of bodily disfigurement or dismemberment. Sprains they treated with rest and shampooing.

The Australian Aborigine, especially towards the centre of the continent, is the living representative of the stone age, who still fashions his spear heads and knives from flint or obsidian and performs the most daring surgical procedures with them. He practices the most cruel and revolting mutilations upon the young men and maidens of his tribe. The chief features of his surgery are these mutilations performed during the complex and profoundly interesting Bora ceremonies, or rites of initiation. Some of these operations are described in detail elsewhere in this thesis. Circumcision was very widely practised, and their legends tell us that this phallic mutilation was in very early times accomplished by burning off the prepuce with a fire-stick, but later an obsidian knife was substituted. Later still the operation of arilta of splitting open the penile urethra, was introduced. This is one of the few instances where a record has been kept of the evolution of their surgical procedures.
Surgery.

Perhaps no race of people are to be found who bleed themselves so much as the Australians. They bleed their arms for headaches and pains, but venesection is chiefly performed during the performance of their weird and picturesque corroborees. Amputations were done by means of live coals and fractures were well treated. One of the most marvellous of their achievements, however, was the practice of operating painlessly by hypnotic anaesthesia. An instance is given in the chapter on Etiology; many could be cited if space and time permitted. One author witnessed the performance of an Australian medicine-man, who hypnotised a boy by an elaborate method of passes with the hands and small leafy boughs, and then made a series of deep gashes in the child's chest and other parts, the patient evincing absolutely no sign of pain. In the common operation of perforating the nasal septum, I have found evidence in an old tradition that they anaesthetised the part by freezing with snow, before operating. These seem to be the only instances of the kind in the whole of the area with which we deal, and they are of great interest. Antiseptic substances were used by them - in the form of preparations for local application to wounds, sores, etc. made from the leaves of the Eucalypts. In the section on Midwifery

@ See Sorcery - Barru.
Surgery.

and Diseases of Women reference has been made to the supposed performance of ovariotomy (or oophorocetomy) by the Australians, and Caesarian Section by the Maories. Should an Australian child meet with a painful accident, a novel method was adopted in some places to relieve such pain. All its relatives were gathered together, and had their heads battered with a club or boomerang until the blood flowed down their faces, a speedy relief was expected.

It is in Southern Polynesia that we find the highest developments of Polynesian surgery. The Fijians had the reputation of being facile princeps in surgical knowledge and dexterity, and this was mainly due to the fact that they practised their operations on the cadaver. They were moreover teachers of Operative Surgery. Their neighbours, the Tongans, learnt their art in Fiji, and almost all the surgical operations known and practised in the Tongan Islands were borrowed from the Fijians, and were followed up with a considerable degree of skill and success. They too, perhaps copying the Fijians, practised on the body of men slain in warfare. No Tongan undertakes an operation unless he has been a student in Fiji, and no native of Tonga would employ a surgeon who had not been so schooled: nor would any native
medicine-man attempt an operation unless he felt himself quite able to do it successfully, and Mariner says, they were not rash in their opinions. We find in Tonga a practice of considerable antiquity among them, and one used in the surgery of Europe, namely the production, in cases of hard indolent tumours, of a purulent surface, either by cauterising with burning *tapa* (native cloth), or, by repeated applications of very hot bread fruit. It is somewhat remarkable to find such a practice employed by savages.

A special feature of *Australian* surgery, not previously referred to, is their habit of cleansing and evacuating abscesses, incised and punctured wounds, ulcers, etc., by *sucking* them, thus removing pus, blood-clots, and dirt. Sometimes the parts were then covered and healing by first intention looked for. The practice is disgusting and horrible, yet must have been efficient.

In conclusion, we may add that all these races exhibited remarkable healing powers, most dreadful wounds, which according to competent authorities would have proved fatal to Europeans, being readily recovered from. Two great causes of mortality in surgical cases were *Tetanus*, so common in the tropics, and the rapidly
Surgery.

Fatal melancholia®, which caused death even in trifling wounds resulting from "sung" or charmed weapons.

See Mental Diseases.
THE MAKING OF MEDICINE-MEN.

Native Terms:–

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kahuna</td>
<td>a medicine-man</td>
<td>(Haw.)</td>
</tr>
<tr>
<td>Kahuna lapaa</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>Tohunga</td>
<td>&quot;</td>
<td>(N.Z.)</td>
</tr>
<tr>
<td>Tohunga matuku</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>Takuta</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>Koraji</td>
<td>&quot;</td>
<td>(Austr.)</td>
</tr>
<tr>
<td>Koonkie</td>
<td>&quot;</td>
<td>(S.Austr.)</td>
</tr>
<tr>
<td>Railtchawa</td>
<td>&quot;</td>
<td>(Gen. Austr.)</td>
</tr>
<tr>
<td>Maykeeka</td>
<td>&quot;</td>
<td>(N.S.W.)</td>
</tr>
<tr>
<td>Mendeka</td>
<td>&quot;</td>
<td>(Santa Cruz)</td>
</tr>
<tr>
<td>Mane-kisu</td>
<td>&quot;</td>
<td>(Melanes.)</td>
</tr>
<tr>
<td>Gismana</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>Bolya</td>
<td>&quot;</td>
<td>(W.A.)</td>
</tr>
<tr>
<td>&amp;c.,</td>
<td></td>
<td>&amp;c.,</td>
</tr>
</tbody>
</table>

One of the most deeply interesting branches of this primitive medicine is the study of the numerous classes of medicine-men. We intend here, however, merely to discuss briefly their manner of initiation, their credentials of office, the sources from which they gained, or were supposed to gain, their information, their charms and incantations, their knowledge of diseases, and of medicinal plants.

The Maoris had what they termed whare-kura or Collegia, schools of Mythology, History and Medicine, in which the sons of chiefs and high priests were taught the traditions, the multitudes of genealogies of gods and of men, and all the karakias (incantations). In these assemblies the chief's record-

\[(1) \text{ (39)}_{144} - (33)_{16} - (39)_{33}.\]
ed the deeds of their ancestors and taught their children the mysteries of the heavens, the stars and the seasons. The whare-kura stood facing the east, in the precincts of the sacred place of Mua. It was guarded by the wooden image of Kahu-kura, the atua-torö ("spying god"). When the priests ("tohungas," "matakite," &c.) assembled at the commencement of the session they selected twenty or thirty youths of the highest rank, and proceeded with them to a stream, or lake, when the youths went into the water. The priests stood on the brink, and dipped a wiwi, or toe-toe grass stalk, into the water, and dropped some from it into the left ear of each youth. Incantations were also chanted to open their ears, to insure to them a correct and perfect knowledge of all they were to be taught. All then returned to the college and ceremonies were performed rendering pupils, priests, and college tapu or sacred. Fire was now procured by friction, and a piece of roi (fern-root) was roasted and given to an aged wahine (female), who put it under her thigh. It was then presented to the youths one by one as they stood in a line, each of whom partook of a piece to insure a continuous application of their studies. The work was then commenced; if drowsiness were felt by any one of
them, it was deemed an omen that such an one would not live long. He was at once expelled and never again admitted. The father of each student had to attend to keep his son in order. The college was opened by the priests in the season of Kahui-rua-mahu (Autumn), and continued from sunset to midnight every evening for four or five successive months. From midnight to dawn all slept. Daily exercise in games and bathing was allowed, but on no account were they to associate with other people. Any youth not entitled to a seat in the college who came near a pupil of whare-kura, for his temerity, became a water-carrier to the institution. The chief priest sat next to the door. It was his duty to open proceedings by repeating some legend or incantation; the other priests following in succession according to rank. On the south side sat the older and most accomplished priests, whose duty it was to insist on a critical and verbatim rehearsal of all the ancient lore. The order of work during the session was as follows:

A. Ancient Mythology.
B. Incantation - Songs.
C. History of Creation.
D. Medicine and Magic.

The section on Medicine and Magic included the teaching of charms and incantations,
Medicine-men.

1. To give bravery in war.
2. To bedim the eyes of their enemies.
3. To bewitch food to procure illness and death.
4. To cure the sick and wounded.

Having learnt these the session ended. Then followed ceremonies to remove the tapu (taboo). The high priest then asked, "Which of you has perfectly learned the ceremonies and incantations?" Being answered by one, "I have," the people were ordered to bring a slave. The pupil, to exhibit to the assembled tribe his learning and powers, then bewitched him, and death ensued. The blood from the victim's nose was taken and offered to the gods, and the body often eaten, to add virtue and power to the incantations of future ceremonies, and to counteract the power of secret witchcraft (makatu), when food was the medium.

The holidays commenced with a horrible dance, with yells and bodily contortions and terrible grimaces, the performers being the priests and pupils. The teachers being men of rank received no fees. Pupils attended the whare-kura for three, four, or five years before they could become priests, doctors, or teachers. The following are examples of the karakia or incantations taught at the whare-kura.
Medicine-men.

(a) To cure blindness:

Te Ra, e hara mai ra,
Rere Kura rere toro ha, i.
Tu Marama, e re re mai ra,
Rere Kura rere toro ha, i.
Ka whe kite,
Ka whe Karo, te Kahui tupua
Nau mai Ki waho,
Te retoreto,
Te wai whero;
Tupu te ora
He ora; ora.

Which may be translated:

O thou sun, advancing high,
Beaming red, and blazing forth!
O thou moon, now moving onward,
Sending here thy lesser beams!
The hosts of heaven -
The gods now there -
Can see and gaze on you.
Come forth, thou hidden
Cause of blindness in mine eyes,
Thou blood-red blight
Of waters sweeping o'er my sight -
Come forth, that I
Many live and see again,
And gaze as I was wont.

The following karakia was employed to staunch the

flow of blood from wounds:

The blood of whom?
Blood of the stars.
The blood of whom?
Blood of the moon.
The blood of whom?
Blood of the sun.
The blood of whom?
Blood of Ta-whaki♂
The blood of whom?
The blood of Rangi-mahuki. ♀

Many more of these incantations have been given else¬where in this thesis, and we have many more collected;
♂ A demigod. ♀ "The healing sky."
most of them have been in constant use for centuries and are believed to be thoroughly efficacious. These Karakia are supposed to have been given to men by the gods, certain ancestors having climbed up to heaven and learnt them orally from the deities. Tawhaki, who is mentioned in the above incantation, thus learnt many of the most powerful they possess. Rongomai, a celebrated demi-god ancestor of the Maori, went also with Ihinga and others of his tribe to visit the ghosts of their ancestors in Hades. There they learnt many charms and spells, witchcraft, &c. Thus the Maoris acquired and transmitted their medical lore.

The Australian(1) sorcerers, boylas, railtchawas, &c., often acquired their knowledge direct from the ghosts of dead medicine-men, who came to them and taught the mysteries. Often they were gained by sleeping with the corpse as a pillow, when, during their sleep, the ghost of the departed would insert a mysterious bone into each thigh of the doctors, who feel the puncture no more severe than that of the sting of an ant. When they wish to kill anyone they transfer this bone, by magic, to the body of the victim. The ghost sometimes would seize the would-be doctor by the throat, and opening him take out his

(1) (89)48 - (87)29 - (87)30 - (89)149,B.
(89)56 III - (89)156.
bowels, and replacing them would close the wound. Thus he gained power to kill or cure. Some of their medicine-men assumed office owing to their having seen the devil when they were young. All children who have had that experience are believed to become doctors. In certain tribes, the magic is gained by eating the flesh of a child, or of an old man. Kuldukkes (medicine-men) are sometimes made by some old sorcerers who take two heavy black spears; these they lie side by side, and point them at the intended Kuldukkes and then strike them with the weapons; then they tie opposum skins on each of them. The men thus operated upon pretend to be mad, rub themselves all over with chalk, and run about as if demented. They are supposed to be under the influence of the great master-sorcerer - the demon Melapi. They can cause disease by the process of Pernim, they can also cure disease by sucking it out. One of them once killed a magpie, he said, by the force of his sorcery. In the Arunta tribe (Centr. Austr.) the Railtchawas or Nangera (medicine-men), have great power over their patients and are men of remarkable personality. A Nangera is prepared for his office by going alone to the abode of the spirit called Irunturrina, a cave in the Emily Plains. He sleeps
near its mouth and at daylight next morning the \textit{Irunturrina} appears at the mouth of the cave and throws at the prospective \textit{Railtchawa} an invisible spear called \textit{atnongara}, which pierces his neck from behind, penetrates the tongue making a large wound, and escapes by the mouth. The tongue remains perforated in the centre with a hole large enough to admit the little-finger, and this hole is the only permanent effect of the \textit{Irunturrina}'s treatment. Another \textit{atnongara} pierces the head from ear to ear. The novice drops down dead, and is at once taken to the depths of the cave, which is called \textit{Okalpara}. The \textit{Irunturrina} removes, with the aid of his invisible \textit{atnongara} or lance, the viscera of the dead man and replaces them with a new set. He is then taken back to his tribe and remains mad for some days until one morning it is noticed that he has painted, with powdered charcoal and fat, a broad black band across the bridge of his nose. He is now recognised as a \textit{graduated Railtchawa}. He cannot commence practice for about a year, but frequents the company of the other medicine-men. In the Kabi tribe (Queensland) the people believe the rainbow, called \textit{dhakkan}, is the greatest source of power. It was personified, and when visible, was imagined to be in course of
transit from one one abode to another. Its haunts were small water-holes at elevated places. Dhakkan was as powerful for good as for evil, it had a never failing supply of bukkur or yurru, that is, rope. It exchanged bukkur (rope) for kundir (crystals, pebbles) with men who were possessed of the latter, the transfer being effected in the following manner. An aboriginal, desirous of becoming a medicine-man, and possessing kundir would camp on the margin of a water-hole known to be a dhakkan (rainbow) abode. While asleep there, a tingling sensation would commence at his toes, and pass all over his body. This tingling was the evidence of the operation of dhakkan, which had meanwhile drawn the sleeper under water, and having taken kundri (crystals) from his bosom in exchange for bukkur (rope), had replaced him on his bed a mannur (magician). In certain of the tribes living in Central Australia, there are three distinct schools of medicine-men.

(1. Those made by the Iruntarinia or spirits.
(2. Those made by the Gruncha who are a special class of mischievous spirits.
(3. Those initiated by other medicine-men.
Sometimes the three classes practise side by side, but the two former are more highly esteemed than the latter. We have already referred to the initiation of the first class by the spirit Irunturrina, and the process is somewhat similar in the second class, but naturally is quite different in the third. The following is what happened at the making of Nung-gara (medicine-man) of the third class on the upper Finke River:-

The young man who desired to become a Nung-gara proceeded with two old men, belonging respectively to the first and second classes above mentioned, to a secluded spot, and there they first of all made him stand up with his hands clasped behind his head, and told him that whatever happened he was to maintain perfect silence. The Nung-gara then withdrew from their bodies (by a process of sleight-of-hand) a number of clear crystals called Ultunda which were placed one by one as they were extracted into the hollow of a spear thrower. When a sufficient number had been withdrawn, the candidate was firmly clasped from behind by a man brought for that purpose. Then each of them picked up some crystals, and taking hold of a leg, gripped the stones firmly and pressed them slowly and strongly along the front of the leg and then up the body as high as the sternum.
Medicine-men.

This was done three times, the skin being scored at intervals with scratches, from which blood flowed. By this means the magic crystals are supposed to be forced into the body of the man, who was now told to lie down on his back. The Nung-gara then went some little distance away, and, striking an attitude, pretended to project crystals into the candidate's head. While doing this the left hand holding some of the crystals was placed on the palm of the right one, and in this position the hands were jerked rapidly backwards and forwards several times. Then the legs and abdomen and also the arms were scored with the stones, after which each pressed a crystal on the head of the novice and struck it hard, the idea being to drive it into the skull, the scalp being made to bleed during process. The next operation consisted in forcing a sharp-pointed stick for a considerable distance under the nail of the right index finger, making thus a hole into which a crystal was pretended to be pressed. The man was then told to keep a finger pressed up against the hole so as to prevent the stone from coming out, after which he was told to go to sleep. In the middle of the day the scoring was continued and again in the evening. He
was then given food and drink containing ultunda or small crystals, these he soon swallowed. On the following day, he was again scored and given food and drink and also native tobacco, all charged with the magic crystals. The same process was continued during the third day, and he was told to stand with his hands behind his head and to put his tongue out. One of the Nung-gara then withdrew from his skull just behind his ear, a thin, sharp ultunda, and, taking some dust from the ground, dried the man's tongue with it, and then, pulling it out as far as possible, he made with the stone an incision about half-an-inch long. He was now placed on his back and they proceeded to paint a special design on his chest, abdomen and forehead. This design is called Marilla, and it is the ilkinia or sacred drawing of the Oruncha or evil spirit. A long black line in the centre of the drawing on the body represents the Oruncha himself, and the marks around it are supposed to represent the magic crystals which he carries in his body, Fur string bands were next placed on the man's head and some leaves hung over the 'devil's hand' on the forehead and he was told to remain in the Urgunga (men's camp) and keep absolutely silent until the wound in his tongue healed. He was also told to
Medicine-men made by the Oruncha, with the Orunche-Marilla, or sacred design of the Oruncha. The drawing on the forehead is the Orunchilcha, and represents the devil's hand.®

® from (89) 156.
Medicine-men.

keep his thumb pressed up against the wound in his finger, until this was also healed, or else the magic stone would pass out. He was to abstain for a long time from eating fat, the flesh of wild dog (Dingo), fish, or echidna. He might eat bone-marrow, but only if the bones were broken and were voluntarily given to him by other men. When he had recovered from this rough treatment, which left him in a low state for some time, he returned to his own camp, but was ordered to speak but little and be very abstemious for about a month.

In Polynesia the king was in some places ex-officio high priest, and consequently chief sorcerer and medicine-man; and the following lines by Robert Louis Stevenson, refer to such a Royal Doctor, whom he knew - the king of Apemama of the House of Tembinoke.

"None more availed them he to raise
The strong, suffumigating blaze,
Or knot the wizard leaf: none more,
Upon the untrodden windward shore
Of the isle, beside the beating main,
To cure the sickly and restrain,
With muttered words and waving rods,
The gibbering and whistling gods."

The priest-physicians gained their knowledge

(1) (99)143.
(99) 143.
(99)143.
65.
65.
i.e. Disease-demons.
of medicine directly from the gods, such as Tama, Taaroa-tuihono, Eteate, and Raerea, besides a host of others. The office of priest was hereditary in the Hervey Group and in many other parts, and when a priest died his son or heir was duly installed. He first bathed in the sacred stream of his tribe, put on the white tokoru, ate only certain kinds of food, and abstained from many things permitted to others.

In Fiji the healing art is chiefly practised by women, who are called vu-ni-kalou, or occasionally yalewa vuku. The knowledge transmitted by these people is kept secret. As a consequence it often becomes family property, being handed down from mother to daughter, but the natives assert that there are no distinctly hereditary practitioners, and that any person may acquire the necessary information, and may discover for himself any wai or medicine without special training. In some places any man who can shake well and speculate shrewdly may turn his abilities to account by becoming a priest-physician. Such a man in the New Hebrides finding some peculiarly shaped stone would make an enclosure around it and give forth that it was the abode of his patron tindalo or ghost. Thus would arise a new cultus, and the self-made medicine-man would always be ready to hire
out his familiar ghost, either for the purpose of curing disease, or setting up fatal maladies.
BOILS AND ABSCESES.
Boils and Abscesses.

Native Terms:-

<table>
<thead>
<tr>
<th>Region</th>
<th>Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tasmania</td>
<td>Licemena, limete, wallamete.</td>
</tr>
<tr>
<td>Maori</td>
<td>Puku, maito, tapoa, wharaki.</td>
</tr>
<tr>
<td>Ancityumese</td>
<td>Algei, alapicraig, inheuan,</td>
</tr>
<tr>
<td></td>
<td>(nator-ewing (groin))</td>
</tr>
<tr>
<td>Tahiti</td>
<td>Popo (core of boil), puu.</td>
</tr>
<tr>
<td>Samoa</td>
<td>Fa'a-hoa, ape-ape (to open a boil).</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Pehu, hehe, heehee, ohiki (to open or lance a boil), maiheea (a discharging boil) puu puu.</td>
</tr>
<tr>
<td>Marquesas</td>
<td>Puku.</td>
</tr>
<tr>
<td>New Hebrides</td>
<td>Uosa.</td>
</tr>
<tr>
<td>Australia</td>
<td>Bibberboom, bugroo.</td>
</tr>
</tbody>
</table>

The natives living in the tropical parts of Polynesia and Australia and even in the temperate climate of New Zealand are all very subject to boils, single or in crops, or a succession of boils, sometimes at intervals of several months. The Maoris attribute the condition to eating decomposed and fermented Indian corn, of which they are extremely fond. The Polynesians believe that if a piece of dead man's bone is wrapped in leaves and laid in the path of a victim, while an incantation is muttered, the person for whom the magic is meant will become the subject of boils and eruptions and so on. Thus
Boils.

they explain the origin of the disease. There is a tradition among the Central Australian tribes that an old man named Ungutncka plucked boils from his body, each of which turned into a group of stones which are still to be seen at Undiara and are called Aperta tukirä (stone sores). Men who desire to harm others in one particular way make a number of small wooden imitation spears and go to these stones, at which they throw the spears, taking care that the points strike the stones. Then the spears are picked up and thrown one by one from a spear-thrower in the direction of the man, whom it is desired to injure. The spears are supposed to carry with them magic power (Arungquiltha) from the stones, and this produces an eruption of painful boils in the individual or individuals towards whom they are thrown. Sometimes a whole tribe of people can be afflicted in this way by a skilful sorcerer. Boils were supposed to be induced by the kick of a sorcerer who immediately flies away after doing it. Doubtless dirt, direct contact, and the resulting spread of the pyogenic micrococci are important etiological factors. Bathing with infected people in small filthy common bathing pools; infected people crowd-
Boils.

Ed together while in a semi-naked, or quite nude condition, with their boils often discharging and polluting the floors, and mats of the huts, also aid in spreading the condition, which at times becomes epidemic. There is nothing special about the lesion, which forms in the usual manner and has the same termination as with Europeans, except that when a native who is physically weak from starvation, &c., is attacked by many boils he may become feverish, develop albuminuria, and die of septic absorption. This is an especially common termination in weakly children. The boils are often "blind."

The Australian aborigines are subject to a disease which seems to attack them all, once during their life, sometimes at three years of age, but more frequently at fourteen, or therabouts. The symptoms are large blind boils, under the arms, in the groin, on the breast or thighs, varying in size from a hen's egg, to that of an emu's egg. It continues for months, and in some instances for years, before finally being eradicated. During its presence the patient is generally so enfeebled as to be unable to procure food, and is in fact totally helpless. It is not contagious, and Gason(1) thinks it is a speci-

(1) (87) 28 28.
Boils.

A disease of the blacks, whose only remedy is to apply hot ashes to the parts affected. It is called by them Mirra.

Treatment.

When hard, the Australians apply to the boil a decoction of wattle-bark (Acacia spp.); when obstinate, they boil wild marsh-mallow, and apply it in the form of a poultice - if it soften and does not break, they apply their sharp bone-lancet. One of their medicine-men was in the habit of curing the kind of large boil, above referred to, by sucking out the matter and swallowing it, saying that it was his ngaitye (totem = friend or protector).\(^1\) The Maoris applied poultices of scraped roots such as those of the "harakeke" (phormium tenax), and hot leaves. They often opened abscesses and boils, long before they were mature, and applied severe pressure to squeeze out the matter or the core. They used the sharp edge of a shell, a splinter of obsidian, a sharp pointed stick, or a thorn, for incising the boil or abscess. The New Caledonians applied the plant "fer-a-cheval" (Hippocrepis?), and the Maoris, the juice of a mesembryanthemum to relieve these conditions. In some parts of Polynesia they tried local bleeding; but shampooing and rubbing with oil were, and are still, the more common remedies in such cases.
ULCERS.
ULCERS.

Natives Names:

Maori. Komoca, maoa.
    Tipu (tubercular), Kai-Kiko.
Aneityumese. Inmacop, numanhava (large), namugamug (small).
New Caledonia. A tonga.
Australia. Dapa (Vic.), baggandar (N.S.W.); Boom-norre-meeng.).
Samoa. Aigaaitu (chronic), ati, tolofia (maggoty), ta'ai (an ulcer surrounding a limb), ati pupuni (an ulcer which eats into the flesh.).
Tahiti. Aiio (a dis. which breaks out in continual ulcers).
Hawaii. Maipuha, hehe, aleeala (esp. of the neck).

Ulcers are extremely common among the Polynesians, Australians, and Maoris. Many of the lesions are syphilitic, tubercular, framboesial, &c., others are commonly chronic. A writer describes certain of these Australian Aboriginals as suffering from horrible running sores, covering the arms, legs, chest, and back, and accompanied by a swelling of the joints. The Tasmanians were subject to a disease which caused most loathsome ulcerated sores. They all suffered, wrote Widowsen, from scabby sores, which in the children were dreadful, and disgusting in the extreme; with them all parts of the body were affected; with the adults the sores were more confined to the head.
Ulcers.

In the South Sea Islands and in Australia a common occurrence was for the ulcer to become swarming with maggots, the swarms of flies infesting the sore and depositing their eggs therein, and thus setting up this horrible condition.

Etiology.

The Samoans attribute ulcers to the gods, being special judgments for theft, adultery and other crimes. Amongst Australian tribes we find the mammoth serpent-demon Myndie, who travels rapidly over the tree tops and spreads horrible sores and other diseases amongst the members of the tribes. In Hawaii the ulcers have been supposed to follow excessive use of salt water with the food. The true cause in the majority of cases is doubtless to be found in the filth which cakes the bodies of many of these people.

Symptoms.

The sores are frequently the seat of much irritation and are often small and multiple, they are commonly on the lower limbs which they at times completely surround. Generally the skin alone is affected, sometimes the muscles and tendons. The discharge is often very foul and offensive and a likely source of contagion.
Ulcers.

Treatment.

The ulcers were sometimes sprinkled with water, ashes, red ochre, turmeric, grease, and infusions, decoctions and other vegetable preparations. In some parts of Australia the patient is put into a mound of heated ashes (made solely from bark which is without grit) up to his knees, where he sits whilst the medicine-man is rubbing with hot ashes the affected parts. During this proceeding the doctor is muttering incantations, and blowing occasionally a portion of the dust into the air with a hissing sound. When sufficiently operated upon, the patient is wrapped up in his blanket. The Maoris used the oil of the "titoki" (Alectryon excelsum); the leaves and tender shoots of the astringent "Koromiko" (Veronica Salicifolia); the boiled leaves of the "Kopakopa" (Plantago major); a lotion from the bark of "pukatea" (Athero sperma Novae Zealandiae) was used especially for chronic ulcers; & the gum of the podocarpus ferruginea. A favourite method also was to bathe the affected parts in the hot sulphur and siliceous springs of Rotorua, Taupo, and other places in that district. The Australian aborigines treated their ulcers with "gue-way-lah," made probably from the
Ulcers.

Eucalyptus, and like the Polynesians also applied the irritating caustic juice of the Euphorbiaceous plant Excoecaria Agallocha, which soon removed the foul smell and tended to stimulate the chronic process. Fijians used the excellent "dilo oil;" the boiled leaves of the "lawere" (Ipomoea pes capra) and the bark of "Sinu Matiavi" (Wilk-stroenia Vitiensis). The Hawaiians used the juice of the "atoto" or "akoko" (N.O., Euphorbiaceae). These are but a very few of the numerous appliances used by these savages in the treatment of ulcerous processes, in many cases however the lesion was not attended to and not even covered. In rare cases an ulcerated limb is seen swathed in foul dressings of native cloth. (Kapola pilan).

A common method of dealing with the chronic ulcers was to scarify them with a sharp shell or piece of obsidian and sometimes the saw-like edge of a shark's tooth was employed, or the rough husk of a cocoa-nut. Poultices were used, and the Australians frequently tied a tight ligature around the limb above the ulcer, this arresting the circulation in the affected part. They also sucked the sore and then bound it up with hot earth or ashes.
Ulcers.

"Barcoo Rot."

This disease seems to be localised to the Central parts of Australia. It occurs at special seasons of the year. The slightest abrasions or scratches of the skin passing to rapidly spreading, freely suppurating, yet superficial and often painless, circular ulcers, sometimes of extraordinary persistence. These sores are generally on the back of the hand, or exposed parts of the arms; they may be multiple and may even appear to arise without any antecedent abrasion. After healing, the ulcers leave for a long time a conspicuous but usually mobile scar. The "Barcoo Rot" has been attributed to flies, and to scratches caused by mulga wood (Acacia aneura). It is more probably due to the dry atmosphere and the hot sun. Healing occurs if the parts are protected from the flies and the sun. An ointment of carbolic acid does not give good results, iodoform ointment only moderate, but boracic acid readily cures the condition.

Phagadenic Tropical ulcers.

Syn. Tropical Sloughing Phagadena; New Guinea native ulcer, &c., &c.

This disease of which "Barcoo Rot" would seem
Ulcers.

to be a very mild type, is a special feature in the tropics. It occurs as sloughs of the skin and deeper tissues, sometimes following slight skin wounds, and leads to the production of deep, ugly, foul, chronic ulcers, sometimes destroying the tendons and muscles and bones. It resembles in some of its features "hospital gangrene" but has well marked features of differentiation.

This condition is fully discussed in the special text-books and I need not repeat those accounts. I merely wish to suggest the possible relation of "Barcoo Rot", and add New Guinea to the list of endemic centres. The disease doubtless occurs elsewhere in Polynesia and perhaps in New Zealand but the accounts lack detail.

vide
BURNS AND SCALDS.
BURNS AND SCALDS.

Native Terms:

Iiika (Haw.) A cicatricial contraction following a burn.

Burns were particularly common among the Australian blacks who were in the habit of sleeping close to wood fires, scalds were rare, except in the few places where the natives knew how to heat water with hot stones, and, as in New Zealand in the region of the Hot Lakes.

The Maoris apply the feathery plumes of the toetoe grass (Arunda conspicua) in the form of a poultice to a scalded surface, and while applying it, repeat the following incantation to the demigod Tiki, the creator of man;-

Return, O ye gods of the land,
And ye gods of the sea,
Come and save, that this man
May work for us, O Tiki!
For you and me.
Heal him, oh, heal!
If it had been fire kindled by me on Hawaiki,
It might have been extinguished.
O thou skin, be not diseases by this evil.
Cease thou heat, be cured thou burn,
Be thou extinguished, thou fire
Of the god of Hawaiki;
Ye lakes of heaven give coolness to his skin,
Thou rain, thou hail, come to his skin.
Ye shells and cool stones, come to his skin;
Ye springs of Hawaiki, Raratonga, and Aoteara,
Come to this skin and cause it to be damp;
Be healed thou skin, be healed.

(1)
Burns and Scalds.

Sometimes the medicine-man substituted the following:

I wera i te aha?
I wera i te ahi.
Ahi a wai?
Ahi a kahu-ika
Tikina mai, waka orahia
Hei mahi-kai ma tana
Wera iti, wera rahi,
Wera kia raupapa.
Maku e whakamana. (1)

Which may be translated as follows:

What caused the burn?
Fire caused the burn.
Fire kindled by whom?
Fire kindled by Mahuika.
Come and fetch some (fire) spread it out,
To be a slave to dress food for both of us.
Small burn, large burn,
Burn be crusted over the skin.
I will make it sacred,
I will make it effective.

The Maoris were not content with charms such as these but they made applications of cold water, and cold substances such as pebbles, also a lotion made from the leaves of the "Kopata" (Relargonium Australe) and the emollient substance called "manna" by the Colonists, and "mai-manuka" by the Maoris, who gathered it from the Leptospernum Scoparum. They also used the ashes of the "tussac" grass; and the lotion obtained by boiling the leaves of the "Kopak-opa" in water. Doubtless these applications gave some benefit. The Australian aborigines rubbed

Goddess of Fire.

The tohunga and the patient.
Burns and Scalds.

fat over the burned surface and then dusted it with "wherup" (Red ochre).

**NECROSIS.**

Native Terms:--

Kikohunga (N.Z.) gangrene (Kiko---flesh).

A form of dry gangrene which occurs amongst the Maoris and called by them *Tuha-waiki*, or Ngerengere, has been generally called Maori leprosy and is believed to be a modified form of that disease. In this disease the terminal phalanges of fingers and toes shrivel up and drop off. It is rare and is more fully described under the heading of Leprosy.

Dr. F. Bowe(1) has described an interesting case of necrosis of the fingers and toes, of a different nature, occurring in a native of Motlap, one of the Banks' Group. He (Lambar) was about 24 or 25 years of age. The ends of his fingers became swollen, and the skin broke, and pieces of bone came out, and four months later the same process commenced in his toes. His hands and feet when healed presented the appearance as if partial amputations had been done on the fingers and toes. The following is a descrip-
tion of his fingers:
Left thumb is flexed at the terminal joint, the last phalanx is shortened to half-size, and it is doubtful whether there is any bone, it retains the nail.
First Finger. The terminal phalanx has disappeared, and half of the next. There is still a small piece of thickened and roughened nail. In some fingers the nail has gone altogether or partially and portions of the ends of the phalanges having been destroyed the fingers are rendered irregular in length. The native appeared, two years afterwards, to be perfectly healthy in every respect, and there is no loss of sensation in the fingers. He had one peculiarity in susceptibility of his hands to blistering and ulceration when any work was attempted.

Ainhum.

This condition, which ultimately results in the spontaneous amputation of the little toe (generally)
Necrosis.

occurs occasionally in Polynesia. The disease is a very chronic one running its full course in from one to ten years. Ainhum begins as a small furrow or crack. In a few days the toe swells up, and a

![Ainhum drawing](image)

Ainhum. (Davidson).

burning or shooting pain may be felt in the foot and leg. The furrow increases laterally and in depth and meets on the dorsal aspect of the toe, giving the toe the appearance of being constricted by a piece of fine cord. As the furrow deepens the distal end of the toe becomes ovoid, and resembles a marble attached to the toe by a fibrous pedicle. A dry scab forms at the furrow, and when removed constantly reforms, it consists of horny desquamation or necrosis. The histology of ainhum shows it to be a direct ingrowth of epithelium, with a corresponding depression of surface due to the rapid hyperplasia, that

* Gould & Pyle p. 383.*
Necrosis.

pushes down and strangles the papillae, thus cutting off the blood supply from the epithelial cells, causing them to undergo a horny change.

This interesting condition is fully described by Davidson and others and calls for no further remark here.
WOUNDS.
WOUNDS.

Native Terms:--

Australia. Withie, manngar, beingga,
Polynesia. Le pee (Haw.).

These naked savages were much exposed to wounds of all kinds; being almost constantly at war they were frequently injured by spears, arrows, boomerangs, and clubs; having their bodies and feet uncovered they were liable to injury with thorns, spikes of wood, sharp shells and stones. In later years gunshot wounds were common enough. Perhaps one of the commonest causes of cuts and bruises was their custom of showing great reverence and respect for the dead by severely cutting and otherwise mutilating their heads and bodies. Thus in peace and in war they were especially liable to wounds, many of very great severity. The great feature of these injuries in the Polynesians was the remarkable rapidity with which such severe spear and club wounds healed. Wounds which in the opinion of competent observers would have proved mortal to a European, were by them almost disregarded, and not even kept clean. Spear wounds causing the bowels to protrude are successfully treated by replacing the bowels, closing the gash with gums, and covering all with a plaster of leaves.
Ross(1) reports a case of transfixion in a young male Australian aboriginal, a native of New South Wales, who had received a spear wound in the epigastrium during a quarrel; extraction was impossible because of the sharp pointed barbs; the spear was therefore sawed off, and was removed posteriorly by means of a small incision. The edges of the wound were cleaned, stitched, and a compress and bandage applied. During the night the patient escaped and joined his comrades in the camp, and on the second day was suffering with radiating pains and distension. The following day it was found that the stitches and plaster had been removed, and the anterior wound was gaping and contained an ichorous discharge. The patient was bathing the wound with a decoction of the leaves of the red gum tree (Eucalyptus). Notwithstanding that the piece of spear which passed clean through his body measured seven inches, and the interference of treatment, the abdominal wound was closed on the sixth day, and recovery was uninterrupted. Another case is reported by Mr. H. N. Wollaston, Colonial Surgeon in Western Australia, where a native applied to him, to extract the wooden barb of a spear, which, some four months previously

(1) Lancet, 1891. Quoted by (89) 648.
had entered his chest, just missing the heart. The spear continued to force its way towards the back and a hard substance could be felt between the ribs in the region of the left scapula. A deep incision was made and the barb extracted, it was of wood, about four inches long and one-half to one inch thick. The wound made by the spear had long since healed, leaving only a small cicatrix; and after the operation, which the patient bore without flinching, he appeared to suffer no pain. He was perfectly well in a few days. (1) Many similar instances might readily be cited to show how remarkable is the healing power amongst them; it is said that wounds made by metal or stone implements heal about the same as similar wounds would do in Europeans, but wounds made by wooden weapons heal with great rapidity — the transfixing of a leg by a wooden spear is regarded as a trifle and soon heals. Blows on the head also — so commonly inflicted on one another by Australian gins (women) and men of southern Polynesia, with heavy clubs, each person calmly taking it in turn to batter the other's head, until one is disabled — seem to lead to no serious damage. This immunity is said to be due to the great thickness of the fat between

(1)
Wounds.

the scalp and the bone acting as a buffer or pad.
There are notable exceptions to the above rule.
If an Australian or Polynesian or Melanesian be
scratched, however slightly, with a spear which has
been "sung" i.e., which has had the "poison incanta-
tion" muttered over it, he will rapidly die from that
fatal melancholia and fear so characteristic of these
peoples. Nothing will save his life but the cere-
monies and charms of some powerful sorcerer, if such
services cannot be obtained, the man's case is hope-
less. In a number of the island groups such as
Tonga, Fiji, &c., there is a great tendency for
wounds of all kinds to become contaminated with the
Tetanus bacillus and this often proves fatal.

Treatment.

We have given elsewhere a famous Polynesian
"Healing" incantation and here we include one well-
known to the Maoris and used by them in cases of
severe wounds. The patient is first led to the
tuahu or altar where offerings are made to the gods,
and certain incantations muttered to propitiate the
gods, and the atua (spirits) are fed with blood, and
clotted blood from the wound is lifted up on a stick
before the Mua, then this "healing" incantation is
repeated by the Tohunga (priest-physician):--
Wounds.

Provoking irascible sinew, strong to kill
Hither is come the one they sought to murder.
Verily, thy own skilful tohungas are here -
Thou and I together, indeed, as one.
Thy wound is sacred (tapu).
The celebrated first-born priestess
Shall cause the lips of the wounds
To incline inwardly towards each other.
By the evening, lo! thy wound shall become as nothing.

The stone axe which caused it
Was verily as the strong tide rushing on
To the shores, and tearing up the beds of shell-fish.

Striving, provoking sinew, eager after food for baking.

The wounding indeed of the man
Who courageously enraged the god.
Thy internal parts are all opened to view,
Verily, just as the stirring up the big fire
Burning in the Marae (courtyard) of a pa (fort).
But, lo! thou and I together are as one.

The maoris washed their wounds, and then applied a plaster of mud to exclude the air, and this was allowed to remain until the wound was well; toetoe grass was sometimes used instead of mud. Sometimes the wound if small was bruised with a stone, to excite bleeding, and afterwards held over the smoke of certain special plants. Other applications in use were, the gum of the harakeke, (Phornium tenax), the oil of the Titoki, and that of the Kohia (Passiflora tetrandra), the gum of podocarpus ferruginea, and a decoction of the leaves of Piper excelsum or Kawa Kawa. Some of these are astringent, others stimulant and others emollient. Sometimes they dispense altogether with
Wounds.

dressings and applications, and the following is a typical sight - "We saw" writes a gentleman "one of the men wounded in the late fight; the ball had entered his arm near the shoulder and passed out at the elbow, he had his arm in a sling of flax, but had no dressing or healing application of any kind to the wound." They sometimes check bleeding by holding the wound over the smoke of a fire of certain plants. In some cases of gun-shot or other wound, a dog is killed, and the blood collected, and made hot by the aid of heated stones. It is administered to the patient who drinks it as hot as possible. The tohunga then repeats a charm over him, the wound is frequently washed and all extraneous substances removed; but no other external application is used than water. The invocations of the priests to the spirits are repeated frequently during the case. No married man or woman (excepting his own wife) is permitted to come near or see the patient during his illness, from the superstitious idea they entertain, that by so doing the spirits would be angry and retard the cure. It is said that when a Tasmanian black received a gun or spear wound, he filled it with clay or dirt; after all danger of haemorrhage was over his lubra (wife)
Wounds.

poured cold water constantly over it. The Australians were rather more advanced in their methods of treating wounds, they sucked them and then poulticed with earth, or hot ashes, or they chewed green leaves or bruised bark and applied it. In some cases the wound was covered with leaves of the eucalyptus dipped in water, or the resin of the tree and a preparation called "gue-way-lah." The she-oak apple (Casuarina) was powdered and applied also. The sucking of wounds, ulcers, and abscesses is a distinct feature of Australian native surgery, and is rarely practised in Polynesia. Wounds especially punctured wounds were sucked until blood ceased to be extracted. If little blood comes they consider that all is not right, and probing with a sharp bone is resorted to, that bleeding may occur. They know well the consequence of stagnant blood or matter, especially in the upper part of the body. When the wound is thoroughly clean, they sometimes cover it with gum and expect healing by first intention; if suppurations takes place, they open the wound afresh, cleanse it and close it up again in the same way. In Polynesia, the treatment differed somewhat for besides bringing the edges of the wound into apposition, they applied the pungent juice of the "ape" (arum costatum) to the surface, this caused
Wounds.

great pain. In cases of gun-shot wounds, their main object is to lay the wound open, if it can be done with safety in respect of the larger blood vessels and tendons; not only for the extraction of the ball if it should still remain, but for the purpose of converting a fistulous into an open wound, that it may thus heal sooner and better: if they have to cut down near larger vessels, they prefer bamboo to the shell knife; the same near tendons, that there may be less chance of injuring them. They always make incisions nearly in the course of the muscles, or, at least, parallel with the limb. (1) Into wounds of the scalp they blew the smoke of burnt chestnut wood. A balsam was made from the juice of the Nui dina (cocoanut), the mou-niu (Cyprus) was bruised and applied and likewise the leaves of the ufi (Fagara enodia). Thus we see that these savages were quite able to treat their wounds, when uncomplicated, in quite an efficient manner.

(1) (81)
DISEASES AND DEFORMITIES OF BONES
DISEASES AND DEFORMITIES OF BONES.

Inflammatory conditions and congenital malformations of bones appear to be of great rarity amongst the Polynesians, while tubercular and syphilitic manifestations are more common.

Knock-Knee (oihaa, habetui, Tong) and genu-varum (vebico, Tong., sabe, Fiji) are occasionally seen, and talipes (rou, N.Z., hahabe, habe, Tong.) is not very uncommon in New Zealand.

(a) SPINAL DISEASE.

Native Terms:-

Tuabiko - humpback (Tong.)
Pikilka - " (Tas.).
Pikilootoo - "
La'ana or
nanai - " (Haw.).
Tuapu - " (Tah.).

Pott's curvature of the spine is amongst the most prevalent diseases to which, as a race, the Polynesians are exposed. Commencing early in life with feverish symptoms, it is followed by great emaciation and a large curvature of the spine in the dorsal region. Amongst an almost naked people the deformity produced is very unsightly. Multitudes in
Diseases of Bones.

every one of the Society Islands are to be seen de-formed by this disease, which the natives call tuapu, literally, projecting. These deformed creatures are often among the most active, intelligent and ingenious of the people, and not infrequently fill the post of court buffoon or funny man, as amongst civilised peoples of olden time. The disease prevails almost exclusively among the lower classes of society, the agriculturalists and mechanics. The chiefs and priests never are affected, having a more generous diet and comfortable houses. The natives declare that the complaint was unknown to their ancestors, only prevailing since they have been visited by European ships.

Besides the Society Islands this condition has been observed, though less frequently, in New Zealand, Fiji, Tonga, Tasmania, Hawaii, &c. Curr[1] whose experience of Australian blacks was great, writes thus, "I have never seen a hunchback among the aborigines, and only one case of lateral curvature of the spine in a half-caste."

(1) (83)56 261.
Diseases of Bones.

(b) RICKETS.

Hitherto the possibility of rickets occurring among these people has been denied, and certainly if the disease does occur it is not widespread nor is it found in a marked degree. We have evidence however of some such disease prevailing in Australia and New Hebrides.

The tibiae of many Central Australian aborigines are found to be Platycnemic or flattened markedly as if from lateral compression, a condition also extremely prevalent among the natives of South Australia. The question naturally arises whether this is merely a racial peculiarity or the effect of some morbific process. Platycnemia is thought by some observers to be a modification of form due to the increased area for the origin of the tibialis posticus muscle, a muscle much used by these nomadic tribes. Professors Stirling and Watson of Adelaide who examined a number of Australian tibiae, nearly all of them platycnemic found that the surface of origin of the tibialis posticus, though increased in many, was certainly not so in all cases. There is often associated with the lateral flattening a conspicuous and symmetrical
Diseases of Bones.

Young Girl of Central Australia with "boomerang legs."
(Platycnemia and Camptocnemia).
(From a photograph).
Diseases of Bones.

anterior curvature of the tibiae, called by Professor Stirling, camptocnemia, a condition he does not think connected with any pathological process, the natives so affected appearing as a rule quite healthy. In Central Australia many of the blacks have this condition of so-called "boomerang legs." Mr. Gillen, Protector of the Aborigines on the other hand, considers that these bent legs are generally associated with delicate physique in both sexes and he believes them to be a sign of constitutional disease. He mentions a girl at Alice Springs (Centr. Austr.), about fourteen years of age far gone in consumption, who has this deformity; a sister who died of phthisis was similarly affected, but on the other hand, in another sister with consumptive aspect there is no curvature. The curve is not manifest in the father, mother and two brothers, who are strong and healthy. Another case is recorded of a girl about fifteen years of age, ill-nourished, even to emaciation, whose tibiae were camptocnemic, but who presented no other abnormality of bones or teeth. Dr. Gardiner, however, has described a case of a boy aged sixteen, a native of Aneityum, who had suffered from malaria; here both the flattening and the curvature were present and

Diseases of Bones.

were apparently of pathological origin. In the same paper it is stated on the authority of Dr. Paton, that this disease of the bones which, inter alia, leads to swelling, deformity, and curvature, exists in all the southern islands of the New Hebrides, and probably throughout the whole group. This is confirmed by Professor Watson, who has seen the curvature in natives of Vanikoro and Mallicolo.

Professor Stirling thinks that while it is possible that disease may lead to a bending of the bones of the ordinary platycnemic type, yet it is difficult to escape the belief that other causes, beyond the pathological, must be at work, since the condition is found in persons who exhibit no trace of constitutional disease, and in skeletons where all the other bones seem to be devoid of morbid manifestations.
SURGERY OF JOINTS.
SURGERY OF JOINTS.

Native Terms:—

Dislocation. Kapeke (Haw.) see (Sam.)
acaijehgaig (Ancity.)
"to set a dislocation".

Hip Joint Disease. Hoomaca (Haw.).

Weak Knees. Turiopa (N.Z.) turimene,
(N.Z.) - a knee disease.

Sprain. Anuu (Haw.).

In Samoa chronic diseases of the knee joint are
attributed to the disease-demon called \textit{0 le nifo loa}(1)
(The long tooth) who came from Fiji and took up his
residence about the south side of Savaii. People,
canoes, or property of any kind belonging to that
place, were supposed to be media by which "the long
tooth" might be conveyed and cause disease and death.
One day the tooth was visible to an old Samoan lady,
and struck by some scalding greens which she threw
at it, and ever after it was crooked and not so dead-
ly. If a person recovered it was said that the
tooth must have had the crook running outside of the
wound, and \textit{vice versa} in a case of death. To this
day the long tooth superstition is a nuisance. A
few years ago some people went to that Savaii to buy
a canoe. They did not get it, but from a number of

(1) \cite{88} 41.
Joints.

deaths soon after at their village, they believed that the tooth had followed them. After a battle ten years ago a man from the long tooth district in Savaii who had been killed, was buried in a village in Upolu. After a time a young chief died there rather suddenly. The tooth was suspected by some of the old people, and so they dug up the bones of man who had died in battle four years before, and threw them away into the sea, far off outside the reef, so as to rid the land as they supposed from the long tooth enemy. Like the celebrated tooth of Buddha in Ceylon, the attempt to burn which burst the furnace, and, although buried deep in the earth and trodden down by elephants, managed to come again so the long tooth god of Samoa continues to come up every now and then after a sudden death, or a prolonged disease of the knee joint, or a deadly ailment.
FRACTURES.
FRACTURES.

Native Terms:-

Tonga fetchi.
Mang. ati.
Hawaii. Uuina halokeloke (crepitation); fatipapa (fract. thigh); haloke.
Maori. Papariki (bark splint).
Australia. Yahkollojy - pinna (Darling River).

The Tahitian god of fractures was named Tama, and to him they repeated their charms or incantations in such cases. The Maoris seek aid from Tiki, the maker of all men. The New Zealander while having his limb put in splints hears the medicine-man mutter the following incantation:-

O thou Tiki, give me thy girdle,
As a bandage for this limb!
Come thou, bind it up,
Tie around it thy cords and make it right.
O thou flesh, be thou straight;
And ye sinews, be ye right,
And ye bones join ye, join ye.

The Papuans of New Guinea were able to set fractures and apply splints, the operation being accompanied by incantations and other magic ceremonies. Fractures are not common there, one surgeon could not recall a single case having occurred in 10 years at his village. All the races with whom we are dealing were well acquainted with the use of splints in fractures and made common use of them. In addition,

John White.
Fractures.

the Australian aborigines also employed a tenacious clay, with which they encased the limb after having straightened the limb. If the accident happens away from the camp, a temporary apparatus of bark and vines is applied, and when the patient reaches the rude huts, these are removed and the clay casing substituted. This mode is employed not only for limbs, but also for jaws, the face being covered with a thick clay mask. Excellent results follow. A case is recorded of an Australian black, an old fellow who had his leg broken, and rolled himself from the field to a mia mia (hut), where sat the doctor in solemn gravity, ready to operate. He commenced by laying the patient on his back, then placing the wounded leg on a piece of bark, he got some splints, and bound up the leg with blanket bandages and opossum skins, finishing the operating by pouring a can of cold water over the whole. The Hervey Islanders always set their fractures in running water. The New Caledonians are reported as gaining poor results in these cases; in Tonga, on the other hand, it is said there are scarcely any natives who does not know how to manage ordinary fractures and dislocations, for they are well acquainted with the

(1) (87) XVII.
Fractures.

general forms of the bones, and articulations of the extremities. They made their splints from the cocoanut tree; for broken arms they used slings of gnatoo. In fractures of the skull they allow nature to take her course without interfering, and it is truly astonishing what injuries of this kind they will bear without fatal results; Mariner mentions a man whose skull had been so beaten in, in two or three places, by the blows of a club, that his head had an odd misshapen appearance, and yet this man recovered and had good health, except when he indulged too freely in kava, which produced a temporary insanity. The Hawaiians relate, that when some of their warriors have had the bones of their skull fractured by a blow in battle, they have removed the bone, fitted in a piece of cocoanut shell, covered the skin over, and that the patients recovered; they told Ellis(1) that there were persons living on whom the operation had been performed, but he did not come across any and naturally disbelieved the story. The Tahitans were energetic in the treatment at times, for instance, a man fell from a tree and severely injured his neck. His companions on perceiving it, instantly took him up; one of them placed his head between his own knees, and held it

(1) (32) 334.
Fractures.

firmly; while the others taking hold of his body, twisted the joint into its proper place. On another occasion, a number of young men were carrying large stones, suspended from the end of a pole across their shoulders, when one of them so injured his spine, as to be almost unable to move; he had, as they explained it, fate te tua, broken the back. His fellow-workmen laid him flat on his face on the grass; one grasped and pulled his shoulders, and the other his legs, while a third actually pressed with both knees his whole weight upon the back, where the bones appeared displaced; they then bound a long girdle repeatedly around his body, led him home, and without any other treatment, he was in a short time able to resume his employment. (Ellis).

The Maoris in such a case would repeat this incantation:-

Tutakina i ou iwi,
Tutakina i ou toto,
Tutakina i ou mongameya tena te rangi,
Katutaki, tena te papa ka whena.

Which being translated is:

Close up your bones,
Close up your blood,
Close up your marrow, and be united as the heavens,
And let your bones be strong as the earth.

(1) (85) 24 XV. 526.
Fractures.

Dr. Batty Tuke(1) once met two Wai kato (N.Z.) chiefs travelling towards the South Island; they had been wounded two months before; "One had been shot through the thigh, the bone having been fractured, the leg was shortened, and not so straight as if it had been carefully set, but union had taken place, the wounds healed, and the patient was convalescent and treated the whole affair with all the indifference so peculiar to the native character." It is universally recognised that amongst these races fractures heal with remarkable rapidity, and as a rule the limb is not badly distorted. An Australian native(2) is reported to have fractured his clavicle, and in three days was quite well. The fractures are set in some places, as Mota, by women, who "poke and pull about, and manage to get the bone into its place;" the manahikian doctors treat fractures by extension and counter extension and the application of splints.

Thus on the whole fractures are dealt with in quite a satisfactory manner by these savages, splints being almost universally used, and these are left on as a rule until the bone has united.

(1) (36)26 226.
(2) (33)56 165.
BLEEDING.
BLEEDING.

Polynesians and Australians when the subjects of any violent emotion usually found relief in shedding their blood through incisions self-inflicted, likewise in many of their ceremonies, rites, and invocations, blood was shed as a sacrifice and for many other reasons; venesection, arteriotomy, or merely skin incisions were the common modes employed, the blood being sometimes collected and used for medicinal and other purposes. An instance of ceremonial blood-letting is to be found in the Samoan worship of the goddess Taisumalie ("Tide gently rising"). This was the name of a lady in Upolu who at her death was deified, and worshipped first by her own family, and then by all the people of the land where she resided. June was the usual month for special worship. Feasting was followed by club exercise, and in terrible earnest they battered each other's scalps till the blood streamed down over their bodies. Old and young, men, women, and children all took part in this general melee and blood-letting, in the belief that Taisulalie would thereby be all the more pleased with their devotedness and answer prayers for health. In Central Australia (1) the following rite was regularly performed on the young men, after circumcision. Without prior warning the young fellow is seized and (1) (87)2819.
Bleeding.

taken away from the camp by the old men. One old man then binds another man round his arm, near the shoulder, with string, and with a sharp stone or flint lances the brachial artery, about an inch above the elbow, causing an instant flow of blood, which is permitted to play on the young man until his whole frame is covered with blood. As soon as the old man becomes exhausted from loss of blood, another is operated on, and so on, two or three others in succession, until the young man becomes quite stiff and sore from the great quantity of blood adhering to his person. The reasons assigned for this barbarous practice are that thereby courage is infused in the young man, and to show him that the sight of blood is nothing, so that should he receive a wound in warfare, he may account it a matter of no moment, but remark bravely - that he has previously had blood running all over his body, therefore why should he feel faint or low-hearted. Very many more such instances might be given, they were of all almost daily occurrence, but there were other uses to which the practice was put. In Fiji, for instance, slashing with a bamboo knife, or "Kai" shell is often performed on persons who have pains in the chest or head. The
"Siroapo"

A New Guinea Surgical Instrument, used for **Bleeding** where pain exists.

(The point is of flint or shark's tooth.)

¶ Mus. of Science & Art, Dublin.
Bleeding.

wounds are of a superficial character and any influence they may exert is counter-irritant chiefly. Bleeding is a common remedy for almost every complaint in the New Hebrides; they did not open a vein but like the Fijians used a bamboo knife. If bleeding failed and a case was considered dangerous, their last resort was to burn the foot. This was done even in cases of arrow wounds in the neck, the foot being burnt to a raw horrible mass. Tafa or blood-letting is the most common operation of the Tongans, small skin incisions are made in all parts of the body, particularly in the lumbar region and the extremities, for the relief of pains, lassitude, inflamed tumours, etc. Venesection is frequently performed at the lieu d' election by the Central Australians, who operate in the following manner. The subject squats on the ground and has the upper arm bound with a cord in the orthodox fashion; the operator squats in front of his patient, and with a small obsidian knife not more than half an inch long and a quarter wide, notches and saws at the skin of the bend of the elbow until a vein is opened. When the blood flows freely it is caught in the hollow of the haft of a shield, the operator vainly endeavouring to promote the flow by stroking the arm in the opposite
Bleeding.

direction to the venous course. A large number of the men show one or more phlebotomy marks on their arms, the operation being frequently done as they often require blood for decorative, medicinal, and ceremonial purposes. Sometimes they draw the blood from the subincised urethra, at others from the labia minora. Further remarks concerning the therapeutic uses of blood are to be found in the section on Materia Medica.
AMPUTATIONS.
Native Terms:—

Ooki to amputate a limb. (Haw.).
Koti Amputation (N.Z.).
Pouto "
Haporo "
Kotikoti " (Polynesia & N.Z.).

It is said the Maoris never resorted to amputation, yet we find the Maori words for this operation; there can be no doubt that if it was ever done by them it was only in extremely rare cases. We have no record of any such case. The Duchess of Buckinghamham\(^1\) gives two typical cases which illustrate very well their views concerning the operation. The Duchess saw a Maori woman with a very bad hand; in some quarrel another woman had bitten her thumb and broken the bone. The European doctor had not been consulted for fear he would cut off the finger or arm, and thereby prevent her from having the use of the injured limb in the next world. In another instance a Maori had his arm badly crushed. He was taken to the hospital, but would not hear of having it amputated without his father's consent, and the old father flew into a fearful rage when he was consulted, and said his son would want his arm in the

\(^1\) (39)\(_{53}\).
Amputations.

next world, and it was better for him to die with it and keep it, as it could not be sent after him. The Tasmanian native surgeons are reported to have disarticulated, or amputated, the forearm from the arm at the elbow; the bleeding being arrested by means of clay and leaves. Australian (1) medicine-men also are said to have been able to amputate an arm, and in their legends (2) we have reference to such operations. We have more definite information concerning their method of amputating the leg, and Surgeon H. W. Wollaston (3) saw a man on whom the operation had been performed. He had travelled after the operation, from Kojenup, about 96 miles in the interior (for the purpose of procuring a wooden leg.). On examining the limb which had been severed just below the knee, Wollaston found that it had been charred by fire, and that about two inches of partially calcined bone protruded through the flesh. The native said that in a fight a spear had struck his leg. Finding it was serious he had recourse to the following crude and barbarous operation, which it appears is not uncommon amongst these people. He or his companions, made a fire, and dug a hole in the

(1) Austr. Legendary Tales, Parker, p. 56.
(2) (3) (37) 255.
Amputations.

earth only sufficiently large to admit his leg, and deep enough to allow the wounded part to be on a level with the surface of the ground. They surrounded the limb with live-coals or char-coal, which was replenished until the leg was literally burnt off.

The cauterization thus applied completely checked the haemorrhage, and he was able in a day or two to hobble down to King George Sound with the aid of a long stout stick, although he was more than a week on the road. The Fijians were considered the finest surgeons in the South Pacific, but we have no evidence that they ever performed amputation, but their neighbours the Rotumans were skilled in amputating, at least, fingers. King Toogoo Ahoo of Tonga was a man of a vindictive and cruel turn of mind, and on one occasion gave orders (which were instantly obeyed), that twelve of his cooks, who were always in waiting at his public cere-
Amputations.

Many of drinking Kava, should undergo the amputation of their left arms, merely to distinguish them from other men, and for the vanity of rendering himself singular by this extraordinary exercise of his authority. The arm was placed on a block and rapidly chopped off. The bleeding was not so profuse as might be imagined, owing, no doubt, to the bluntness of the instrument and the violence of the blow. The resulting stump was good. Ten were stated to have done very well; of the remaining two, one died of excessive haemorrhage, and the other of gangrene.

Fingers or Phalanges were frequently amputated by the people in the Sandwich Islands, Southern Polynesia, Australia, &c., on the death of their chiefs or relatives, or in some cases on their recovery from severe illness; and in Australia it was done to render the tip the finger super-sensitive in girls whose occupation it was to fish with a line. They were thus more readily able to perceive when a fish was attacking the bait. In the Mooloola tribe (1) (Austr.) mothers used to bind round, at the second joint, the little finger of the left hand of their daughters when about ten years old with coarse spiders' webs of their country, so as to stop circulation and cause the two terminal phalanges to drop off. This seems to have

(1)  (83) 56  139.
been part of some rite of initiation. The Tongan method differs from this, and seems to be a painless one for Mr. Mariner saw little children quarrelling for the honour (or rather out of bravado) to have it done. The finger is laid flat upon a block of wood: a knife or sharp stone is placed with the edge upon the line of the proposed separation; and a powerful blow being given with a club or large stone, the operation is finished. The wound seldom bleeds much; the stump is then held in the smoke (a favourite savage mode of arresting haemorrhage) or steam arising from the combustion of fresh plucked herbs. Healing is rapid.
HEAD OPERATIONS.

The Polynesian attacked skull and brain injuries with a bold hand, the brain to them was merely marrow, fat, padding to fill up a bony space. It was not the complicate delicate organ we know it to be, it was not the seat of the senses, these they located in the abdomen. The diaphragm and intestines were to them the seat of the emotions, and all the higher mental and sensory centres of the organism.

In cases of headache the patient was supposed to have a disease-demon or ghost in his skull, and in its endeavours to gnaw a passage out it set up the pain-dul symptoms. It was natural therefore that they should seek to give relief by aiding the escape of the demon, and this the Loyalty Islanders (1) did in the following manner. The scalp was slit up and folded over, and the skull thus bared was scraped with a fine-edged shell till the dura-mater was reached. A little blood was then allowed to escape and with it the demon departed from its prison. In some cases the scraped aperture was covered over with a thin shield of cocoanut shell, in other instances the incised scalp was simply replaced. This "cure" was naturally fatal in some cases, but it is said most

(1) (88)2 339.
Trephining.

cases recovered. To such an extent was this operation for the relief of headache carried on, that sharply pointed clubs (as in diagram given below) were specially made for the purpose of striking the weak part of the skull and causing speedy death.

"Skull Piercer." (Loyalty Islands).

In cases where from a blow of a heavy club the skull was severely fractured the Boraborans (Society Islands) are reported to have exposed the bone, and having removed the fragments, substituted a piece of cocoanut shell and replaced the scalp flap. Ellis(1) who reports this had no doubt that it was done. "It is also related" he says, "although" he adds with perfect gravity, "I confess I can scarcely believe it that on some occasions when the brain has been injured as well as the bone, they have opened the skull, taken (1) (85)

10.
Head Injuries.

out the injured portion of brain, and having a pig ready, have killed it, taken out the pig's brains, put them into the man's head, and covered them up. They persist in stating that this has been done; but add that the persons always became furious with madness and died.
Native Terms:—

**Tooth, niho.**

Toothache, nihohui, nihokai, kai, (Haw.)
toke, (Paum.).
nihotunga, tungaraupapa, (N.Z.)
(toke, tunga tuha - a worm or grub). nameae onga niho (N.Z.).

Decayed tooth, Niho-tunga (N.Z.) tunga (N.Z.)
uga (Sam. Tong.).

To extract a tooth, Fa'i (Sam.).

Alveolar abscess, Tunga-puku (N.Z.); io-puku (Haw.)

Anatomical Peculiarities:—

At Rossel Island (1) in the Louisiade Archipelago
(N. Guinea) the rare anomaly of macrodontism is not
unfrequently seen, "several teeth being joined together". I am not aware that this condition occurs elsewhere in Melanesia.

An interesting condition of the incisor teeth is found in the Australian aboriginal. It was first noticed by Eyre, and since then the subject has been freely discussed. Dr. Shand, of Port Elliot states that in order of dentition and differential characters the permanent of the Australian blacks are similar to those of Europeans, but are more substantial. Approaching middle-life the surfaces of the incisions are very much altered in appearance and in old age are most

---

(1) (89) 62 436.

Prof. Sir W. Turner places the Australians in the Megadont Group.
Teeth.

interesting. Towards middle-life they are not unlike the nippers of the horse, but as the wear continues the surface is not only flat, but the relative measurements change, and the teeth measure more from before backwards than from side to side. Dr. Shand does not believe that any section of the teeth in the young adult could be shaped to condition presented in middle-life, as the measurement from before backwards is distinctly increased by use. Mr. Taplin attributed the change "to the attrition of masticatory fibrous substances" and to the chewing of fibre for the purposes of making twine. He saw instances where the crowns of the molar and tops of the incisors were quite levelled by this practice. In childhood the teeth are like our own but Eyre points out that in later years no difference exists, in many cases, between the incisors and canine teeth. Sir. Wm. Turner has pointed out that "in the incisor region, the lower dentary arch projected as far forward as the upper"; and there can be little doubt that this prognathous condition, by modifying the relations of the upper and lower incisors, results in the production of the flat-topped teeth with oval outline.

Dental Caries was of extreme rarity among these races prior to the introduction of Europeans' foods.

Teeth.

since then it has become much more frequent. The skulls of many of their natives show evidence of alveolar abscess, a condition which seems to have been unusually prevalent. The commoner site seems to have been the upper jaw at the roots of the incisor or premolar teeth.

Odontalgia they attributed, as do almost all primitive peoples, to the presence of a worm or grub which by its gnawing produces pain. For relief the Wonnarua tribe of Australian blacks resorted to scarifications of the gums, but the general method was to repeat charms calculated to entice the worm out. The Maoris repeated this:

(1)

He tuna, he tara,
Pu-ano-ano, pu-are-are,
Mau e kai i te upoko
O tana taratu.

Which being translated is:

An eel, a spiny back,
True indeed, indeed; true in sooth, in sooth.
You must eat the head,
Of said spiny back.

A young Melanesian woman of Bank's Islands had a reputation of power of healing toothache by a charm which had been taught her by an aged relative deceased. She would lay a certain leaf rolled up, with certain muttered words, upon the part inflamed; and when in

(1) (85) 1- 31.
course of time the pain subsided, she would take out and unfold the leaf, and shew within it a little white maggot that was the cause of the trouble. Romilly has seen somewhat similar practices in Scotch villages, the muttered incantation, and the removal of the worm.
THE GENITO-URINARY SYSTEM.

We have already referred to Hydrocele, &c., and wish to refer here to several other conditions, most of them of rare occurrence.

(a) **STRUCTURE OF THE URETHRA**

Stricture of the urethra (totoi, aka-toto-hi) in spite of the prevalence of gonorrhoea is very rarely met with.

(b) **URINARY CALCULI.**

In Polynesia, Australia, and New Zealand calculus counts amongst the rarest diseases. I know of no recorded case of stone being found in the natives of any of these places. One surgeon who had ten years experience among the New Zealanders never saw a native suffering from this condition. He attributed this to the prevailing vegetable diet, and the free use of pure water, the latter tending to produce urine of low specific gravity, and comparatively free from uric acid.

The only record of calculi we know concerns preputial concretions, and they may be considered here. Croft gives an account of the removal, by a Fijian medical officer of certain preputial calculi from two
Solomon Islanders. In one case twenty-two small stones were removed and in the other a single calculus weighing one ounce 110 grains. *Congenital phymosis* is said to be rare among these natives. (Gould & Pyle).
Native Terms:--

Hydrocele Sik (N. Caled.).

Hydrocele, lymph scrotum, and early cases of Elephantiasis of the scrotum, which may occur together, or may succeed one another, are often seen in tropical Polynesia. In Fiji hundreds of cases are treated by the Government medical officers every year. In Tahiti, Navigators Island or Samoa, New Caledonia, &c., this condition is likewise of considerable frequency. Amongst the Maoris it does not seem to be more common than with Europeans. There can be little doubt that the condition of lymph scrotum, dependant upon the presence of the filaria parasite, is frequently taken for simple hydrocele to which it bears some slight resemblance in external appearance, but from which it differs absolutely in its etiology and morbid anatomy. In the lesion due to filaria the scrotal tissues are soft and studded with numerous blebs and varices containing lymph in which the organism and its ova may be found. If these are punctured a profuse discharge of lymph occurs and may continue for hours. The inguinal and femoral glands are also generally enlarged, and abscesses of the parts are not uncommon. The disease is chronic, and
Hydrocele.

commences with an attack of inflammation, and afterwards there are occasional discharges of lymph from different parts of the scrotum, and renewed attacks of fever. The testes may be unaffected, and there may be hydrocele present. The scrotal tissue is soft, but irregular, and covered with the vesicles as described. Lymph scrotum may develop into elephantiasis of the scrotum, and amputation of the diseased scrotal tissue, though sometimes resulting in cure, may set up chyluria or elephantiasis of the lower limbs.

The *Filaria nocturna* is doubtless the cause of this condition, which by former writers was attributed to the direct effect of the tropical climate, or more commonly to the "relaxation of the tissues" or "loss of tone," also sexual excess which was supposed to lead especially to the production of hydrocele.

The treatment adopted by the Fijians in cases of hydrocele, is that of tapping by means of a *sui-ni-beka* - the hollow humerus of the *pteropus* (flying-fox) - a form of surgery, crude and risky, though giving temporary relief. The natives of other parts of Polynesia, and the Maoris seem to have had no means of relieving the condition.
HERNIA.

Native Terms:--

Pitohite (umbilical?)
Whaturuma (N.Z.)
Hua-gakau (Paum.)
Gacagaca (Fiji).
Paulele (Haw.) "flying swelling."
Hualele "

Hernia is common enough at Fiji, New Caledonia, and among the Maoris. In the New Zealanders inguinal hernia sometimes becomes strangulated and proves fatal. Double inguinal or labial hernia has been seen in a Maori woman.

Umbilical Hernia is not uncommon and seems to be the result of mismanagement of the umbilical cord, which is sometimes cut too short, or is twisted in such a manner as to induce this condition. The umbilicus is often prominent and simulates a hernia when no such condition is present. This may be due to cutting the cord at too great a distance from the child's body.
PHALLIC MUTILATIONS.

1. Superincision.
2. Circumcision.
3. Subincision.
4. (Introcision).
PHALLIC MUTILATIONS, &c.

Native Terms:-

Hawaii. 
Circumcision = ulekahi, okipoepoe, Kahiomaka.

(ule = penis; olomua, iliomaka, omaka = prepuce.

To circumcise = Kaheule, omaka.
(Kahi = to cut; Kahe = to cut longitudinally.
The prepuce which is cut off = olomus omaka.
To bandage up the wound after circumcision = omua.

Australia. 
Circumcision = ngungrr, lartna.

Polynesia. 
Circumcision = tefe (Sam., Tong.,) camo, (Fiji).
Superincision, anta (Tah.); tehe (Tah.);
prepuce = lolo oole (Tong.);
vai uretehe (Tah.) a disorder caused by the custom of tehe.

New Zealand. 
Putete (a kind of circumcis. pract. by a few.)
circumcised = ure-kotia, tehe.

The operations included here are partly ceremonial and in few cases are done for the purpose of curing disease, they may be classified thus:-

(1. Superincision.
(2. Circumcision.
(3. Subincision.
(4. (Introcision).

Introcision, an operation on females, though mentioned here as it is analogous to the phallic operations, is treated in the section for diseases of women.
Superincision is done only by the Polynesians chiefly at Hawaii, also Tahiti, Tonga and Samoa, and perhaps at New Caledonia. The operation is performed thus at Samoa. A narrow slip of wood, of a convenient size, being wrapped round with gnatoc, is introduced under the prepuce, along the upper or anterior part of which a longitudinal incision is then made to the extent of about half-an-inch, either with bamboo or a shell (the latter generally); this incision is carried through the skin but not quite through the whole thickness of the prepuce, the remainder being afterwards torn with the fingers: the end of the penis is then wrapped up in a leaf of a tree called gnatai, and is secured with a bandage: the leaf is renewed once a day and the boy is not allowed to bathe for three days.

Circumcision is extensively practised amongst these races and the geographical distribution of the custom is by no means devoid of scientific interest. The accompanying map gives a general idea of this distribution. In Australia it is significant fact, A razor is now substituted.
Circumcision.

for which no explanation can be offered, that it is, speaking generally, a characteristic of the western tribes as distinguished from those on the eastern side of the continent. Nowhere on the east coast was it in vogue, nor even in the territory of Port Philip, nor anywhere between Port Philip and Moreton Bay, except amongst a few tribes in the intervening interior. The operation was customary amongst the tribes of the Gulf of Carpentaria, at the east of St. Vincent Gulf, round the head of the Australian Bight, among the tribes east and north of a line drawn from Port Culver on the South coast by Mounts Ragged, Yeramungup, and the Wongon Hills, to the Geraldine mine on the Murchinson River, where the line from thence carried northerly approaches nearer the coast. The operation of Circumcision is also more or less generally performed at Hawaii, Marquesas Islands, Samoa, Fiji, New Hebrides, New Caledonia, New Guinea, and with extreme rarity in New Zealand.

The origin of the custom of circumcision amongst these races is lost in the clouds of antiquity, and the act has now degenerated into a mere frivolous fashion, or a rite done "because our fathers did it." Just as the European youth welcomes the first appear-

(1) Ratzel, p. 307.
Circumcision.

ance of the moustache so the Samoan youth looks upon himself as a man after circumcision - in each case it is the sign of early manhood, and adds favour in the sight of the other sex. A Samoan girl refuses to marry an uncircumcised male - and consequently such an object is a rara avis. Pritchard saw one and he "was a byword amongst them all, and the constant butt of the jeers and taunts of the lads of the village." The Central Australians claim that the gods introduced the custom and they have continued to practise it in their semi-religious rites. They say two personages who lived in the western sky, and were called Ungambikula (i.e. self-existing), came down to the earth and performed the rite of circumcision on certain, but not all, of men, using for the purpose a fire-stick. Later the stone-knife was used by the men of the little hawk totem (ullakupera). At a later period the operation of subincision was introduced by the "Achilpa" or men of the wild cat totem. Some Australian tribes when questioned could give no other reason for the operation than that without it they were "all the same dog." Others appear to resort to it in order to prevent for a time the intrigues of the young males with the women. The

In S. Africa it is the same.
Circumcision.

Hervey Islanders' reason was 'so that the lad might become a finer man.' The custom is almost unknown in Melanesia; it is practised, however, at Ambrym, and has spread from there to Pentecost in recent times. It is not a mark of initiation and has no religious or superstitious character; it is a social distinction. It is interesting to note the recent spread of the custom westwards to the southern New Hebrides, and the further spread northwards through that group. In New Guinea, when a great man is dangerously ill a family council agrees that his own or his brother's son shall be circumcised as a 'soro' or propitiatory offering for his recovery. Other lads offer themselves for circumcision along with him. They are circumcised in the 'vale tambu' ('the sacred house'), and their foreskins are carried by the priest in cleft reeds to the Nanga, and the priest, holding these in his hands, offers them to the gods, and utters incantations for the sick man's recovery.

The Operation.

The Fijians simply draw forward the præputium, and cut off a section. With the Marquesans, the operation, called by them tehe, must be done in a
new or sacred house, dedicated to the god Nukukoko. With the Australians the operation forms part of a very elaborate ceremony lasting several days. During the corroboree, the dancing suddenly ceases, and the noise of the 'bull-roarer' (orula), warns the lubras (women) and children to retire to their camps. When they are all out of sight a large fire is made, around which the men congregate. One warrior produces a fighting shield, "Alkwurta," and kneeling on one knee holds the shield over his head. Two men then seize the ulpmerka (youth about to be circumcised), who generally goes quietly, and places him in the hollow of the shield, where he is held by two others. The operating "medicine-man" (railtchawa) seizes the penis, saying, "Etrirra itchela warae wula niu ippira twa-el amunga." - ("Dont be frightened; you will be a man directly."). The glans penis is then pushed back with the finger, the foreskin is pulled forward and stretched as tightly as possible, and then quickly hacked off with a small stone knife. During the operation the warriors who are around sing in fierce tones, with their beards pushed between their teeth the following:-
Circumcision.

Irri yulta yulta rai
Ul katchera ul katch ar-rai.
Irri yulta yulta rai
Ul katchera ul katch ai.

In some places (near Alice Springs, C.A.) the prepuce, after removal, is handed to the young men, who, in turn, pinch up between the finger and thumb, a piece, which is cut off by the operator and eaten by them. The blood which flows from the wound is made to drip into the hollow of the haft of a shield, and, after the operation, this is passed round amongst the lubras, who dip their finger into the blood and anoint the pudenda until the supply is exhausted. In some cases the blood and prepuce are buried in ashes or burned. The patient rarely displays any emotion under the knife. Healing is complete in about six or eight weeks. (1) In some cases the operation is performed on a sort of operating table composed of human bodies, as shown in the diagram. It is made thus; one man goes down on his hands and knees. Under his belly, from either side, crawls three or four others who similarly resting on their hands and feet support number one. The patient is stretched on his back at full length on the top of this living mound of men, while another is seated astride his prostrate body. The operator then saws

(1) (89)149 IV. 169.
Circumcision.

A Group of Luritchas (Tempe Downs. Central Australia.)

The Operator is about to perform circumcision with his stone knife. (From Rept. Horn. Scientific Exped.)
off the prepuce with a piece of sharp stone. In some parts of Polynesia a group of boys will go away into the jungle and perform the operation on one another.

Some tribes in Australia who do not perform circumcision, subject their males at puberty to the painful ordeal of having their arms tied tightly round above the elbow, when the arms and hands swell and become powerless, in this state they are kept for some weeks, being hand fed by their friends during the time. In some places girls are similarly treated at the onset of the menses.

Maoris and Tasmanians cultivated abnormally long prepuces, and had devices for gaining that result. The latter people were continually stretching the foreskin, and the Maori male, after puberty always had the prepuce tied over the glans with a piece of string. It is a custom they are most particular about. Should a New Zealander be discovered having his glans penis uncovered with the prepuce, he is held up to ridicule and treated with as much contempt as is the uncircumcised Samoan. This custom of elongating the prepuce and keeping the glans carefully covered is peculiar to these people I believe.
(3). SUBINCISION.

Synonyms:-

"Mika."
"Terrible Rite."
"Arilta."
"Atna-ariltha-kuma."
("Toocolosi."")
("Gokalosi."")
"Koolpie."

This operation results in the formation of an artificial hypospadias and is performed by the tribes of Central Australia and in a modified manner by the Fijians and Tongans. With the Australians it is merely an initiatory rite but in Polynesia some definite therapeutic or healing virtue is attributed to it. With the former it is generally performed after the operation of circumcision, sometimes as soon as the wound has healed, at others not for months or even years afterwards. The time chosen in the Dieyerie tribe is when the beard has grown sufficiently to admit of the ends being tied, then a council of old men assemble, fix the site, and appoint a day for the operation, on the morning of which the young man is invited out to hunt. Not suspecting anything he is, at a given signal, seized - one of the party placing his hand on the young man's mouth, while others remove the yinka (human-
Subincision.

hair girdle) from his body. He is then directed to lie down, when a man is stationed at each limb, and another kneels on his chest to keep him steady. Or sometimes the arrakurta (young circumcised man) is seized and placed on the back of another man, who lies down for the purpose. Another man taking up a position astride of the subject, grasps the glans penis and puts it one the stretch. The operator, who is often, but not always, chief of a sub-tribe or group, then approaches, and with his stone-knife quickly but carefully lays open the urethra from below for the whole length of the penis. In some cases the penis is laid on a piece of bark before the incision is commenced. The extent of the cut varies with different tribes. Amongst the Arunta and Luritcha, &c., the operation is complete in the sense that the incision extends from the meatus to the angle of junction of the penis with the scrotum. Amongst some tribes on the sea-board of the Gulf of Carpentaria it is less completely performed, a portion only of the urethra being laid open, or a small hole being made which sometimes has to be enlarged. After the operation the Ertcoa-Kurka (initiated man) sits down on a shield into the haft of which the blood is
Subincision.

allowed to flow and from which it is emptied into the centre of a specially made fire. If much pain be experienced he will go to a heap of hot ashes and scooping a little hole in the centre, will place therein some glowing pieces of charcoal and upon these he

Knife for the operation of Subincision (Centr. Austr).

he will urinate, thus causing steam to arise which is said to give great relief to the pain. Sometimes a piece of bark is placed over the wound, and tied so as to prevent it from closing up. The operation is a very painful one and sometimes the patient struggles violently and makes a fearful noise, but generally is pretty quiet, being soothed by the voices of the attendant warriors who remark "Amba Kwerka etirra warri intilla" ("You are not a child now, don't be frightened don't cry out.").
In spite of the difficulty of the performance without the aid of an instrument that a surgeon would consider necessary as a guide, the medicine-man rarely fails to make his incision along the urethra, thoroughly canalising it. At the conclusion of the operation the young man goes away, accompanied by one or two others, and remains away from the camp until such time as the wound has thoroughly healed, applications of grease, earth, and ashes being made in the meantime. Until the wound is quite healed he is forbidden to eat the flesh of opossum, snake, echidna, and all lizards. Should he eat any of these his recovery would be retarded and his wounds would become much inflamed.

It is certainly a most extraordinary custom, and one would expect it frequently to be attended with serious results; but none such apparently ever follow. Nothing special is observable in the organ, except a shortening due, no doubt, to cicatricial contraction of the rudely made wound. Men who have passed through this ceremony are permitted to appear in the camp, and before women, without wearing anything to conceal their person.

Mr. J. D. Woods has described the operation thus:– “Os Walabii (Halmaturus) attenuatum per urethram immittunt illudque ad scrotum protrudrant ita ut premeat carnem. Scindent dein lapide acuto usque ad glandem penis. (87)30 The method we have described is the commoner one.
The object or raison d'etre of this custom is as obscure to the black-fellow himself as it is to us. He does it merely because it is the custom, no one willingly submits but all are operated on, and are doubtless glad when it is over. Many reasons have been suggested to account for the practice, most commonly it is thought to be done to prevent or check procreation. In the first place it does not do this. Every man throughout the central parts of Australia, in all the tribes in which the rite is practised, is subincised. Yet they have families of from two to five, and many of their other children are killed immediately after birth. Then again they do not believe that the child is the direct result of intercourse, so that the practice cannot be attributed to the desire to check procreation. The explanation that the practice has been adopted for Malthusian purposes is, in fact, one which implies a knowledge of physiological processes, which, as we have pointed out, we are not justified in attributing to people of the mental status of Australian aborigines, anymore than that we should attribute circumcision to a knowledge of the hygiene and pathological disadvantage of a long prepuse. The natives themselves, if they assign any reason at all, give no other answer than either that they do it for the purpose of improving the appearance
or that it is done in obedience to long established custom which was made imperative upon them by the command of a superior being. No explanation hitherto offered of this extraordinary practice can be considered satisfactory, and it is scarcely likely that any additional information on the subject will be forthcoming to aid in the solution of the problem.

The Fijian operation of Cokalosi is in some respects allied to subincision, it is an external urethrotomy, done by the Fijians for the avowed object of "letting out an accumulation of bad blood from the abdomen," and is usually resorted to in cases of pains in the back, whether due to pulmonary diseases or to rheumatism, lumbago, &c. It is especially performed in chronic cases, and is not only popular, but is believed in with implicit confidence by the Fijians of to-day in many parts of the islands, particularly in the hilly parts and the western plains of Viti Levu. This operation seems to have been adopted by the Tongans, who have learned their surgery from the Fijians, and is used by them especially for the cure of tetanus. It is done by passing a reed, first wetted with saliva, into the urethra, so as to occasion considerable irritation, and discharge of blood; and
if the general spasm is very violent, they make a seton of this passage, by passing down a double thread looped over the end of a reed, and when it is felt in the perineum they cut down upon it, seize hold of the thread, and withdraw the reed, so that the two ends of the coarse thread hang from the orifice of the urethra, and the doubled part from the artificial opening in the perineum; the thread is occasionally drawn backwards and forwards, which excites very great pain, and abundant discharge of blood. This operation Mr. Mariner saw done several times, twice for tetanus, arising in both instances from wounds in the foot; in these cases the spasms, but particularly the convulsive paroxysms were exceedingly violent, extending to the whole body. The moment the symptoms become evident tocolosi was performed. In the short space of two hours one of them was greatly relieved, and the other in about six or eight hours. The following day, one was quite well, and afterwards had no other attack; consequently the thread was withdrawn; but the other on the second day was not quite free from spasmodic symptoms, and a paroxysm coming on, the seton was moved frequently, which in two or three hours gave him great relief, and he afterwards had no other attack. The effect of this operation was a
Tocolosi.

considerable pain and tumefaction of the penis, but it gradually subsided (in about five or six days); the artificial openings in the perineum closed without any difficulty. In Tonga about 3 or 4 in 10 cases of Tetanus seem to have recovered where this operation is done, but the Fijians have better results than the Tongans; this operation is adopted in cases of wounds in the abdomen, upon the mistaken idea that any extravasation of blood into the cavity of the abdomen is capable of passing off by the discharge from the urethra. It is also performed for the relief in cases of general languor and inactivity of the system; but, in such instances, they only endeavour to produce irritation by passing the reed without any thread or artificial opening. (1)

These urethral mutilations seem to have been practised also by the Egyptians, for Herodotus remarks that the men in some parts of Egypt sought a sitting posture while they urinated, on account of the termination of the urethra being on the inferior side of the base of the penis, artificially made their in order to prevent conception. Mayer of Vienna describes an operation of perforation of the urethra among the Malays; and Talor and Micklucho Maclay report simi-

(1) (81) 242.
Tocolosi.

lar customs among the Dyaks and other natives of Borneo, Java and the Phillipine Islands.
SURGERY OF THE TESTICLE.
Native Terms:

Castration) Omaka, kahe, poa, (Haw.);
To Castrate) Tehe, (Marq.);
Kahe, (Haw.);
Atai, (Ancity.);
Boka (Tong.);

Bunuch. Tangata foca (Tong.);
Poa, (Haw.); Poaia, (Haw.).

Testicle (s) Burru (N.S.W.).

Polynesian prisoners of war were often castrated and made slaves. The Maoris and perhaps the Australians were acquainted with the operation. The Tongans were very subject to enlarged testicles, and for relief resorted to the operation of boca (castration). Venereal diseases, tubercle and new growths seem to be the chief factors in causing these enlargements. Their mode of performing the operation is crude enough. A bandage being tied with considerable firmness round the upper part of the scrotum, so as to steady the diseased mass, at the same time that the scrotum is firmly stretched over it, an incision is made with bamboo, just large enough to allow the testicle to pass, which being separated from its cellular connections, the spermatic cord is divided, and thus ends the operation. They neither tie the cord nor make
any attempt to arrest the haemorrhage; but, if the
testicle be not very large, and the epididymis not
apparently diseased, they perform the operation by
dissecting it from the body with the bamboo knife.
The external wound is kept from closing by a pledget
of banana leaf, which is renewed every day till the
discharge has ceased; the scrotum in the meantime
being supported by a bandage. A profuse haemorrhage
generally results, but the mortality seems to be
slight. Mariner knew a Tongan who performed the
operation on himself: his left testicle was much
enlarged, being about five or six inches in diameter,
and the seat of severe lancinating pains; two or
three times he was about to have the operation per-
formed by a Fijian native surgeon, but his courage
failed him at the last moment. One day he suddenly
determined to perform the operation himself; and it
was not much sooner said than done. He tied on the
bandage, opened the scrotum with a very steady hand,
in a fit of desperation divided the cord and cellular
substance together, and fell senseless on the ground;
the haemorrhage was very great, and he was confined
to his hut for two or three months afterwards. An
exceptional case is recorded from Tonga of a man, both of whose testes were enlarged with what appeared to be a form of sarcoma. When he stood up, his feet were necessarily separated to the distance of three-quarters of a yard, and the loaded scrotum, or rather the morbid mass, reached to within six inches of the ground; the man's general health was not bad; and he could even walk by the help of a stick, without having any sling to support the growth. It was specifically lighter than fresh water, and considerably lighter than salt water, so as to produce much inconvenience to him when he bathed. I am not convinced that this case, recorded by Dr. Martin, was not one of Elephantiasis Scroti.
C A W S O.

(PARACENTESIS THORACIS)
CAWSO (PARACENTESIS THORACIS).

Cawso is a Tongan operation which is performed to allow of the escape of extravasated blood, which may have lodged in the cavity of the thorax, in consequence of wounds; or for the extraction of a broken arrow. There are no other instances where they think of performing it. Mariner's account (1) of this operation contains the finest and most detailed account of Tongan, or even Polynesian, Surgery which we have, and the following account is based on Martin’s description from Mariner’s notes.

The instruments used are a knife of bamboo and a splinter of shell; sometimes also a probe made from the mid-rib of a cocoanut leaf. The operation about to be described was performed upon a Fijian who had received a barbed arrow in the right side, between the fifth and sixth ribs; about an inch posterior to the nipple line. The arrow had broken off about three inches from the point and from the respiratory movements the whole piece was drawn in and perfectly concealed from view. The patient was placed on his back, a little inclined to his left side; and this was considered the best posture for the operation. The day was fine and clear and the weather warm; had
it been rainy or cloudy, or the patient felt himself cold, fires would have been lit in the house, and a burning torch held to his side to allow of muscular relaxation. The wound had been received the day before; and on pressing the finger upon its orifice the broken end of the arrow could now be felt. In the first place the operator marked with a piece of charcoal the situation and length of the intended incision, which was about two inches; the small arrow wound being at its centre. The skin was now drawn upwards so that the black line lay upon and parallel with the superior rib; an assistant pressing his hand above, and another below the situation of the intended incision, with a view to keeping the integuments firm and steady, a procedure rendered necessary by the comparative bluntness of the cutting instrument. The surgeon having now chosen a fit piece of bamboo, began his incision, and carried it down to the bone, the whole length of the mark, which was done with five or six sawing motions of the hand, aided by considerable pressure; in this part of the operation a shell knife is not used because of its liability to break. The skin and subcutaneous tissues being now allowed to return to their natural situation the incision was
cautiously continued with a sharp splinter of shell, mid-way between the two ribs, dividing the intercostal muscles to nearly the same extent as the external wound, to allow of the introduction of a finger and thumb to lay hold of the arrow-head; during this part of the operation, however, the end of the arrow became visible, protruding between the ribs at every expiration. The operator, as soon as possible, secured it with the finger and thumb of his left hand; whilst with his right he proceeded to widen the incision on either side, that he might take a deeper and firmer hold and secure if possible, the second row of barbs. To facilitate the operation, he now slipped the noose of a string over the barbs he held between his finger and thumb, and having secured it, his left hand was no longer in the way of his right; for by drawing the string as far as prudence would allow, he kept it pressed upon the superior rib, and thereby preserved the arrow from receding at every inspiration. The incision was carried through to the pleura, so as to allow of the introduction of the finger and thumb of the right hand, with which he endeavoured to disengage as much as possible what was obstructing the barbs; whilst with his left finger and thumb he laid hold of the end of the arrow,
kept gently twisting it, always the same way, so as to break down those obstructions which could not be removed with the other hand, taking care, however, not to use too much force lest the barbs be broken. In this manner, in about two or three minutes, he withdrew the arrow, bringing with it a small portion of the lung tissue which could not be disengaged. During this part of the operation the patient was almost insensible, he was held by those about him, to prevent any mischief arising from his struggles, which at times were very violent. He was then turned so that the wound was the most depending portion of the thorax; having regained sensibility, the operator desired him to make a deep inspiration, and to continue to do so from time to time, but not so as to fatigue himself, and occasionally to move his body gently; by this means a considerable quantity of blood was discharged from the thorax. A few hours later a portion of banana leaf smoothly folded several times, was introduced between the ribs and moistened with cocoanut oil, the whole acting as a drain. He ordered his patient to be kept perfectly quiet, not to be spoken to; No noise to be made, nor his attention to be attracted in any way; to live chiefly on vegetable diet, or if he had any kind of meat,
Cawso.

fowl in preference to pork, or if pork, it was to be very small in quantity and without the least fat, with cocoanut-milk for drink in any quantity that he felt disposed to take. The first night he had a good deal of pain, much thirst, and little sleep; the following day he was much easier, a great deal of blood was found to have discharged, and a fresh drain was introduced, which was renewed daily so long as the discharge continued. In about nine or ten days when the sanguineous discharge ceased, the operator probed the wound, to be sure that the cessation was not due to any obstruction; a smaller drain was then applied so that the wound might not heal up too soon; and the patient was allowed to change his posture occasionally. The wound healed in about six weeks, without any sort of dressing or washing. The patient was confined to the house for about two months, and was not perfectly recovered about a year, when he seemed as healthy as ever, with scarcely any cough having supervened in the meanwhile. This was considered a very dangerous wound, and a very well conducted case.
Cawso.

It often happens that the arrow, not being a barbed one, is withdrawn without any difficulty; but still the surgeon thinks proper to perform the operation of Cawso, not by enlarging the wound made by the arrow, by by making another at some little distance from it, in a part which from judgment or education, he deems more safe and proper. It is generally done in the same site as the one above described.

The wound was never washed, and the patient is not permitted to bathe until the wound is nearly healed, nor can he shave, cut his hair, nor his nails, for all these things they say are liable to produce gita (tetanus), unless the wound be of such a nature, and in such a situation, that it may with safety be first laid completely open, then there is no danger. The declare that persons have often got tetanus who washed themselves too soon; and they never allow females to be near wounded men, lest the mere stimulus of veneral desire should induce this dangerous complaint.

This then is an excellent example of their crude though often efficient, surgical procedures. They bore great pain with excellent fortitude and employed no anaesthetic, recovering from operations, which almost certainly would have proved fatal to a white man.
ELEPHANTIASIS.
ELEPHANTIASIS.

ELEPHANTIASIS SCROTI(?) with marked Papillomatous growth. (Tonga).
ELEPHANTIASIS ARABUM.

Native Terms:

Ma'ima'i
Mimi
Hekeheka
Laso-mimi
Fee-fee
Fa-Fa

Elephantiasis (Sam.)
" (Paum)
Elephantiasis of the Scrotum.
A disease resembling Eleph. (Tah)
Elephantiasis. (Soc. Isl.

Distribution in Polynesia.

In no part of the world is elephantiasis more common than in the Society Islands (1) in south-eastern Polynesia. This group includes also the Georgia Islands.

Society Islands.

Fa-Fa or elephantiasis is said to be common here in the islands of Tahiti, Raiatea, Tahaa and

(1) (84) 129 - (89) 166.
Elephantiasis.

Huahine. According to Saville, in the latter island "at least seven-tenths of the male population who have reached the age of puberty are suffering more or less from *Bucephalia tropica*" (elephantiasis). Gros\(^1\) gives a somewhat lower proportion for the same island; he says that one-twentieth of the entire population is not an overestimate. This disease seems to have prevailed in the Society Islands from the most remote times. The natives have no method of treating the condition and look upon it as quite uncurable. The feet and legs are said to be most commonly affected. One observer writes: "I saw at Rurutu, a lone island, some two days' sail from Tahiti, a sailor - a white man - his hair and beard unshorn, his face deadly pale and haggard, and one limb swelled with the Fa-Fa to an incredible degree. This was the first instance of a foreigner suffering from it that I had ever seen or heard of." Europeans are not very commonly affected with Elephantiasis in Polynesia. Cases occur among the natives of the adjacent Gambier Islands\(^2\) and in the Marquesas Group\(^3\) to the north east. Passing westwards to the Samoa or Navigator's Islands, we find the disease also extremely prevalent, and

\(^1\) Arch. de Med. Nav., Mai, 1892.  
\(^2\) Voyage aux îles Mangereva, Lesson, 1845.  
Elephantiasis.

according to Turner, 50% of the natives suffer from it, or Lacroix says, one meets a person with Elephantiasis at every step of the road. Wilkes observed many of the Samoan women affected with it. The natives think that Ma'ima'i (Eleph.) producing great enlargement of the legs and arms, has somewhat abated, only, they say it prevails among the young men more now than it did formerly. Raynaud reports cases from Wallis Island near Samoa. In Fiji we find numerous cases of scrotal enlargement, the disease in these islands being very frequently associated with the genital organs. One unusual form consisting of the formation of pendulous elephantoid masses,

![Pedunculated elephantiasis of Groin](image)

weighing several pounds, dependent from Scarpa's triangle, is found in Fiji, in the proportion, it is estimated, of about 1 to 10 cases of scrotal elephant-

(1) (86) - 221.
(2) Etudé Med. de la presqu'ile Ducos. 1879.
(3) (89) 164 - (89) 148.
(4) (89) 164 - I. 17.
© From (89) 165.
Elephantiasis.

Dr. Corney, removed one from a Fijian, which weighed 20 pounds. In the scrotal form the testes are not damaged by the disease - although apart from Elephantiasis, the Filaria organism occasionally sets up a form of orchitis - and instances are not wanting in which men have become parents after the removal of elephantiacal tumours of the scrotum. About a dozen such operations are performed on Fijian patients at the Colonial Hospital annually. Goodman (1) successfully removed such a tumour from one of these natives aged 45. The tumour weighed 42 pounds without taking into consideration the weight of the fluid which escaped in abundance during the operation. Another Fijian was relieved of a scrotum weighing 120 pounds. In the islands of Rotuman (2) over 10 per cent. of the population - principally males - suffer from elephantiasis; and it is a well known fact that a considerable proportion of the few Europeans who have lived on the island have also contracted this disease. Sir Wm. McGregor believes elephantiasis is less common in New Guinea than in Polynesia, and he attributes this, in some measure, to the more judicious selection of sites for the Papuan villages. The

(1) Lancet, 1876, II, 889. (3) (88) 44 - 46.
ELEPHANTIASIS.

ELEPHANTIASIS OF THE ARM in a Samoan.
Elephantiasis.

disease has never attacked any of the white population of British New Guinea. It is declared that the cases are scattered and met with in many districts of the possession, but it is no where so frequent that it could be considered endemic. In New Zealand cases are rarely if ever seen. Dr. Thomson, writing in 1855, declared that he had seen one case in a Maori, in the interior of the North Island; it was a doubtful case, apparently, for he calls it modified elephantiasis. This seems to be the only instance reported of such conditions in this branch of the Polynesian race. Hirsch declares that Australia (as well as New Zealand), is a country in which the disease is localised. No cases, however, have been observed in the Australian aborigines.

Race.

We have referred to the comparative immunity of the whites generally, in Polynesia, from elephantiasis, but have found that Rotumah is an exception. Huahine in the Society Islands, is another place where a number of whites have acquired the disease. Saville and Gros have found that when foreigners at Huahine, adopt native habits they sooner or later acquire this disease. In 1873 of the fourteen Europeans resident

(1) (85) 522.
ELEPHANTIASIS.

ELEPHANTIASIS SCROTI
in Samoans.
Elephantiasis.

in most cases from the eating of unripe bread fruit and Indian turnip. (1) Manson (2) believes that:-

Parent female filaria in the affected part becoming injured, abort and expel ova; these ova act as emboli in the lymphatic glands and cause lymphatic stasis. Lymphangitis follows, and recurring, leads to hypertrophy of the part.

Treatment.

Perhaps the only treatment adopted in Polynesia has been amputation by European surgeons for the most part. Turner, in Samoa, claims to have operated 136 times with only two deaths. The enlarged scrotum is commonly removed in Fiji.

(1) (84)\textsubscript{6} - 129. \hspace{1cm} (2) (89)\textsubscript{165} - 458.