# Primitive African Medical Lore and Witchcraft\*

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#### ABSTRACT

This article presents a comprehensive study of the methods, practices, equipment, and paraphernalia of African witch doctors in carrying out primitive medical practices. The chief tribes studied are the Azandes of the Sudan, the Manos of Liberia, the Congo tribes, the Bundas of Angola, and the Zulus and other Bantu tribes of South Africa. Primitive beliefs and customs are discussed only insofar as they have a direct bearing on medical practices. The medical practices considered deal mainly with the application of general remedies for ailments and diseases, but certain specialized fields such as obstetrics, surgery, treatment for fractures, and dentistry are also included. Primitive medicaments are presented with reference to their application for various illnesses. An alphabetical list of these medicaments is given at the end of the article.

#### WITCH DOCTORS' TECHNICS†

THE little medicine man and his two assistants shouted incantations and danced wildly around the sick man lying on a grass mat in an open space.

The villagers, gathered in a circle around this scene, took up the dance and chant of the witch doctors a few at a time and accompanied them until all the inhabitants were chanting and dancing around in a circle. Each one knew every step of the dance and every tone of the incantation. The witch doctor dared not make a mistake if he were to remain powerful in the eyes of the villagers. Some of the women were his helpers and carried gourds filled with the herbs and other remedies which he would prescribe.

After the dance, the conjuror further impressed his audience with his power by performing a feat of physical strength and endurance. He lay flat on his back while two men placed a huge square rock on his stomach. Then one of the men, using a stone ax, pounded the rock until it split in two.

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- † Unless otherwise indicated, all events and customs described in this paper exist at the present time or have been observed within the last twenty years.

Having duly convinced his audience of his mystic powers, he proceeded to attend the patient. He diagnosed the case immediately, explaining to his assistants that the illness was a mind troubled by the evil spirits of ancestors who had returned to torment the patient. But the incantations had lulled the patient and frightened away the evil spirits. He soon went to sleep. The Azande (commonly called Yom-Yom) tribe of southwest Sudan still treat their patients in this manner (1).

Bone throwing is practiced by witch doctors among the Bantu tribes of South Africa. The bones, instructed with the proper magic words, are supposed to possess the supernatural power of indicating the source of evil upon which the diagnosis is established (2).

The Zulu witch doctor sometimes attributes illness to swallowing a snake. In this case, he makes an incision in the patient's skin and releases a small snake which he has deftly concealed in his hand (3). This hoax is effective as long as the hypnotic performances or herbal remedies associated with the treatment temporarily relieve the sick man's pain.

The technics employed by witch doctors concomitantly in various parts of Africa are as heterogeneous as the cultures of the individual tribes. The Manos of Liberia were more accessible to foreign influence and consequently are more advanced than the tribes farther south. Their medicine men practice in a relatively conservative fashion. They conduct no chanting, shouting, or dancing, but have adopted a confident and even dignified bedside manner (4).

A ceremony as primitive as that of the Azandes was observed among the Bunda people of Angola (5). The witch doctor dispatched a naked boy to prepare for his arrival. The boy's antics produced an awestruck silence. Then the medicine man arrived and collected his fee. He was accompanied by a drummer who produced weird reverberations. The sacred fire was started; the witch doctor put on his bright-feathered, tasseled headdress, which enabled him to communicate with the spirits; and all was in readiness for the main performance.

The drummer pounded violently, and the witch doctor rattled a gourd and waved a cow's tail to call the spirits. He danced and chanted incantations until they finally appeared to him. It was difficult to keep them from straying away, and the conjuror worked until the perspiration came.

He uncovered a basket of symbols and asked the spirits a question. All the time the drumming continued, and the fire kept burning. The exorcist resumed his dancing and tossed the basket rhythmically up and down while chanting low incantations. This procedure lasted from ten to thirty minutes. Then the answer came, and the chanter stopped and held up the topmost symbol. This one indicated the spirit causing the disease.

It was important that the diagnosis be determined and a cure (a temporary one, at least) effected without unduly delaying the process, for the

whole tribe had gathered at the sick one's house. Failure of a person to appear was positive evidence that the absentee had bewitched the patient, and the inevitable penalty for this crime was death. During the entire period of illness, all the members of the tribe were guests of the patient's family, and a prolonged ailment could lead to an acute food shortage.

The tossings and incantations were resumed to find out why the spirit was angry. A chicken had to be paid the witch doctor to discover what must be done to placate the spirit.

However, no medicine could be obtained without a charm which cost another fee. Occasionally a patient wanted to know the remedy which cured him. This was a *very* expensive secret. It cost a sleek, fat cow.

#### **FEES**

Common treatments have long been generally known from neighborly conversation, and a sick person tries every remedy recommended by the members of his tribe, but the unrevealed or "valuable" cures are taught under oath of secrecy (4).

However, even the interchange of ideas by word of mouth is introduced by a small fee in order to preserve the status of medicine. A fee, paid in advance, is required for the transfer of knowledge, even among members of an immediate family, in order not to insult the medicine. An insulted medicine is not effective (4).

Consequently, witch doctors are very wealthy. They collect their fees in advance and charge an additional fee if a cure is effected. Payment is made with cattle, chickens, pigs, beans, corn, cotton cloths, cotton blankets, pounds sterling, and sundry other items of trade. Ownership of animals is an index of wealth, as is also the possession of extra wives (4). One witch doctor of a Congo tribe boasted of seventeen wives and eighty-three children (6).

#### REGALIA

Witch doctors seldom display professional regalia in public, but reserve it for active duty. They are openly recognized by secret signs, such as long hair subtly decorated with tiny strings of blue and white beads and other recondite symbols known only to the natives (7). Articles of apparel and paraphernalia vary among the different tribes according to cultural, geographical, and other factors.

One witch doctor of rural South Africa, when dressed for work, wore the skin of a jackal for a cloak. His headgear consisted of a leather band to which a cow's horn was attached on each side, with brightly colored feathers projecting between the horns (2).

The Swazi witch doctor wears a headdress from which python skins

extend for eighteen or more feet. These skins are obtained by the apprentice when he passes his final examination. For this test the youth is required to kill a python under water with no other weapon than a knife. The snake's skin then becomes part of the headgear, which is supplemented with a hideous mask. This demon-frightener also brandishes a whip made of tails of the gnu to discourage the boldest of devils (7).

Witch doctors of the Azande tribe lubricate themselves with chicken fat until their bodies gleam. Their cloaks are made of the skins of the long-haired black and white monkey, a rare species which lives deep in the jungle. An antelope horn, symbol of the profession, is carried under each arm. These horns are used as receptacles for remedies on special occasions only; i.e., in attendance on a tribal chief or his son (1).

Besides this paraphernalia, these witch doctors are adorned with headgears of chicken or wild bird feathers. They also wear amulets and anklets made of brown nuts fastened to a string. These ornaments rattle and bang impressively in cadence with the dance.

A witch doctor of a Congo tribe arrayed himself with a crown of parrot feathers and a leopard skin girdle extending to the knees. Multiple strings of beads, shells, and nuts decorated his neck, arms, and legs and clattered sharply when he walked. A necklace of leopard's teeth and two curly monkey tails hanging down his back completed his habiliment. His body was festooned with smears of white chalk, soot, and camwood paste<sup>5</sup> \*. Chanting incantations and prancing around in his motley costume, he was able to intimidate any evil spirit (6).

It is customary for Zulu witch doctors to carry their preparations in antelope horns and gourds hanging around their necks. These containers also serve as professional insignia (3).

On special occasions the animal skin with which the Zulu witch doctor drapes himself bears a particular significance. In one case, when a chief's wife was in difficult labor, three witch doctors were called. One wore a lion skin to represent strength. Another was attired in a deer skin representing the baby and docility. The third, adorned with a girdle festooned with feathers, danced continually around the squatting patient while beating a drum to scare away the evil spirits. Meanwhile, older women plaited a rope to be wound tightly around the patient's abdomen and forced downward to expel the child. The vagina, after delivery, was closed by inserting a grass ball containing herbal extracts (8).

#### EQUIPMENT

An inventory of the Zulu witch doctor's collection reveals a strange miscellany of materials. The assortment includes herbal remedies wrapped

\* Superscript numbers refer to the alphabetical list of botanical names at the end of this paper.

in small grass balls, powdered horn of rhinoceros, pieces of crocodile skin, feathers and skin of vultures, powdered cuttlefish bone, horse hair, powdered dried flesh of snakes, porcupine quills, bits of bark, dried insects, partially burned lizards, and many other heterogeneous articles (3).

The baskets used by Bunda witch doctors are made of intertwined withes and are strongly bound around the upper edge. They are round, shallow, and flat-bottomed and contain a variety of objects, including a small wooden image of the first witch doctor of the tribe (with the face and toes toward opposite directions), a model of a dugout canoe, a carved image of a woman with one leg and a figure of a man with a twisted neck, a bamboo stick with seven notches cut in a row, a spool (indicating a white person, since the natives have no thread), shells, an old knife blade, a bird's foot, the jawbone of an animal, a tiny foot with a cleft hoof, and many additional extraneous materials (5).

#### CHARMS AND SPELLS

Besides this equipment, the witch doctor maintains a plentiful supply of fetishes, or charms (2, 7, 9). A favorite charm provided by Bunda witch doctors to cure disease is a small antelope horn with the large end filled with black gum into which brown and red seeds have been stabbed. This device, with ceremonial incantations, is hung around the patient's neck (5).

There are also charms to counteract the effects of certain signs or natural events which are universally feared as indications of angry spirits seeking revenge (7, 9).

Unusual circumstances of birth are interpreted as portending evil and might result in the baby's being killed. Twins, especially, bring a curse upon the mother, since one of them is supposed to have been sired by an evil spirit. Ordinarily, one of the babies is killed by stuffing its nostrils with dust. If the twins are a boy and a girl, the boy is killed, but if they are of the same sex, the smaller one is killed (2, 7).

So strong is the universal belief of the natives in magic and so great is their fear of witchcraft that they are easy subjects for spells produced by power of suggestion alone. The "bewitched" patient develops aches and pains (chiefly abdominal), spasms, insomnia, anorexia, vomiting, diarrhea, and other symptoms, which often result in death. These disturbances are of mental origin, and the white man's medicine is ineffective in treating them. The only cure is rooted deep in countermagic which only the witch doctor can execute (8, 10). Usually, however, the subtle administration of a poison enhances the efficacy of a spell (4, 7, 8). This process requires the most skillful manipulation, since the penalty for practicing black magic is death, usually by poison ordeal. Although ordeals have been prohibited

by white magistrates, they still take place occasionally in various parts of primitive Africa (2, 6).

Many toxic substances are dispensed as medicines without harmful intention, and love potions which forsaken admirers innocently purchase from their witch doctors often contain deadly charges of noxious agents (3).

#### DRUGS AND PRACTICES

In general, the witch doctor's knowledge of the drugs and mixtures he uses is appallingly inadequate (2, 3, 7, 10). He has learned to associate certain symptoms with certain diseases and treats diseases having similar symptoms with the same remedies. He relies on his ability to propitiate the angry spirits causing the disease. And he never fails. If the patient dies, as is frequently the case, it is simply conceded that the evil spirit is stronger than the medicine.

From times past, witch doctors have gathered their herbs at night, using the left hand and speaking the magic words appropriate for each plant (4). They usually brew their concoctions in secret and do not call a medicine by name before the patient recovers. A sickness is credited with having a personality capable of hearing, and it must not know the agent endowed with power to expel it. There are medicaments for leprosy, abscesses, smallpox, tumors, sleeping sickness, common tropical diseases, and other illnesses (4).

Long before Edward Jenner performed his famous cowpox experiment in England, African witch doctors were inoculating for smallpox, using the live virus. They scarified the wrist and rubbed into it a bit of scab of a smallpox pustule from a person having the disease. Then they bandaged the wrist with leaves tied on with vines. A full-fledged attack of the disease followed, with high fever for a few days, but the patient generally recovered and was subsequently immune (4, 5).

The Mano tribes of Liberia have long practiced the custom of isolating contagious cases when the contagious character of the disease is recognized. But there are many diseases of this class which are not known to be communicable, and, on the contrary, there are noninfectious diseases which are considered as contagious. Thus, jaundice is supposed to be transferred by contact with the urine of a person having the disease, especially if the person is of the opposite sex (4). The Zulus believe that the flesh of the python, because of the snake's constrictive power, will prevent the spread of disease (3).

The Manos use counterirritants generally and make incisions for introducing them anywhere on the body (4). These incisions also provide an escape for the evil spirit causing the pain. Headache is universally

treated in this way, and a scarred bald spot on the crown often remains as evidence of this practice (3, 11). The ordinary treatment for headache, however, consists of tying a slender vine or a cotton string around the forehead (4). The Wadai tribe of the area east of Lake Chad tie a tight string around any part of the body to counteract pain; e.g., around the chest in case of pleurisy or around an abscess of the arm or leg. The Manos sometimes inhale fumes for headache and apply crushed leaves<sup>18</sup> topically. Occasionally they resort to cupping (4).

In addition to these devices, herbal remedies of all descriptions are administered in every possible way and to all parts of the body, with little emphasis on the patient's comfort. The Manos give enemas for constipation and rectal diseases by means of a long-necked gourd with the patient in the knee-chest position. For gonorrhea, an infusion of the bark and roots of certain trees<sup>19, 44</sup> to which salt and melegueta pepper have been added is taken into the mouth and blown through a long, hollow, reed-like stem carefully inserted into the urethra. Powders are blown up the nose to produce sneezing in case of convulsions or coma, and dried powder from the leaves of *Cassia* sp. is snuffed as a cathartic (4).

Poultices, ointments, lotions, infusions, teas, and rubbing chalks, as well as hot baths, medicated baths, and mud baths, are widespread treatments among primitive tribes (4). A black ointment composed of soot from the outside of a cooking pot, mixed with palm oil, and a poultice made of leaves<sup>27</sup> mashed and mixed with calcined snail shell and then moistened with water are common remedies for burns. Bruises are rubbed with medicated chalks, and sometimes leaves<sup>3</sup> or grass<sup>24</sup> are applied. An ointment composed of a weed<sup>45</sup> roasted in a pot over a fire and mixed with palm oil is spread over the shaved head for lice and fleas, and a mixture of cotton plant leaves,23 white clay (obtained from ant hills), and water is compounded into a paste to apply topically in diseases accompanied by an itching rash, i.e., measles. Dysmenorrhea is treated with a poultice of the leaves, shoots, and fruit of a plant of the nightshade family<sup>40</sup> placed under the abdomen of the patient lying face downward on a grass mat over the steaming leaves of Vanilla crenulata. Leaves and bark beaten and mixed with white clay are rubbed over the body for leprosy, and an infusion of fig bark<sup>22</sup> is used for washing leprous ulcers (4).

An infusion of the inner bark of Rauwolfia vomitoria is administered for fever, and the leaves serve as an emetic. Lime leaves, lemon grass, and leaves of "bitter bush" <sup>33</sup> are employed for febrifuge teas. A fine powder made from bark<sup>32</sup> and taken with water and palm wine is a powerful diuretic. An infusion of leaves of a vine of the buckthorn family<sup>24</sup> serves as an emetic and is applied externally to the skin for fever, and another infusion of a species of black pepper leaves<sup>38</sup> is given orally as a cathartic

and diuretic for anasarca and ascites. A cold infusion of one bark<sup>46</sup> is administered orally for jaundice and of another<sup>34</sup> for asthma. Ginger root beaten with purslane is made into a soup with water, meat, and salt for irritated throat, and bark,<sup>43</sup> stalks,<sup>2</sup> and twigs<sup>3</sup> are chewed to relieve cough. Powdered bark<sup>15</sup> mixed with water is used as a liniment. Earache is commonly treated with the juice of roasted leaves<sup>36</sup> squeezed into the ear. The leaves of the castor oil plant are chewed for malaria, and an extract of the roots is employed as an abortifacient (4).

The Manos, as well as other tribes, apply a tourniquet of bark in case of snake bite and administer plant juice<sup>30</sup> orally to promote vomiting in the popular belief that the poison is eliminated in this way. The wound is sucked through the leaves of an oil palm<sup>16</sup> placed in the mouth to prevent swallowing the venom. Occasionally, a small incision is made over the bite before sucking it. The Manos have an organized "Snake Society" which specializes in the treatment of snake bite (4).

Many common medicinal plants have found extensive application in the daily habits of African primitives (1, 4). The custom of eating kola nuts, containing caffeine, for their stimulating properties which relieve fatigue has continued to the present day. These nuts are sometimes used in preparations taken orally to prevent the nauseating effect of other substances. The fruit of a certain tree<sup>4</sup> is also eaten to obviate fatigue. Formerly, when the tribes fought each other, warriors made a practice of eating this fruit to enable them to endure long marches (4). Sugar cane has long been considered good for a sick person and is used as a general confection, and watermelon seeds, a favorite treat, are also believed to have medicinal value (1, 4). Smoking hemp and tobacco for their narcotic properties is still indulged in as a social custom and a general pastime (1, 4, 6). The fruit of the baobab tree (monkey bread) has been a popular food for a long time, while the leaves and seed pods are chewed as a tonic (1, 4). Extracts made from the leaves and bark of the yohimbine tree and from the leaves and fruit of chenopodium8 are also customary tonics (1).

Primitive medicine and magic are so unified in native culture that there is no sharp dividing line between them (4, 9, 10). Among primitive tribes, in general, the cause of disease is often attributed to breaking one or more of the manifold taboos which play a significant part in the lives of the natives. But specific remedies are believed to counteract the effects of a broken taboo. Accordingly, if a baby cries excessively, an event which implies a broken sex taboo, the Mano midwife rubs the leaves of a plant<sup>20</sup> between her hands, adds a little water, and squeezes the juice into the infant's eyes. Misfortune resulting from a broken food taboo can be averted by eating the leaves of plants<sup>10, 28</sup> which bear foliage covered with prickly hairs (4). There are numerous other counteractions against the

effects of broken taboos, each one effective in particular cases or under specific circumstances (4, 7, 9).

There are also certain beliefs which influence the eating habits of the people and are deeply imbedded in their culture. It is supposed that the characteristics of animals are transferred to humans simply by eating the flesh. In this way the strength of powerful animals, such as the lion, hippopotamus, and zebra, is believed to be conferred upon anyone who eats their flesh. This principle has been carried over into the medical practices of the Zulus and other tribes of Central and South Africa (3).

These tribes administer medicines made from the heart and eyes of the lion, organs regarded as particularly effective, in the treatment of nervousness and fear. The Zulus also use a remedy, for bleeding from the nose or mouth, composed of parts of an animal which bleeds freely, the flesh of animals having much blood, and the bark of the "umdlebe" tree, which contains bloodred sap. These ingredients are mixed and burned, and the ashes are placed on the tongue or introduced into incisions. The same tribe has a medicament for spasms and twitching of the flesh made from the "imfingezi," a small beetle which curls up into a ball when touched. Substances consisting of worms, sea anemones, and leaves that fold up at night are applied for the same ailments (3). The fat of the lion is considered indispensable in case of any severe illness.

Before the coming of the white men, parts of the human body were used for making strong medicines. Such medicines were supposed to be especially effective if the victim was killed by twisting his neck until it broke (3). Fortunately, the white man's laws have eliminated this practice among the Zulus and other tribes which adhered to it. Thus, a proclamation by the Governor General (Native Administration Act of 1927) of the Union of South Africa prohibited the advertising of any "native medicine which is alleged to contain or to be derived from the fat or entrails of a human being, animal, insect, reptile or any other thing, or a supernatural, legendary or mythical being" (10).

Now and then witch doctors have introduced foreign drugs, obtained from missionary doctors, into their native pharmacopeia (3). Such drugs as oil of eucalyptus, glycerin, iodine, and penicillin have been adopted and added to the store of indigenous African remedies, and many drugs of African origin, such as ouabain, capsicum, yohimbine, ginger, white squill, African kino, African copaiba, myrrh, buchu, physostigmine, and kola, have been included in our own materia medica.

In present-day Africa, treatment centers are established throughout the continent which, staffed with health officers, nurses, and technicians, are contributing their part toward the prevention and control of disease (12). Nevertheless, it is difficult for the natives to relinquish their primitive convictions, and the witch doctor still holds his inbred supremacy. Even when treated in modern hospitals or public health centers, the people consult their witch doctors, who add their cures to the previous medication by rubbing herbs into numerous incisions on the forearms. Fraudulent practice with antibiotics may have increased bacterial resistance; injections of penicillin being given right through the trousers is not an uncommon sight in Nigerian market places (12).

#### DENTISTRY

The Mano people of Liberia kill the restive "worm" supposed to be responsible for toothache by stuffing the cavity with a mixture of root scrapings<sup>35</sup> and powdered red pepper or with a mixture of red pepper seed and a few drops of extract of the young leaves of the Spanish needle<sup>6</sup> (4).

They employ "country salt" (potash), obtained by burning a certain plant, <sup>12</sup> for filling a cavity, thereby destroying the nerve of the afflicted tooth and demolishing the bone structure. Removing a decayed tooth by knocking it out with a hammer and nail or similar implements used to be a conventional South African practice. Several African plants <sup>11, 14, 29, 31, 37</sup> are excellently suitable for "tooth brushes," which the natives improvise as needed (4).

#### SURGERY

The witch doctor still has little knowledge of modern surgical technics or of anatomy (4). Nevertheless, there are examples of resourcefulness and ingenuity in his methods. Although his treatment is crude and rigorous from our point of view, his patients are much less susceptible to nervous shock than are people accustomed to a more lenient type of existence (4).

As a rule, the only anesthetic employed is the hypnotic performance for driving away the evil spirits, but counterirritants are also effective, and palliative herbs and alkaloidal extracts are frequently helpful in the treatment of serious wounds and fractures (1, 3, 4).

The Mano medicine men cut tribal marks into the skin and practice circumcision, first rubbing the area with leaves<sup>42</sup> which cause such violent itching that the cutting is a gratifying relief. Other leaves<sup>3, 25, 41</sup> are tied over the wound to control hemorrhage after these operations (4).

In the Bantu region, a fortified beer containing an extract of kaffir, methylated spirit, potato, and "carbide" (probably the calcium carbide of commerce) is given orally to alleviate pain when deep wounds from animals or warfare are sustained, and juices of alkaloid-containing leaves are sometimes applied topically (2).

Witch doctors of many tribes perform operations for cataract. They

squeeze the juice from the leaves of an alkaloid-containing plant directly into the eye to desensitize it, then push the cataract aside with a sharp stick. A surprising number of these cases turn out successfully (1, 5).

The Azandes remove superficial tumors and carbuncles by simply biting them off with the teeth, leaving the wound open (1). The Manos usually allow abscesses to rupture of their own accord, but they frequently dress them with poultices and lotions and occasionally make small incisions in the surface and apply counterirritants. The Masai of Uganda sometimes open abscesses by cauterizing them with a hot iron (4).

Cupping and bleeding are performed by witch doctors throughout primitive Africa in the treatment of many ailments: headache, fever, ulcers, respiratory tract diseases, abdominal complaints, etc. The device used is an animal horn cut off near the point. The blind end is perforated, and the hole is covered with wax and then pierced. If the area involved is the head, this is first shaved, then the skin is incised, and the large end of the horn, having been first soaked in water, is placed over the incision and sucked until the blood flows freely. Bloodletting is also carried out without the cupping horn (4).

Cupping and bleeding are self-explanatory to native reasoning, but transfusion is a different matter. It is logical to let blood out of a sick man's body in order to get the evil spirits out, but what on earth is the reason for pumping blood into anybody (2)?

A sharp bone, stone, or stick, the African's favorite implements for cutting, are used in case of serious wounds and in excising enlarged cervical glands which have long been recognized in the Benue district of Nigeria as a sign of sleeping sickness. The Banyankole tribe of the northern part of South Africa suture deep wounds, often with no previous treatment whatever, with strong thorns which they tie with tough vegetable fibers in the form of a figure eight. The holes through which the thorns are passed are made with a sharp awl (4).

Natives of the Congo and Northern Rhodesia are adept at closing cuts of a less serious nature without medical assistance. They hold large warrior ants, one after the other, over the line of the wound. The ant takes a bite with its pincers, and its body is adroitly snipped off and thrown away. The edges of the broken skin are thus clamped together with neat stitches which remain in place until forced out (13, 14).

One case is cited in which a native surgeon of Uganda in the late nineteenth century employed iron nails (with a sharp awl for piercing the holes) to close the wound after a caesarean operation. The patient had first been given all the banana wine she could drink and was then tied in bed. The medicine man bathed his hands and the patient's abdomen with banana wine, uttered an appropriate incantation, and proceeded to make a quick incision in the midline, open the uterus, and take out the child, while an assistant checked hemorrhage by cauterizing the bleeding points with a red hot iron. The placenta was removed, and a porous grass mat was placed over the wound until the fluid was expelled. Then the skin wound was sutured permanently with nails, which were held in place with tough vines, and dressed with leaves. It healed in eleven days (4).

The Banyankole tribe resort to cautery for deep wounds which are unusually grimy and ragged. They first apply juices of certain plants, then thrust a hot spear quickly into the gash. This serves both for disinfection and for checking hemorrhage (4).

A fiber pad is generally tied tightly over a wound to control bleeding. The Manos make poultices of bark<sup>39</sup> or leaves<sup>13</sup> to prevent hemorrhage from knife and cutlass wounds and use other species of leaves<sup>9</sup> for a wound made with any iron instrument. They apply the juice of roasted leaves of a plant of the passionflower family<sup>1</sup> to stop bleeding, and they irrigate deep flesh wounds with hot water in which leaves<sup>11</sup> have been boiled. After this, the juice of the wilted leaves is squeezed directly into the wound, which is then closed, and the rest of the leaves serve as a poultice (4).

The Mano people counteract severe infection from the teeth and claws of a leopard by washing the wound with water in which certain leaves<sup>26</sup> have been boiled and applying a paste compounded of the bark of the same shrub, clay from an anthill, and the juice of a banana stalk sufficient to moisten the mass. Sometimes dangerous wounds are treated with smoke from a smouldering fire built under a platform on which the patient lies (4).

There were cases recorded in the early twentieth century in which considerable skill was demonstrated in operative procedures. In the Bushland of South Africa an abdominal wound with protruding bowels was manipulated successfully by inserting a small calabash to hold the intestines in place and suturing the skin over it. Native surgeons of the Uganda district during the same period treated pneumonia and pleurisy successfully by punching a hole into the chest to let the air pass through and dressing the wound with butter. They also performed amputations by tying a tight ligature just above the line of amputation and neatly cutting off the limb, stretched out on a smooth log, with one stroke of a sharp sword (4).

Even successful brain operations in case of skull fracture were performed in East Africa in the early part of this century. A loose bone fragment pressing on the brain was removed and the wound bandaged with leaves. Of course, the patient did not always survive, nor could the results many times be regarded as entirely satisfactory in case of recovery, but comparatively good results were obtained in a surprising number of cases (4).

A spear or barbed arrow is removed by forcing it all the way through

the skin and out the other side (1, 4). Sometimes it is tied to a bent sapling and jerked out (1), and, if necessary, an embedded arrowhead is extracted by cutting (4). Occasionally, an oily extract<sup>21</sup> is applied to loosen a thorn or an arrowhead, and a native surgeon of the Congo is known to have probed an embedded bullet with a stiff hair from an elephant's tail, massaging and pinching it out through the entrance hole (4).

#### FRACTURES

Fractures are universally reduced by manual traction. To hold a limb in place, the Liberians use a light coaptation splint woven with crossed thongs of bark and put on as a cuff. The split leaf stem of a certain oil palm<sup>16</sup> is used for splints, and the bark of another tree<sup>17</sup> for crossed thongs. The splint, not tied too tightly at first, is left on for three days. Then it is removed and replaced more fimly after careful massaging in the direction away from the fracture. This treatment is repeated daily until the bone has knit. Splints are kept for future use on the principle that success in one case will contribute to success in other cases (4). Sometimes a small bone of a dog is tied to a broken leg in the belief that the unbroken bone will aid in healing the fractured one (3). No splint is applied to a broken back, but the patient is placed face downward on a mat (4).

The Liberians reduce a difficult fracture of the thigh by placing the patient in the loft of his house with his leg hanging down between the poles of the ceiling. A large stone is tied to the leg for traction, the splint is bound in place, and the patient is brought down from the loft (4).

Sprains and fractures are massaged with preparations containing purely magical elements along with some medicinal factors. The bonesetter is called and carries with him a red rooster brought by the patient's messenger. When he applies the splint, he breaks the rooster's leg in the same place in which the arm or leg of the patient has been broken and immobilizes it with a miniature splint. The chicken is kept in the same house and is given the same food and treatment as the patient, and, besides this, it receives a special medicine to prevent its being caught and eaten by a wild animal. On the day the rooster walks without limping, the patient can try to use his injured limb. In the end, the bonesetter eats the rooster (4).

Another method for reducing a fractured thigh was described by Livingstone in the late nineteenth century (4). A hole was dug waist deep and long enough for the patient's legs. The patient was placed, sitting up, in the hole with his legs stretched out in front of him, and the thigh was bound with a large leaf. The legs were covered with earth, mud, sticks, and grass and a smoldering fire was built over the fracture. A grass mat held before the patient's face prevented him from suffocating. After a

sufficient amount of treatment, the frightened sufferer was unearthed, and two strong men applied traction, pulling with all their might. A splint was bound in place, and the patient was on the road to recovery.

With the coming of missionary doctors, Africans became interested in the white man's cures and methods of treatment. They learned the use of some modern drugs from the white doctors and observed modern operative procedures. Many chiefs among the Masai became "medicine men" and developed proficiency in the treatment of war wounds (15).

There were in 1961 not more than six modern medical schools between the Sahara and the Union of South Africa with a total enrollment of probably not more than 400 students. But the Africans are justifiably proud of their new hospitals and accomplishments and, given opportunities, will eventually supply their people with modern equipment and drugs and efficient, well-trained personnel (12).

After considering all factors, let us not have undue contempt for the witch doctor nor disregard him completely. He knows each and every member of his tribe and is an expert psychologist. He inspires implicit faith in his people, shares their culture, and serves them to the best of his ability, and we, too, are taking some of his medicines.

#### BOTANICAL NAMES OF PLANTS REFERRED TO IN TEXT

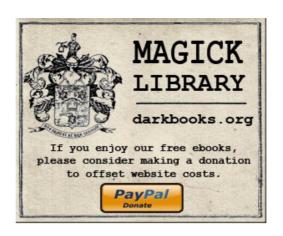
- 1. Adenia cissampeloides
- 2. Aframomum baumannii
- 3. Alchornea cordiflora
- 4. Amaralia sherbourniae
- 5. Baphia nitida (sawdust from this tree 28. Manniophyton africanum mixed with red palm oil)
- 6. Bidens bipinnata
- 7. Caloncoba echinata
- 8. Chenopodium ambrosioides
- 9. Clerodendron volubile
- 10. Cola caricafolia
- 11. Combretum sp.
- 12. Cyrtosperma senegalense
- 13. Dalbergia sp.
- 14. Desmodium lasiocarpum
- 15. Drypetes sp.
- 16. Elaeis guineensis
- 17. Eleusine indica
- 18. Eryngium foetidum
- 19. Ethulia conyzoides (root)
- 20. Eulophia barteri
- 21. Euphorbia hirta
- 22. Ficus vogeliana
- 23. Gossippium sp.

- 24. Gouania longipetala
- 25. Harungana madagascariensis
- 26. Hymenostegia afzelii
- 27. Macrolobium macrophyllum
- 29. Manotes expansa
- 30. Mareya spicata
- 31. Mezoneurum sp.
- 32. Mitragyna stipulosa
- 33. Morinda confusa
- 34. Musanga smithii (inner bark)
- 35. Newboulida laevis
- 36. Palisota thyrsiflora
- 37. Paullinia pinnata
- 38. Piper umbellatum
- 39. Salacia leonensis
- 40. Solanum aculeatissimum
- 41. Tiliacora dinklagei
- 42. Tragia sp.
- 43. Trema guineensis (inner bark)
- 44. Trichilia zenkeri (bark and root)
- 45. Triplotaxis stellulifera
- 46. Uvaria afzelii
- 47. Xylopia sp.

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