
PLACEBOS, POISONS AND HEALING

EXPLORATION OF THEORY AND PHARMACOLOGY IN TRADITIONAL AFRICAN AND MODERN MEDICINE



INTRODUCTION

One view of traditional African medicine held by health authorities in Africa seems to be that it is a rudimentary form of biomedicine. This attitude is reflected in the way medical authorities respond to traditional African medicine as a system of health care. For example, biomedical scientists' interest in traditional African medicine is directed at the plant remedies used in the system; it is assumed that these must serve the same purpose as drugs in biomedicine, and are therefore potential sources of new lucrative therapeutic agents; and identification of appropriate pharmacological activity in these remedies is seen as a legitimate validation of traditional African medicine itself.

The assumption that traditional African medicine is essentially biomedicine in its early stages of development underlies biomedical authorities' scepticism, if not downright rejection, of the rituals that form part of the management of life-threatening illness in traditional African medicine; these are seen as irrational superstitious practices by persons who are ignorant of the basic processes of disease.

For these reasons African medicine is not considered worthy of inclusion in the curricula of programmes preparing students for the medical profession; this is despite the fact that the majority of their future clients regularly patronize traditional healers, either before consulting the hospital or again if they are not satisfied with the *scientific* method. The view seems to be that traditional African medicine is destined to be subsumed by biomedicine and therefore, for extinction; governments do not budget for its development. This is regrettable because African ideas on illness represent, arguably, the most profound expression of indigenous African thought.

In this paper, I explore two issues related to this predicament. Firstly, belief in the spirits of dead ancestors and their role in ensuring morality on the one hand, and in the production of serious illness on the other, is a major part of the religious thinking of African societies in general.¹ The first question therefore is whether the idea of ancestor spirits as causes of serious illness can be considered rational: does it make sense? Are the methods employed

by healers under this system internally consistent with this assumption?

The second issue concerns the methods used by the practitioners of traditional African medicine; these are in many ways different from those of biomedicine. Thus, diagnosis in biomedicine and divination in traditional African medicine search for causes of serious illness among different categories of agents. In the former the category consists of material agents: bacteria, viruses, cancers, biochemical lesions. In traditional African medicine, the cluster is predominantly spiritual: ancestor spirits' anger, deities, witchcraft, sorcery, malevolent intent of persons. I argue that these differences are fundamental, reflecting differences in perception of what constitutes the primary factor in the cause of serious illness.²

CATEGORIES OF ILLNESS

It is important to note from the outset that in both traditional African medicine and scientific biomedicine, illnesses are broadly understood as falling into one of two categories: firstly, minor ailments which are largely self-diagnosed and treated 'without the doctor's prescription'; and secondly, serious life-threatening illnesses for which reference to a specialist (in traditional African medicine, these specialties are divination and ritual sacrifice) is mandatory.³ This broad classification is attested to widely not only by traditional healers but also by biomedical scholars who have analysed

the system. For example, Chief Labulo Akpata, a well known Yoruba healer, says that:

medical herbalism is divided into two branches: real treatment and psychological treatment. Real treatment is for those who require no incantations and other ceremonies. Psychological treatment requires incantations and other ceremonies such as sacrifices before the medicine can act ... we require the services of the two together to cure the two aspects of sickness.⁴

What Chief Akpata refers to as 'real treatment' can be described as those ailments for which the diagnosis is self evident and treatment can be effected without supernatural invocations; for example, physical injuries arising from accidents (e.g. fractures, cuts), fevers, aches and minor pains and normal child birth. The treatment of such minor problems is handled without recourse to divination and ritual sacrifices. In such cases, the physical properties of a plant remedy have a direct bearing on its effectiveness. Thus, the effects of juices expressed from fresh leaves frequently used to arrest bleeding caused accidentally or following scarifications or circumcision are almost certainly due to tannic acid or other haemostatic principles present in them. Tannic acid has protein-coagulating (astringent) properties and is widespread in the plant kingdom.⁵ Another example is fever. Fever may accompany many different disease conditions, and is easily diagnosed; a mother can tell that the baby on her back (skin to skin) is feverish from

slight differences in their body temperatures. Fever remedies are consequently abundant as 'folk remedies'. The Nigerian neurologist, Ben Osuntokun, remarks that

the average Yoruba peasant can recite recipes of herbs and concoctions that are supposed to relieve common symptoms. Most households have their own favourite prescriptions for headache, fever, jaundice.⁶

A point that should be of interest to those searching for drugs in traditional remedies is that plants used for the treatment of fevers have historically been major sources of important anti-inflammatory or anti-malarial substances (e.g. salicin from Willow tree, quinine from cinchonna, artemisinin from quin hao (*Artemisia annua*) and gedunin from dongo yaro (*Azadirachta indica*).⁷

Where a diagnosis cannot be ascertained without technology (for example, cancer, congestive heart failure, stroke, AIDS, tuberculosis, diabetes) and the illness is protracted and life threatening, traditional healers evoke supernatural agencies, and employ ritual treatments. In such situations, plant preparations are used for more esoteric purposes than the pharmacology of their chemical constituents. Traditional pharmaceutical methods and the physical properties of the remedies can often not be reconciled with conventional western pharmacological theory.

THE IDEA OF *ERINVWIN* OR ANCESTORS AMONG THE UGHIEVWEN PEOPLE

Central to traditional African medicine is the association of ancestors with illness, and the belief that ancestor spirit anger is triggered by antisocial behaviour. The importance of these three elements—ancestors, morality and health—in securing and maintaining social cohesion is crucial, as I now consider in some detail, making particular reference to the Ughievwen Clan of the Urhobo speaking people of Nigeria.

The idea of *Erinvwin* as a concrete expression of the spirits of departed ancestors is a dominant element in the world view of the Ughievwen people. Various related expressions are used: *Orinvwin* means the dead body of a person; *ihwo re erinvwin* means the people who belong to *erinvwin* (spirits, or ghosts); *erinvwin* here, means the realm or world of the spirits of dead persons; *erinvwin* can be used also to refer to the spirits of all dead persons. But it is *Erinvwin* (with a capital "E") who lay down the immutable moral laws that govern the ordering of society. *Erinvwin* ensure that through the proper application of sanctions, individuals live according to the moral laws which they have laid down.

Thus, certain acts of moral transgression are referred to as *emu re erinvwin*, meaning 'a matter in which only the ancestors' (can adjudicate). On such matters, *Erinvwin* are believed to

unfailingly punish the transgressor unless the antisocial act is exposed and ritually treated. Such views of the role of the ancestors are held by many different African communities, but when the Ughievwen speak of *Erinvwin* who should be revered, they refer to the spirits of particular ancestors. These are dead ancestors (men or women) who had attained distinction as people of integrity, honour and biological and material success in life; for example, they owned property (house, farmland), left offsprings and lived long enough to have achieved the grade of *ekpako* (senior). There is therefore more than one category of spirits of the dead in the mind of the Ughievwen.

At the beginning of *Ore* celebrations, special ceremonies of invitation to all spirits of the dead are made; this is to allow into the community those spirits who would not normally be accepted as desirable participants in the affairs of the living (for example, spirits of dead criminals, witches/wizards, sorcerers, those who died of dangerous diseases, or who were insane). During *Ore* festivals, these spirits are made to partake of libations thrown to them by the left hand; they must not be allowed to eat or drink from the family ancestral shrine. They are not ascribed the status of ancestors and they should not remain in the community. Therefore, after *Ore*, a reverse ceremony is made to drive them out. The Owahwa *Udje* poetry exponent, Okpeha Okpako satirises this in these lines:

Ario 're phrun re 'na dje 'rinvwin kpo

Keta vo avwan 'dja ye n r a

[After the festival, you say, drive out the spirits

where do you drive them to?]⁸

The poet is referring to an apparent contradiction; even though the spirits have been driven out of the community, *Erinvwin* continue to be called upon daily. In all major events (weddings, deaths, births) *Erinvwin* are called upon in thanksgiving for protection and for good health. The *Erinvwin* venerated in this way are thus different from the *erinvwin* of less distinguished or evil spirits.

The *Erinvwin* of high morality are the spirits of those who were known generally to have lived a life of high integrity, and would have exercised moral authority while alive, such as in having had wives or raised children or been community leaders. Assigning divine moral roles to distinguished dead ancestors seems to be a practice that is widespread in human groups world wide.⁹

The apparent separation of '*undesirable elements*' from the *good* among the spirits of the dead may be construed as the Ughievwen's projection onto *Erinvwin* of what the good society should be. The world of the Ughievwen consists of physical and emotional uncertainties that can threaten its survival: betrayals, sin, early death, envy, untruth. In *Erinvwin* reside the spirits of those distinguished ancestors, who overcame these

limitations. For the Ughievwen it is the abode of 'human nature purified' where the rules of morality can be formulated and incorruptibly enforced. The judgements of *Erinvwun* on moral issues would be just because *Erinvwun* consists of the spirits of persons who were upright and just. On occasions Ughievwen elders would say that '*Erinvwun* is people' or '*Erinvwun* does what the people want'. One can say from this, that *Erinvwun* is the repository of the essential laws of Ughievwen society.

The idea of *Erinvwun* must be seen in relation to other aspects of Ughievwen world view. The Ughievwen see human existence as being in a temporal cyclic relationship with the dead (*erinvwun*) and the unborn. The world of the Ughievwen is inhabited by different spirits who may interact directly with humans, sometimes even physically; for example, the supreme test of physical strength (*egba*), highly appreciated in the male by the Ughievwen, is to have fought successfully with a mythical spirit. Spirits may also be present as invisible beings in crowded places.

Ughievwen do not regard animals or plants as sacred objects of veneration (though there are taboos forbidding the eating of certain animals or plants), but seem to believe that all other living things and *they* share 'life' as a common attribute; so that anything that has life can take the form of another thing that has life. Thus, Ughievwen mythologies contain narratives of men or women taking animal

forms for specific purposes, or animals or trees taking human forms, in a process of transmutation. In Ughievwen, as in most African cosmologies, spirits and humans are in close contact. An *abiku* (Yoruba) or *ogbanje* (Ibo) is a spirit child destined to a cycle of birth and rebirth to the same mother. Asaro, in Ben Okri's *The Famished Road*, is an *abiku* who has decided to stay in the world of the living, but is nevertheless in regular communication with his friends in the world of the 'unborn'. *Abiku* are the subject of notable poems by Nigerian writers, Wole Soyinka

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and John Pepper Clark. In Amos Tutuola's *The Palm-Wine Drunkard*, the narrator goes to the dead's town to look for his dead palm-wine tapper, and encounters numerous spirits on the way. Every person has his/her own *erhi* or *chi*, a personal spiritual guardian. To the Ughievwen, reality exists in two domains, the objective world (*Akpo*) and the invisible subjective world (*Erinvwun*). As the eminent Nigerian psychiatrist, Adeoye Lambo observes, 'to the African, reality consists in the relation, not of man with things, but of man with man, and of all with the gods.'¹⁰

Ughievwen and other traditional African people live in an environment in which a

consciousness of the spiritual or subjective world is a constant reality; actions and relationships between people (including matters of health, illness and death) are to a large extent interpreted against the background of such realities. Ughievwen believe that a life threatening illness or other misfortune has a supernatural underpinning, and a frequently implicated agency is ancestor spirit anger. A contravention of the laws that govern morality is believed to be unfailingly punished by *Erinvwin*. The relationship between the sexes is especially highly regulated, and incest, understood broadly to include sexual intercourse between relatives, even distant relatives, or an extra-marital affair by a married woman, are grave moral offences (*emu erinvwin*). In general, the way in which men and women relate to one another (even married couples) is highly regulated.

CASES OF ANCESTOR SPIRIT ANGER

In my exploration of the idea that serious illness is a manifestation of ancestor spirit anger triggered by immoral behaviour, I encountered several cases where the cause of illness/misfortune was attributed to supernatural intervention. A pregnant woman aged twenty-five years whom I will call MI, had a difficult, life-threatening labour during which she was moved to and from different maternity clinics in the town of Abeokuta, where she and her husband were then migrant labourers. A diviner eventually deter-

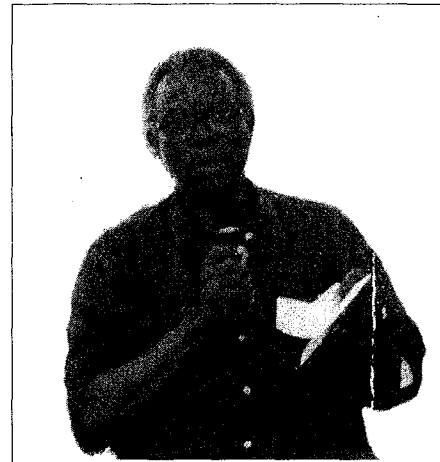
mined that MI had a secret that she needed to reveal. After her memory was prodded by her mother, she admitted that the conception had occurred following intercourse with a lover before the marriage with her husband had been consummated. After her confession, the narrative went, she gave birth dramatically and every one agreed that her difficulty had been due to ancestor spirit anger. In Ughievwen culture, every one is brought up to know that MI's immorality is *emu erinvwin* that would not go unpunished.

In another case, a seventy-year-old man, whom I will call OO took ill with what was diagnosed at the general hospital, forty miles away, as congestive heart failure. He was treated and later discharged with instructions to continue on digoxin and calcium supplement. He died at home later. While he was under hospital care, his two grown up daughters from a previous marriage had been consulting a diviner. Ughievwen believe the swollen extremities symptomatic of congestive heart failure are inflicted by ancestor spirits or deities for moral transgression. The diviner had made the enigmatic pronouncement that OO would die of the illness, not because of his own transgression, but nevertheless death would have been self-inflicted. It transpired that two years earlier, OO's current wife and an adversary had sworn before *lgbun*, a cult centred on the powerful goddess *Ogbaurhie*, calling

on her to punish whichever was the guilty party in the issue under contention, OO, not wanting any harm to come to his young wife and children, had used some other ritual to attempt to deflect *Ogbaurhie's* possible anger away from her.

The diviner's pronouncement was now interpreted to mean that OO's illness and subsequent death were indeed a manifestation of *Ogbaurhie's* anger which OO had brought upon himself. This did not mean that his wife was necessarily guilty in the substantive issue under contention; only that OO had committed an abomination by attempting to interfere with supernatural justice. This understanding had come after OO's death; the daughters had blamed their step mother who apparently knew of her husband's attempt to deflect *Ogbaurhie's* judgement, but did not reveal what she knew until it was too late. The whole conflict had to be brought out in the open and dealt with before OO's final funeral rites, to prevent further harm to his family. *Ogbaurhie's* curse would have to be publicly revoked by *Igbun* high priests; meanwhile steps were taken to reconcile the daughters and and their step mother. All the reconciliatory processes, including a full statement of the facts, libations and prayers took place in the presence of the entire family and the public, including this writer, during OO's funeral ceremonies.

The theory that ancestor spirit anger causes illness is commonly seen by scientists as neither being capable of being



David Okpako Photo: Leena Messina

tested nor refuted, with the result that traditional African medicine is regarded as a nonscientific body of knowledge. But this is reductionist interpretation of ancestor spirits. It construes how they are perceived within African medicine as necessarily requiring rejection of western explanations of pathology. Yet, while ancestral spirit anger is believed to be the cause of serious illness, the traditionally enculturated African can accept a biomedical explanation involving a virus or cancer as the immediate cause of the illness. He or she would ask, however, why that particular individual at that time is the one who is afflicted. It is the power of the ancestors to punish moral transgression that is believed to undermine the health of the transgressor rather than ancestor spirits acting as infective agents.

We may say that reference to ancestor spirit anger in traditional African medicine is a metaphor, a simplified way of stating the intuitive knowledge and experience, that awareness of guilt and the

accompanying sustained fear of ancestor spirit punishment is harmful to health. Harry Sawyerr remarks that the effect of spiritual evocations on man in African culture is not due to magic, but 'to a conflict which is psychological in nature, created by the fear of sin committed against the *sensus communis* of a given community, which gnaws into the psychic life of the offender, thereby causing him to be ill.'¹¹ These emotions, it can now be said, undermine the immune system, so that the sufferer is vulnerable to opportunistic infections. An extreme analogy is the infection by the human immunodeficiency virus (HIV) which destroys the immune system.

The concept of *stress* is useful in relating emotional upheaval to somatic diseases, although the mechanisms by which this happens are only beginning to be understood. We can say that consciousness of guilt and fear of ancestor spirit anger constitutes stress, which is the 'nonspecific response of the body to any demand'.¹² This demand may be nervous tension, physical injury, infections, in short anything that upsets the steady state equilibrium or homeostasis of the body. These stressors depress the immune system, the body's own defence against infections and cancers.¹³

DIVINATION, CONFESSIONS AND SACRIFICE

Divination processes enlarge the circle of those involved in illness management,

whereas technological diagnosis in biomedicine is impersonal and atomistic (reduced to a relationship between the patient or a specimen and the technologist). Divination brings in the relatives of the afflicted person; it is they who consult the diviner. The implementation of the findings of the diviner must necessarily involve the participation of relatives and other members of the kinship group sharing the same cultural beliefs. Often, the pronouncements of the diviner require interpretation by members of the kinship group in terms of their cultural beliefs. In other words, the management of serious illness in traditional African medicine is the concern of the community; a threat to the life of one member, found to have violated the laws that determine the cohesion of the society, is also a threat to the survival of the society. Divination and its consequent processes thus serve a wider purpose in traditional African medicine than diagnosis in biomedicine.

In traditional African medicine, divination is employed for the detection of hidden conflicts. The use of this technique is widespread in Africa, and is shared by ethnic groups that are otherwise culturally diverse. Most divination processes involve throwing a set of symbolic objects (cowries, bones, kola nut or calabash pieces, sticks), and "reading" the pattern in which the objects lie in relation to one another. Among the Ughievwen, diviners (*ebo epha*) are a different class of practitioners from herbalist *ebo*. In

Ughievwen, diviners may be male or female; diviners do not recommend to the herbalist what plant remedy the latter may use.

The diviner's role is to identify hidden sins or people with evil intents (witches/wizards) and those transgressions that are *emu erinvwin*. Writing on divination among the Ndembu of Zambia, Victor Turner says that the diviner seeks to discover unconscious impulses behind antisocial behaviour:

He feels after stresses and sore points in relationships, using the configuration of symbolic objects to help him concentrate on detecting the the difficulties in configuration of real persons.¹⁴

Turner makes the crucially important point that the diviner occupies a key position in consolidating social order and reinforcing the moral values on which the integrity of society depends; and since the diviner operates in emotionally charged situations, 'moral norms are often stated in striking and memorable ways'.

Divination often leads to recommendations of sacrifice, where participation by as many people as possible is mandatory. Food, money and drinks offered in propitiation of the ancestors are shared; gifts may be given. Although these are ostensibly to restore the sick person to a harmonious relationship with the ancestors, there is also a social component involving the repair of relationships between persons in the community whose lives had been

affected by the sick person's misdemeanour. We can say that these rituals are as much to alleviate the individual's suffering as to consolidate the moral and social integrity of the community. Consequently, success in illness management in traditional African medicine should not be seen merely in terms of the restoration of health to the sick person; the whole process is also a mechanism of moral reaffirmation for the community. The patient may die, but the procedure may have been successful in pointing up the sort of antisocial behaviour that can undermine health. Indeed, death, after a grievous *emu erinvwin* has been established, followed by the appropriate rituals, may be seen as much as a validation of traditional African medicine, as it is a case of therapeutic failure. In other words, 'It is a pity that the patient died, but he should not have done what he did. You cannot expect to offend that sort of morality and survive!' What seems to be important is that everything within the recognised regimen of illness management is done. As Arthur Kleinman puts it, '... healing is evaluated as successful because the sickness and its treatment have received meaningful explanations ... related social tensions and threatened cultural principles have been dealt with appropriately.'¹⁵

PHARMACOLOGY IN TRADITIONAL AFRICAN MEDICINE

An important part of the management of illness in traditional African medicine is

the use of preparations made from plants. Biomedical scientists assume these to be the equivalents of drugs used in biomedicine. A fact that has a bearing on this idea is that many drugs in use today in biomedicine were extracted from plants or from molecules refined from plants.¹⁶ The assumption of equivalence has some important practical consequences: for example, biomedical scientists searching for drugs in plants often base their protocol of investigation on the claims of traditional healers; and attempt to validate traditional African medicine on pharmacological principles. This is true of sceptics as well as of sympathetic traditional African medicine propagandists, trying to prove the validity of traditional African medicine as a health care system equivalent to biomedicine. The continued scepticism of the biomedical establishment about the worth of traditional African medicine comes from many instances of failure of validation on this basis. All these come from the primary assumption that traditional African medicine is an elementary form of biomedicine. I argue that this presumption is not justified.

Pharmacology can be described as a theory of selective poisoning for therapeutic purposes, consistent with the general theory of biomedicine, namely, that diseases are specifically caused by infections, cancers or biochemical lesions. The drug is meant to control the disease by selectively killing the infective organism, abnormally growing cells or poisoning an

enzyme, but not be harmful to normal structures. In other words, the drug is a "magic bullet". The emphasis is on selectivity. Therefore the quantity of drug administered is all important; too large an amount may poison normal cells and harm the patient, and too little may fail to poison the target. Selectivity is a major concern of drug manufacturers, but it is difficult to achieve, mostly because of the complexity of the biological system, and our limited knowledge of the relationships between its components. Therefore unwanted side effects and drug-induced harm are characteristic features of drug therapy. The 'successful' use of poisons as drugs is greatly aided by technology; weights, volumes and time can be measured with precision in absolute units, and drugs can be delivered to target sites by technologies designed to minimise unwanted effects. Pharmacology then, is a theory whose success depends on strict adherence to the rules of dosage, to ensure that predictable therapeutic plasma concentrations of drug are maintained throughout the period of treatment, and yet cause as little harm as possible to the patient.

Three Ughievwen traditional healers with whom I have worked do not use plant remedies primarily for their pharmacological properties.¹⁷ Ganade, who was about eighty-years old when we met, alluded to the ability of a gifted healer to communicate with plants. He expressed this idea as follows:

the gifted healer goes into the bush, with the patient and the illness he wants to treat

imprinted in his mind, but not always the plant he must use. As he goes deeper into the forest, the right plant will reveal itself by colour, shape, smell or by the way it moves in the wind.

This notion that the plant reveals itself to the gifted healer, is similar to the sympathetic modes of selecting remedies in many healing systems.

Another healer, Nirite (about sixty years old) relied very much on the absolute confidence which a childless couple had in his expertise; so that he made for them a preparation that he had not used before. He was exploiting the effect of belief on the outcome of therapeutic intervention. Nirite also knew that his remedy would be part only of the treatment regimen that the couple would seek for their childlessness. There was success following Nirite's medicine; but this need not be attributed solely to the plant remedy. Clearly, divination and other rituals would have taken place elsewhere before or after the use of Nirite's medicine.

In the case of a third healer, Saradje, we can say that the efficacy of the plant he employed was predicated on his belief that the remedy was shown to him in what seemed like a divine revelation. The plant in question, *Newbouldia laevis*, is used widely throughout Nigeria as medicine, but not specifically in the treatment of hypertension. Possibly it contains anti-hypertensive compounds, but that is not what led Saradje to its use. However, to insist that their presence accounted for its

clinical benefit, is to deny that plant remedies can be of benefit in illness by mechanisms other than those predicted by conventional pharmacological theory, and therefore to deny traditional African medicine's intrinsic validity.

I found that having decided on a number of remedies by whatever criteria, a healer would use them, singly or in different combinations, in the treatment of different complaints. The most frequently cited ground for excluding a plant from use as a healing remedy, is the knowledge that the plant is poisonous. Thus, fish poisons which are widely known and are used in the Owahwa area are not employed as remedies in the management of illness. One can say from these observations that the choice of plant remedy is not made on the basis of its pharmacological properties, and in some cases, not even on the basis of its history of efficacy.

There are other observations that lend support to this conclusion. First, plant selection and preparation are often accompanied by incantation. Turner recorded the following interesting invocation by Ndembu healers when taking parts of the *mukula* tree (*Pterocarpus angolensis*) for the treatment of infertility in women:

The principal practitioner addresses the tree and says 'Come, o you *mukula*, ishi kenu of women, who give birth in order to rear children'. The practitioner then takes beer, pours libation and makes invocation

with it. 'Truely, give us our procreative powers'. Then he digs up its roots...¹⁸

Here the practitioner is evoking the healing powers of the tree—which are clearly more esoteric than the pharmacology of chemical constituents.

Second, decoctions are prepared and used without regard to exact quantities and dose. Third, topical, oral, rectal and inhalation routes are used for drug

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administration in both traditional African medicine and biomedicine. However, medicines for the treatment of internal ailments in traditional African medicine are also believed to be effective when worn around the waist, ankle, neck or placed under the pillow, sleeping mat or above the lintel of a door. Pharmacodynamic or pharmacokinetic mechanisms cannot be offered for the effectiveness of the remedies administered by these methods. Fourth and finally, a range of effects and powers (which cannot conceivably be due to pharmacological constituents) are attributed to plants by healers. For example, Una Maclean reported on the use

of *koropo* (*Crotalaria retusa*) by healers in the city of Ibadan. The use of this plant ranged from treatment of a variety of common ailments to its use to:

persuade an *abiku* child to stay ... a divorced wife to return to her husband, guard a house and its occupants against dangerous medicine ... [and] assist in the arrest of evil doers and lunatics.¹⁹

These observations show that in traditional African thought, plants are presumed to have healing powers; but these powers are not seen as concrete pharmacological entities as are drugs in biomedicine. It seems to me understandable that non-western societies should see plants as possessing subjective spiritual dimensions and esoteric powers. Plants are alive, reproduce in wondrous ways and sustain animal and human life. Some of them are known to kill.

IMMUNOMODULATORS, IMMUNO-STIMULANTS AND PLACEBOS

In my view, the use of plant remedies in traditional African medicine is best understood as part of the ritual component of illness management. As I have suggested, confessions of hidden guilt and sacrifices arising therefrom, could invigorate an immune system depressed by these emotions. A plant remedy, whatever its form of preparation and administration, could add to the effect of the above rituals, through a placebo effect, and, if taken internally, possibly also through the action of immunostimulants

(substances that enhance the body's immune defence mechanisms).

Immunomodulators and immunostimulants are substances that may affect different components of the immune system. They occur widely in the plant kingdom, are effective in concentrations and are extractable in the aqueous media that traditional people frequently use.²⁰ The most widely studied are immunostimulants; examples are saponins and polysaccharides. The immune enhancing activity of saponins (for example, *Quillaia saponaria*) has been known for several decades, and is exploited in antibody production. Immunostimulants not only enhance antibody production, but can also cause killer cell activation, stimulation of cytokines (the chemical weapons used by lymphocytes to destroy infective agents) and activation of phagocytosis. Immunostimulant activity has been identified in many traditional Chinese medicines. Examples are, *Asragalu mongolicus*, *Ancanthopanax senticosus*, and *Coriolus versicolor* which produces the important cancer immunostimulant, krestin. By promoting the functions of the immune system, these types of substances have antifungal, anticancer, antibiotic, antiparasitic, antiviral and other beneficial clinical effects. These substances lack selectivity; until recently, drug design or even the search for drugs from plant sources, did not include a consideration of such therapeutically 'holistic', but nonspecific substances. The AIDS

epidemic has powerfully drawn attention to this class of compounds.

The placebo is the therapeutic benefit of a pharmacologically inert substance; it is a clinical effect due to therapeutic intervention, rather than the action of the administered substance. It has been shown that between thirty-five and sixty percent of the benefit of contemporary biomedical procedures can be accounted for as a placebo effect.²¹ It is generally accepted to be a component of all drug action; hence it is used as a control when taking a new drug through clinical trials. The placebo effect comes from the belief that the remedy will be effective in the condition being treated; the effect is greatest when both doctor and patient believe in the efficacy of the proposed treatment.²² It is a reflection of methodological difficulties and power of the pharmaceutical industry driven by the theory of selective toxicity, that the placebo effect is not more positively exploited. The current increasing interest in this phenomenon is a recognition that an assumption of mind-body dichotomy in biomedicine is not tenable. Even in the case of surgery where improvement in health is attributed to mechanical repair, Daniel Moerman has reviewed the increasing evidence which suggests that 'although cardiac bypass surgery works, it does not necessarily work for the reasons that it is done'.²³ Several coronary bypass surgery patients have been found to experience impressive symptomatic improvement after the surgery, even when the new pass did not

function. In concluding, such improvement can be due to placebo.

The placebo effect would be expected to be particularly significant in the emotionally charged atmosphere in which serious illness is managed in traditional African medicine. We may say that the feeling of relief that something significant is being done about a potentially fatal illness, is similar and complementary to the feeling of relief experienced by the sufferer after his or her long-hidden antisocial secrets have been confessed and exposed for ritual treatment. In both instances we might expect a surge in immune activity. Thus, the combined effects of the spiritual and material approaches to illness management in traditional African medicine can be said to be synergistic in the mobilisation of the body's immune defence mechanisms.

THE DOSE OF MEDICINE

The single most important expression of the pharmacological theory of selective toxicity is the idea of dose of a drug. The elementary theory that the effect of a drug is directly proportional to its quantity, is fundamental to the determination of specificity of drug action. The idea underlies research in the identification of receptor systems, enzyme inhibition and toxicology; it enables highly poisonous substances to be used as drugs and it differentiates biomedicine from other health care systems in a most fundamental way. In the drug industry, a determining

factor in the choice of one chemical over another for further research and development, is the dose of the chemical producing the required pharmacological effect; the lower the dose at which it blocks an enzyme or kills a parasite, that is, the more specifically poisonous it is to the cause of disease, the more attractive it is for development as a drug. Biomedical scientists and their clients are so educated to the centrality of dose of medicine, that they are suspicious of any system in which medicines are administered without regard to the rules of dosage as embodied in pharmacological theory.

As the goal in traditional African medicine is to strengthen the body's natural defence mechanisms, then the plants used towards the achievement of this purpose need not contain the highly toxic activity expected from drugs used in biomedicine. There is indeed evidence that plants containing acutely poisonous substances may have been excluded from the general pool of traditional plant remedies. It seems to be the case that, over the millenniums during which man came to rely on plants both as food and as medicines, overtly poisonous plants were identified (for example, poisonous mushrooms and poisonous yams) and avoided for these purposes; where the food item was extremely valuable, traditional people the world over found ways to remove the poison (e.g. cassava in West Africa, *Alocasia macrorrhizos* (cunjevoi) and *Macrozamia* spp. (burrawangs) used by Queensland and Western Australia Aborigines as food).

Moerman has done a quantitative analysis of the plants used by Native Americans as medicines; his results on the family *Caprifoliaceae* (honeysuckle family) are instructive with respect to the point I am making. Elder (*sambucus*), the most heavily used of the genera, provides edible berries. Most elderberries must be cooked, dried or fermented before they are eaten (to ameliorate the effects of several emetic alkaloids that they contain). These berries are used widely by Native Americans as emetic and laxative, effects which were most probably observed when the berries were first eaten. They are also used for other medicinal purposes, but only externally for sprains, bruises, swellings, cuts boils, sores.²⁴

It will be noted that common items in traditional plant remedies in traditional African medicine are household aromatic and spicy foods valued for their nutritional and aromatic properties. In this practice, precise dose of plant material is not critical for clinical outcome any more than it is when used as food. In fact the more the better seems to be the attitude.

Perhaps the most obvious point that supports the view that in traditional African medicine poisonous plants may have been deliberately avoided as internal medicines is this. Some of the most important drugs in biomedicine today (tubocurarine, muscarine, picrotoxin, physostigmine) were extracted from poisonous plants that were used by traditional people for purposes other than

healing. We may say therefore that in the evolution of the pharmacopoeia of medicinal remedies, plants whose use (either as food or medicine) gave rise to dramatic toxicities, when taken internally without regard to dosage, were excluded or used in ways that avoided the harmful effect. In the absence, in African cultures, of the precision technologies that enable poisons to be used as drugs in biomedicine, a cumulative and systematic exclusion of poisonous plants from medicinal remedies would be the logical line of development in traditional African medicine.

Absence of rules of dosage in traditional African medicine should therefore be seen as an inherent attribute of the system, rather than a ground for denigrating it as dangerous, or its practitioners as ignorant. This argument is not an excuse or a plea for mitigation for the absence of dosage rules in traditional African medicine. Rather, we need to see its potential as a system to mobilise the body's defence mechanisms, that has intrinsic merit.

GENERAL REMARKS AND CONCLUSION

Robin Horton has argued that, when one comes down to it, the differences between Western scientific thinking and traditional African modes of thought are not as great as scientists make them out to be. In his view, just as theory can be said to replace common sense in science, so does mystical invocation replace common sense in African thought. Horton has considered

mystical (ancestor spirit anger) explanations of illness as theory; by analysing the structure and function of theory in science, he has concluded that traditional African thought, as exemplified by ancestor spirit anger as cause of illness, can be said to be rational. However, on various grounds that Horton has discussed in detail, including the point that mystical thinking cannot be subjected to refutation (an important canon of science), African traditional thought is categorised as a 'closed predicament'; African traditional thought, in Horton's view, does not see the possibility of an alternative, as opposed to western scientific thinking that is 'open'.²⁵ This conclusion is consistent with classical Popperian definitions: the assumed existence of ancestor spirits is not open to refutation. While the invocation of ancestor spirits' anger can thus be said to be unscientific on this basis, the point should be made that it is no more so than western religious beliefs, for example, in the doctrine of the 'trinity'. Were we to inquire into why the dugout canoe floats, we should find that the Kalabari fisherman does not invoke ancestor spirits for explanation. He is also likely to be completely ignorant of Archimedes' principle; but so too would be the English worker at the ship yard, not to mention the ordinary Englishman in the street. I fear that some of Horton's more baffling conclusions have arisen from a comparison of two unlike entities, namely religious African beliefs and western science.

I came to a different understanding of the reference to ancestor spirit anger as *explanation* for the occurrence of serious illness from this study. To a biomedical scientist, the mention of ancestor spirits in connection with illness, may suggest the possibility of ancestor spirits being assigned the role of pathogens by diviners in ignorance. In African thought on the cause of illness, ancestor spirits are not pathogens. A close examination of the reference to *Erinvwin* (ancestor spirits) as a factor in the cause of illness, reveals that this is not a mindless mystical invocation by people who did not understand the genesis of illness. Ancestor spirit anger is triggered by behaviour that the sufferer knows to be antisocial or sinful in the culture of his upbringing. *Emu erinvwin* in particular will trigger ancestor spirit anger. Other types of antisocial behaviour such as telling untruth, disrespect for elders, theft or even murder are not necessarily *emu erinvwin*, probably because society has other ways of dealing with these kinds of crime; they do not constitute a threat to the cohesion of the community in the way that *emu erinvwin* does.

We may say that in these cultures, the critical role of the spirits of the ancestors is to enforce morality and hence social integrity. The kind of sin that triggers ancestor spirit anger is the sort that can have a devastating effect on social cohesion. As the sinner is in close daily contact with those who are affected by his misdemeanour (for example, he or she

may be interacting with the husband or wife of the person involved in an incestuous relationship, as well as with other members of the kinship group who do not know that such a sin has been committed, but who would be horrified if they knew), the sense of guilt or attack of conscience, is repeatedly experienced by the sinner. The people must know from experience and intuitively, that the emotional stress thus created produces physical/physiological effects that can cause damage to health when sustained over a period of time.

It is possible to know this. Anyone who has been tempted to commit an antisocial act can testify to an attack of conscience. I am suggesting that in African thought, sin has a wider significance than the illness to which it gives rise; sin threatens the cohesion of the community and hence its continued existence, because of the social disruption to which sin simultaneously gives rise. The invocation of ancestor spirit anger is therefore not a simple *explanation* of illness (comparable to virus or bacteria in biomedicine), but a broadening of the significance of illness to include the fact that sin, the underlying cause of the illness, is a threat to the collective good of the community. In this sense, we may say that illness is a mechanism for enforcing morality and social cohesion. As a construct which combines the factors of illness, morality and social cohesion simultaneously in a single concept, *ancestor spirit anger as cause*, is a powerfully sophisticated tool in

the context of the culture in which traditional African medicine is practised.

My point is that ancestor spirit anger in traditional African thought can be understood as a metaphorical allusion to the intuitive knowledge that acts which the society recognises as immoral (the behaviours that cause tension in, and threaten the cohesion of, the group) can give rise to conflicts in the mind of the enculturated individual and hence emotional stress and illness.

**Traditional African medicine
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Traditional African medicine is a unique system of health care, steeped in African intuition and accumulated experience, and is fundamentally different from the theoretical assumptions that underlie the practice of biomedicine. The methods by which the traditional African healer achieves his therapeutic objectives (including its pharmacology) are wholly consistent with the basic assumption that serious illness has its roots in conflicts arising in the mind of the sufferer. Therefore, it is irrational to attempt to validate traditional African medicine or to control it according to conventional pharmacological theory. Such control is

intended when biomedical authorities attempt to employ traditional healers, register their organisations or standardise their remedies. The contribution of traditional African medicine to health care should be evaluated holistically in the context of the cultures in which it is practised, and not simplistically on conventional principles of biomedicine. In traditional African medicine, health is a composite of social, moral and physical well being. ∞

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NOTES

- ¹ Ancestor spirits are generally thought to inflict illness as punishment for moral transgression.
- ² Traditional Africans have no difficulty accepting that entities such as virus, bacteria, parasite, cancer or biochemical lesion may be the demonstrable cause of an illness. What they would insist upon is that for the particular individual to have been affected at that time, he/she must have done something that contravenes the moral laws laid down by the ancestors.
- ³ The Ughievwen reference to these categories of illness is instructive. *Oma gan re e* (the body is not strong) refers to a

minor ailment that prevents the person from performing normal functions or duties. The Ughievwen greeting *Oma gan re e?* (is the body strong? equivalent to 'how are you?') is really an inquiry as to whether the person, although up and about, is able to do all the things that he/she should be doing. On the other hand, *oma 'rho* (the body is paining or hurting) refers to a more serious illness, and *oma 'rha gangan* (the body is hurting seriously) indicates that the illness is now a matter of life and death.

- ⁴ Labulo Akpata, 'The Practice of Herbalism in Nigeria', in Alex Sofowora (ed.), *African Medicinal Plants: proceedings of a conference* (Ile-Ife: University of Ife Press, 1979), pp. 13-19.
- ⁵ John McEwen Dalziel, *The Useful Plants of West Tropical Africa* (London: Crown Agents for Overseas Governments, 1936).
- ⁶ Ben Osuntokun, 'The Traditional Basis of Neuropsychiatric Practice among the Yorobua of Nigeria', *Tropical Geography and Medicine*, Vol. 27 (1975), pp. 422-430.
- ⁷ This plant grows widely in Nigeria. The decoction of its bark and leaves in water or dilute alcohol, is used in the treatment of fever, aches and pains. It is believed to cure malaria even though there is no evidence that these decoctions kill malaria parasites. Pharmacological evaluation has shown aqueous extracts to be anti-inflammatory and antipyretic. S. N. Okpanyi and G.C. Ezeukwa, 'Anti-Inflammatory and Antipyretic Activities of *Azadirachta indica*, *Planta Medica*, (1981), Vol. 41, pp. 34-9. Heroic extraction with strong organic solvents has also shown the presence of an antimalarial principle *gedunin* that has a potency equivalent to quinine. Sami A. Khalid, Helmut Duddeck, and Manuel Gonzales-Sierra, 'Isolation and Characterization of an Antimalarial Agent

- of the Neem Tree, *Azadirachta indica*, in *Journal of Natural Products*, Vol. 52 (1993) pp. 922-927.
- ⁸ Thomas Okpeha Okpako (c.1900-1951), an exponent of *Udje*, a traditional poetry that is put to music and dance, for which the Ughievwen are famous throughout Urhobo land. Thomas Okpako's *Udje* is still performed at funerals and other important ritual ceremonies at Owahwa.
- ⁹ See M.L. Lyon, 'Order and Healing: the Concept of Order and its Importance in the Conceptualisation of Healing', *Medical Anthropology*, Vol. 12, (1990) pp. 249-268.
- ¹⁰ Thomas Adeoye Lambo, 'Traditional African Cultures and Western Medicine (A Critical Review)', in Frederick N.L. Poynter (ed.), *Medicine and Culture: Proceedings of a Historical Symposium organized jointly by the Wellcome Institute of the History of Medicine, London, and the Wenner-Gren Foundation for Anthropological Research, New York* (London: Wellcome Institute of the History of Medicine, 1969), pp. 201-210.
- ¹¹ Harry Sawyerr, 'An Inquiry into Some Aspects of Psychic Influence in African Understanding of Life', in Onigu Otitte (ed.), *Themes in African Social and Political Thought* (Enugu: Fourth Dimension Publishers, 1978), p. 73.
- ¹² Hans Selye, *The Stress of Life* (New York: McGraw-Hill, 1976 edn), p. 12.
- ¹³ See especially M.L. Lyon, 'Psychoneuroimmunology: the Problem of the Situatedness of Illness and the Conceptualisation of Healing', *Culture, Medicine and Psychiatry*, Vol. 17, pp. 77-97.
- ¹⁴ Victor Witter Turner, *The Drums of Affliction. A Study of Religious Processes among the Ndembu of Zambia* (Oxford: Clarendon Press; London, International African Institute, 1968), p. 45.
- ¹⁵ Arthur Kleinman, *Patients and Healers in the Context of Culture: An Exploration of the Borderland between Anthropology, Medicine and Psychiatry* (Berkeley: University of California Press, 1980).
- ¹⁶ The figure usually quoted is 75% of all prescriptions in the USA contain drugs wholly or partly derived from plants. See Norman R. Fansworth and Djaja D. Soejarto, 'Global Importance of Medicinal Plants, in Olayiwola Akerele, Vernon Haywood, and Hugh Synge (eds.), *The Conservation of Medicinal Plants: Proceedings of an international Consultation, 21-27 March 1988, held at Chiang Mai, Thailand* (Cambridge: Cambridge University Press, 1992), pp. 25-51.
- ¹⁷ An observation also made of Yoruba healers by Una Maclean, *Magical Medicine: a Nigerian Case-Study* (London: Allen Lane, 1971).
- ¹⁸ Turner, *Drums of Affliction*, p. 59.
- ¹⁹ Maclean, *Magical Medicine*, p. 84.
- ²⁰ R. Bomford, 'Immunostimulators from Plants and Fungi', *Phytotherapy Research*, Vol. 2 (1988), pp. 159-164; also Hildebert Wagner and A. Proksch, 'Immunostimulatory Drugs of Fungi and Higher Plants, *Economic Plants Research*, Vol. 1 (1985), p. 113.
- ²¹ Henry K. Beecher, 'Surgery as Placebo', *Journal of the American Medical Association*, Vol. 176 (1961), pp. 1102-7; also Jerome D Frank, 'Psychotherapy of Bodily Illness: an Overview', *Psychotherapy and Psychosomatics*, Vol. 26 (1975), pp. 192-202.
- ²² Herbert Benson and David P. McCallie, 'Angina Pectoris and the Placebo Effect, *New England Journal of Medicine*, No. 300 (1979), pp. 1424-1429.
- ²³ Daniel E. Moerman, 'Physiology and Symbols: the Anthropological Implications

of the Placebo Effect', in Lola Romanucci-Ross, Daniel E. Moerman, Laurence R. Tancredi (eds.), *The Anthropology of Medicine: from Culture to Method* (New York, J.F. Bergin, 1983), p. 156.

²⁴ Daniel E. Moerman, 'Poisoned Apples and Honeysuckles: the Medicinal Plants of

Native America', *Medical Anthropology Quarterly*, Vol. 3 (1989), pp. 52-61.

²⁵ Richard Horton, 'Traditional African Thought and Western Science', in Bryan R. Wilson (ed.), *Rationality* (Oxford: Blackwell, 1970), pp. 132-171.

