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viennese ethnomedicine newsletter

"Ethnobotanical" field-work

INSTITUTE FOR THE HISTORY OF MEDICINE, UNIVERSITY OF VIENNA
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department of ethnomedicine

Frontispiece:
Ethnobotanical fieldwork as it should not be done

"In 1972 I did my first field-research in Africa among the Azande. I was still a greenhorn concerning field methods and made quite a lot of mistakes. First, I gathered plant material, as seen on the photograph, without knowing even about the necessity of a herbarium file. Second, I asked people to collect medicinal plants for me and I promised them for each sample a small bottle of perfume, which I got as presents in several drug stores in Vienna. The people were very fond of this arrangement and started to bring large amounts of 'medicinal' plants: sorghum, millet, pumpkin seeds and so on. It was easy to deceive me, because I did know nothing about food plants in this part of the world. However, this was the start for some nice ethnopharmacological research, the result of which I present in this VEN."

Photograph: Armin Prinz, automatic release

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Content

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Editorial

Nina L. Etkin, University of Hawaii at Manoa

The University of Vienna's Department of Ethnomedicine was well represented in the scientific program of a recent ethnobotany conference. The International Symposium on Ethnobotany that convened in San Jose, Costa Rica 14-18 September was organised by the Universidad para la Paz and the Geodata Centre of Costa Rica in conjunction with La Fondation des Sciences et Lettres of Belgium. International sponsors included the Universidad para La Paz, UNESCO, and the Instituto Interamericano de Cooperacion para la Agricultura. Supporting Costa Rican institutions included the Ministerio de Ciencia y Tecnologia, Consejo Nacional de Investigaciones Cientificas y Tecnolgicas, Instituto Costaricenso de Electricidad, Instituto Nacional de Seguros, and Correos de Costa Rica.

The intellectual base of the conference ranged broadly across anthropology, history, botany, agriculture, and pharmacology and drew participants from South and Central Americas, the US, Europe, Israel, and Africa. Researchers from the Department of Ethnomedicine offered three of the plenary lectures which, together, reinforced the most important intellectual theme that emerged over the course of the conference: the value of biobehavioral (biocultural) studies that locate the pharmacological potential of medicinal plants within the specific ethnographic contexts in which medicines are culturally constructed and socially organised.

Professor Armin Prinz, Director of the Department of Ethnomedicine, summarised his long-term medical anthropological research (1972-90) among the Azande, whose traditional territory overlaps the postcolonial nations of Sudan, Central African Republic, and Democratic Republic of Congo. His conference address "Ethnopharmacologic Research on Medicinal Plants from the Azande, Central Africa" narrowed the focus from the larger ethnomedical study to the Zande botanical pharmacopoeia, which is extensive, as is the botanical knowledge shared by Zande healers and laypeople. Prinz discussed in some detail how plants are identified, selected for specific medical indications, prepared, administered, and dosed. In order to reduce the large Zande pharmacopoeia to a manageable subset of medicinal plants for closer examination, Prinz investigated the pharmacodynamic potential of ten of the medicinal plants that Zande healers use to treat "infections" in the broadest sense of that term including fevers, wounds, intestinal parasites, toothache, oral inflammation, dermatitis, cold with catarrh, and diarrhoea. Zande medicinal species tested for antimicrobial activity represent at least five families, and include: *Acacia seyal (Fabaceae)*, *Alchornea cordifolia (Euphorbiaceae)*, *Allophylus sp. (Sapindaceae)*, *Borreria ruellia (Rubiaceae)*, *Conyza bonarensis (Asteraceae)*, *Rhynchosia sublobata (Fabaceae)*, and the botanically undetermined plants *bavulubate (Asteraceae)*, *mbumba*, *pilidi baso*, *and tongbiloli*. Aqueous and methanol extracts of each plant were tested (with alcohol removed from the latter by nitrogen insufflation) against Staphylococcus aureus, Escherichia coli, Streptococcus faecalis, Pseudomonas aeruginosa, and Candida albicans. A microtiter method determined the minimal microbicidal concentration in dilutions of 1:2, 1:4, 1:8, etc. using broth as culture medium. Fully half of the 100 test samples yielded microbicidal action, with strongest activity in *Acacia seyal*, *Allophyllus sp.*, and *mbumba*. The implications of Prinz' work are twofold. First, the laboratory findings underscore the potential of Zande plant medicines. Interestingly, comparative studies of eight common European anti-infection medicinals yielded no antimicrobial action for *Calendula officinalis* (Scotch marigold, *Asteraceae*), *Matricaria chamomilla* (chamomile, *Asteraceae*), *Melissa officinalis* (melissa/balm, *Labiateae*), *Menyanthes trifoliata* (bogbean, *Menyanthaceae*), *Plantago officinalis* (plantain, *Plantaginaceae*), and *Solidago serotina*, *S. virgaurea*, *and S. canadensis* (golden rod, *Asteraceae*). Thus are we instructed that the Eurocentric bias of some ethnopharmacology is ill placed. Second, Prinz' research reveals the importance of context in ethnopharmacologic studies. He notes that if the test species had been macerated, as in Zande preparations, rather than immediately pressed

and filtered, it is likely that the antimicrobial activity would have been even greater. Overall, this presentation demonstrated a quote of Professor Prinz which I often cite: "the Azande do not use medicinal plants, they have relationships with them." That is to say, the real meaning and pharmacodynamic potential of indigenous medicines is revealed by reliable ethnography linked to laboratory study. Rather than simply generating lists of plants used for this and that, researchers must pay careful attention to the details of use including preparation in order to judge how indigenous people really affect their health through the use of plants.

Dr. Ruth Kutalek's address dealt with "Interdisciplinarity: Case Studies of Misunderstandings between Anthropologists, Ethnopharmacologists, and Indigenous People" and was based in her field experiences while conducting ethnomedical research in Tanzania. The difference in perspectives of the various contributors to ethnopharmacologic inquiry is fundamentally an artefact of the diverse intellectual domains that each represents. Natural products chemists and pharmacologists dichotomise western and other ways of knowing and regard bioscience as the universally valid truth while indigenous knowledge, with a less technologically-developed base, is merely a "story." Conversely, anthropologists value ethnoscience and, through careful ethnographies, reveal that indigenous peoples too are keen observers of their physical universe and that their constructions of reality both overlap western knowledge and offer additional insights into people-environment interactions. Bioscientists, anthropologists, and indigenous peoples also have difficulty communicating disease terms from one knowledge system to another. Symptoms simply translated from some local language will not necessarily find counterparts in the bioclinical vernacular. Moreover, only careful ethnography can uncover the meaning of symptom complexes and sequences, the various elements of a healing process, and especially what therapeutic objectives underlie a particular treatment. The pharmacologist's simple list of "Plants to Treat Disease X" will not instruct whether the medicine should induce vomiting to assure disease egress, diminish symptoms, appease a spirit, or something else. The examples discussed by Dr. Kutalek illustrate both convergence and divergence of emic (local) and etic (outsider, typically western) perspectives. Another basic misunderstanding is the assumption that indigenous pharmacopoeias are synonymous with traditional medicine. In fact, a pharmacopoeia is only a part of a medical system (as pharmaceuticals are only one aspect of biomedicine). The larger medical system is shaped as well by the cultural construction of disease aetiology, the meaning of medicines and illness, the social organisation of therapeutics, and the political and economic dimensions of production and access to health care. Biomedical attention to indigenous materia medica reflects a bias toward tangible, "rational" aspects of medicine, as if other features of indigenous healing are only and always "magical," thus "irrational." Other examples that Dr. Kutalek discussed illustrated that misunderstandings between anthropologists and local people tend to be smaller in conceptual magnitude, temporary, and eventually overcome in the course of in-depth field research. For example, the traditional healer with whom Dr. Kutalek worked finally persuaded her that the same plant used on one occasion as a magical cure might be selected in another therapeutic context for its physiologic effects. The dissonance was the anthropologist's, not the healer's. The primary strengths of this presentation are the substantiation of conceptual issues in ethnopharmacology and methodologic insights.

Doris Burtscher and Felicia Heidenreich presented results of their research on indigenous medicine among the Seereer Siin of Senegal ("Plants in Traditional Healing Practices of the Seereer Siin in Senegal"). Their 1996-99 study focused principally on Seereer healers, whose life histories embedded in the larger context of Seereer society and medicine revealed the details of training for the healing profession and the personal attributes and the therapeutic and preventive practices of those specialists. For the conference paper Burtscher and Heidenreich focused more narrowly on twenty-five medicinal plants (representing 14 families) used by Seereer healers. They demonstrated how the selection, preparation, and administration of botanical medicines represent not only their functional (phytochemical) properties but also their cultural dimensions as reflected in symbol and ritual. Their discussion opened with some rules that govern plant collection: the healer purifies himself and regards Monday and Thursday as favourable days; a doctrine of signatures is apparent in selection for attributes such as colour and shape; time of day

and position of sun are important; plants are addressed by prayer and in culturally salient terms. All plant parts are used, dried individually and stored in special fashion (e.g., powdered by virgins and touched only by healers) and later combined by the healer into medicine bundles whose specific composition he learned from ancestor spirits. Plant medicines are administered by various modes of application and combination, depending on therapeutic objectives and the circumstances of a particular disease episode. Infusions that wash the body purify to prepare ("open") the body for cure and cement the patient-healer relationship. Often the wash is specified for a specific location, for example at an anthill or crossroads. Beverages are prepared in dosing schedules that are marked numerically e.g., four for men, three for women. Medicines may be delivered via the smoke of burning plants or the steam that rises from their decoction. Other plants are applied during massage or rubbed onto joints or body parts. Certain plants are cooked into foods that are regarded to be nutritious but not ordinarily eaten, such as chicken, milk, eggs, and oils. Early in the therapeutic process, plants may be used to induce vomiting to assure that the disease substance leaves the body. Finally, plants (and other materials) are fashioned into protective amulets. Seereer medicine partly overlaps biomedical ideas of disease aetiology and therapeutic rationale. Diseases are caused by worms or agents that enter or leave the body through various orifices, and move up and down through the body. Medicines weaken or kill the illness to make it leave, and repurify the body. Burtscher and Heidenreich demonstrated that although the uses of some Seereer plants are consistent with their pharmacology, as understood by biomedicine, the symbolic and ritual dimensions of healing are equally important. The strength of this theoretically balanced presentation treats plants as both biodynamic and cultural objects.

Two additional papers from the Department of Ethnomedicine will be included, with those already discussed, in the published conference proceedings. Dr. Afework Kassa's "History and Practice of Ethnopharmacology in Ethiopia" opens with the observation that more than half of Ethiopia's sixty million people rely on indigenous medicine, which is comprised by botanical specialists, birth attendants, bone setters, barber-surgeons, and specialists in sorcery. In the last two decades traditional medicine has been formally recognised in Ethiopia through formation of the Ministry of Health Coordinating Committee, the National Research Institute Department of Traditional Medicine (DTM), and the Ministry of Agriculture Institute of Biodiversity; and appropriate curricula have been developed in the Departments of Pharmacognosy, Geography, and Botany at the University of Addis Ababa. These units provide infrastructure for ethnopharmacologic research, including support for the discovery of the efficacy of *Phytolacca dodecandra (Phytolaccaceae)* in the prevention of schistosomiasis. In 1993 the DTM published the book Medicinal Plants and Enigmatic Health Practices of Northern Ethiopia. Dr. Kassa's paper concludes with examples of which and how medicinal plants are used, a call for government assistance for traditional healers, and the admonition that these important traditional therapies should be evaluated according to conventional standards in pharmacy, pharmacology, and pharmacognosy.

Wondwosen Teshome's "Indigenous Medicinal Plants Used in Ethiopia" summarises his research on the use of botanical medicines in Addis Ababa. His six-month study in 1998 included vendors of medicinal plants, healers, and patients representing primarily the Amhara, Oromo, and Gurage ethnic groups. Significantly, this research recognises that a significant amount of health care is home-based and does not make the same mistake that some ethnographers do in interviewing only healers to describe "health practices of population X." Teshome reviews various of the instructions; some ritualised, that inform plant collection, preparation, and application. For example, some plants should be cut with iron instruments while the collector faces a particular compass direction and the medicine applied only in the afternoon. Three medicinal plants are reviewed in some detail: *Euphorbia candelabrum (Euphorbiaceae)*, *Allium sativum* (garlic, *Liliaceae*), and *Datura stramonium* (thorn apple, *Solanaceae*). The papers of Kassa and Teshome underscore the importance, and bear testimony to the emerging knowledge, of botanical and other traditional medicines in Ethiopia.

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Ethnopharmacologic Research on Poisonous and Medicinal Plants from the Azande, Central Africa

Armin Prinz

Introduction

The Azande are a farming and hunting population living at the Nile-Congo watershed in the corner between the boundaries of Sudan, Central African Republic and the Democratic Republic of Congo (former Zaïre). They resisted European conquest as late as the beginning of this century. They have an exogamous clan organisation, with the exception of the chiefs and noblemen, who are members of the endogamous Avungara clan. Since about 1920 European influence, especially the work of Christian missionaries, has changed the tribal situation completely. Not only have traditional beliefs in witchcraft and sorcery, which had played an important role in stabilising the society, been opposed, but the whole social structure has also been nearly completely destroyed. Another problem is the high sterility rate in the population. Up to 45 % of the women and up to 50 % of the men are infertile (Prinz 1986). The reasons for this are still not completely clear. Nowadays this situation is worsened by the unstable political situation in this area. Modern medical facilities are not existing any more. Traditional medicine is the only kind of treatment available for the population. Luckily for the Azande, knowledge about plants and traditional medicinal practices has survived the destructive influence from outside.

In the course of my ethnomedical field studies among the Azande during altogether 4 years between 1972 and 1990, I have collected medicinal and known poisonous plants used by the population and/or by specialised healers. I collected only those plants the use of which I have observed and documented myself. This and the fact that my field research was not exclusively focused on ethnopharmacology, but on medical anthropology in general, is the reason that only a few plants have been gathered during my staying in this area. In fact, the Azande know quite a large number of medicinal plants and have a huge general knowledge of botany as well. So I was very astonished that they identified the male and female form of the diœcious liana *yude (Manniophyton fulvum)* as the same plant, which appeared to me as a non-botanist like two different species. However, Azande don't distinguish plants by their organs, as scientific botanists do, but rather by their general appearance including the environmental characteristics of their habitat. Confusing can also be that sometimes names are given to plants according to their use. So it can happen that different plants have the same name, because they are used for the same purpose. With the term *kpoyo* for example, two species, *Bauhinia reticulata* and *Grevia mollis*, are named, but not because they are not recognised as different trees, but wooden sticks made of both of them are used as medium for the termite oracle.

Contrary to an opinion I previously expressed (Prinz 1980) the plant names of the Azande have not changed significantly in the course of time. The lists of folk names and their scientific terms prepared by Belgian botanists during the period between the two world wars proved to be still valid. For 15 plants of my herbarium, which were recorded in these lists, the botanical identification was the same.

Like the Azande knowledge of plants, their medical practices are characterised by constancy. Practically all treatment methods and many traditional drugs that we know from the 1929 treatise on Azande healing by the Dominican Father De Graer, are still in use today. In line with the zeitgeist of that era, the pharmacological value of the drugs was then held to be extremely low. Evans-Pritchard, the otherwise sensitive expert on the Azande, made a condescending comment on their materia therapeutica in 1934: "… I have no hesitation in saying … that their drugs almost entirely lack therapeutic value …", an opinion that can no longer be supported, as will be demonstrated by the findings reported here.

Material and Methods

Altogether 27 drugs were documented. Some of these are only of marginal pharmacological interest, such as 3 species used in the traditional production of ash salt. These are rich in iodine and therefore preventive of the commonly occurring goitre (Prinz 1993). Furthermore, some of these plants only serve as additives in magical practices and are therefore of ethnographic rather than medical significance. However, caution is called for with such statements, for what in the light of today's knowledge may appear as magical can at a later date be revealed as effective by natural science. A pertinent example is the Indian medicinal plant *Rauwolfia serpentina*, which after nearly 300 years of therapeutic use in Europe, was eliminated from the pharmacopoeia by "modern" scientifically oriented medicine around 1820 as a "magical" device. Its renaissance as highly effective medicinal plant was inaugurated only in 1952 with the discovery of the active ingredients reserpine, raubasine and ajmaline (Prinz 1996).

It was possible to botanically identify 23 of the 27 plants collected. Only those plants were documented that could be followed without interruption on their way from being gathered by the healer, to being prepared and administered, and the effects of which on the patient could be recorded. I paid particular attention to potential antimicrobial activity and obvious poisonous effects.

We investigated in all ten different medicinal plants used against "infections" in the broadest sense of the word. It is extremely difficult to translate traditional diagnoses into the precisely defined clinical pictures of our medicine. Consequently, we are reproducing here the indigenous description for the use of the plants investigated, as explained to us in the field:

1. *vondio (Alchornea cordifolia):*
Against diarrhoea, abdominal pain and infestation with worms: a decoction of the leaves is drunk twice daily for three days.

2. *pilidi baso* (unidentified):
For inflamed and suppurating wounds; a handful of leaves is ground up and firmly rubbed into the wound. This is continued until the inflammation has subsided.

3. *miliayele (Conyza bonariensis):*
For inflamed wounds; the freshly pressed sap is applied several times daily to the wounds until the inflammation has subsided.

4. *balizelu (Borreria ruellia):*
Against dermatomycoses; the whole plant is ground up and firmly massaged in, all over the skin areas affected. This is continued until the mycosis has been overcome.

5. *mbumba* (unidentified):
Against intestinal infections (particularly when there are severe cramps); the extract of the leaves is drunk several times daily. When the patient is in great pain the solution is also administered once daily as an enema.

6. *kiwe (Acacia seyal):*
Against toothache and oral inflammation; the inner bark of the root is scraped off, mixed with water and boiled for a short time. The mouth is rinsed once daily for three days.

7. *gbeule (Allophylus sp.):*
Used against colds associated with catarrh and headache; the extract of the fresh leaves is drunk as tea several times daily and the vapour from the hot solution is inhaled.

8. *bavulubate (Asteraceae):*
Used against diarrhoea; tea made from the fresh leaves is drunk several times daily until the trouble has been overcome.

9. *bakati (Rhynchosia sublobata):*
Used against abscesses; the bark is scraped off, filled into a leaf rolled into a funnel-like shape, a little water is added, the whole heated in hot ashes and then infiltrated into the abscess cavity after opening with a razor blade. The wound is closed with a mixture of plant ashes and groundnut oil.

10. *tongbiloli* (unidentified):
Used as diagnostic oracle; it has a hitherto unidentified toxic action: the bark of this liana is scraped off, mixed with water and infiltrated into the eyes, ears, nose and mouth of the patient. If symptoms of poisoning appear after some time (blood tinged mucus from the nose, spasmodically closed eyes, nausea and vomiting) then the patient's illness is regarded as curable.

Preparation of the plant extracts:

We prepared an aqueous and a methanol extract of each plant. About 2-4 grams of the fresh plant material was chopped with a knife and then, after adding 20 ml of water (or methanol), ground up in a mortar. A disposable syringe was filled with this plant mixture and then pressed out. The liquid thus obtained was next filtered through filter paper, then drawn once more through a disposable sterile filter and finally poured into sterile tubes.

Testing by the microtiter method:

We determined the minimal bactericidal concentration (MBC) of the plant extracts in the dilutions: 1:2, 1:4, 1:8, etc. on Müller-Hinton broth as culture medium. As inoculum we used about 10^5 colony-forming units (CFU) per ml and incubated for three days at 37°C. As control, we grew a subculture on a solid culture medium. The alcohol from the methanol extracts was removed by insufflation of nitrogen before the test.

For test purposes we used the following micro-organisms:
Gram positive: *Staphylococcus aureus* (SA) and *Streptococcus faecalis* (SF),
Gram negative: *Escherichia coli* (EC) and *Pseudomonas aeruginosa* (PA),
Yeast: *Candida albicans* (CA).

Results

Bactericidal action was found in 50 out of the 100 test samples:

Bactericidal and fungicidal action of the Plant extracts tested

PLANT		SA	SF	EC	PE	CA
vondio	H^2O	1:>256	1:64	-	-	-
(Alchornea cordifolia)	CH^3OH	1:>64	1:8	1:2	1:2	-
pilidi baso	H^2O	-	-	-	-	-
(unidentified)	CH^3OH	-	-	-	-	-
miliayele	H^2O	-	-	-	-	-
(Conyza bonariensis)	CH^3OH	1:2	-	-	-	-
balizelu	H^2O	1:4	-	-	-	1:2
(Borreria ruellia)	CH^3OH	1:8	1:4	-	-	1:8
mbumba	H^2O	1:16	1:2	1:2	1:4	1:2
(unidentified)	CH^3OH	1:16	1:4	1:2	1:2	1:2
kiwe	H^2O	1:16	1:4	1:4	1:4	1:4
(Acacia seyal)	CH^3OH	1:32	1:8	1:8	1:4	1:16
gbeule	H^2O	1:8	1:4	1:2	1:2	1:4
(Allophyllus sp.)	CH^3OH	1:4	1:4	1:4	-	-
bavulubate	H^2O	-	-	-	-	-
(Asteraceae)	CH^3OH	1:8	1:8	-	-	-
bakbati	H^2O	-	-	-	-	-
(Rhyncosia sublobata)	CH^3OH	1>64	1:32	-	-	-
tongbiloli	H^2O	1:4	-	-	-	-
(unidentified)	CH^3OH	1:>64	1:32	1:4	-	1:8

Since, on principle, in preparing all the plant extracts, we bypassed maceration and carried out immediate pressing and filtering, it is possible that appreciably better results might be obtained using the traditional procedures, which invariably call for a much longer period of extraction.

Beside these plants with antimicrobial action, 4 plants with obvious toxic effects could be studied.

1. *Benge (Strychnos icaja)* is the traditional oracle poison of the Azande. This type of divination has already been known since the "discovery" of the Azande by European explorers in the second half of the 19th century, but the identity of the plant has hitherto remained unknown. Only after long and troublesome investigations I succeeded in obtaining material of this most secret drug. Chicken are used as a medium for the poison oracle which is interpreted as positive or negative according to the chickens' surviving, or not surviving the poison test. For detailed descriptions of this oracle refer to Evans-Pritchard (1937) or Prinz (1978). The poisonous effect is mainly due to strychnine- and brucine-like alkaloids. The plant contains at least 13 major alkaloid fractions. New about *Strychnos icaja* is not the plant itself but its identity with the *benge* of the Azande (fig.1).

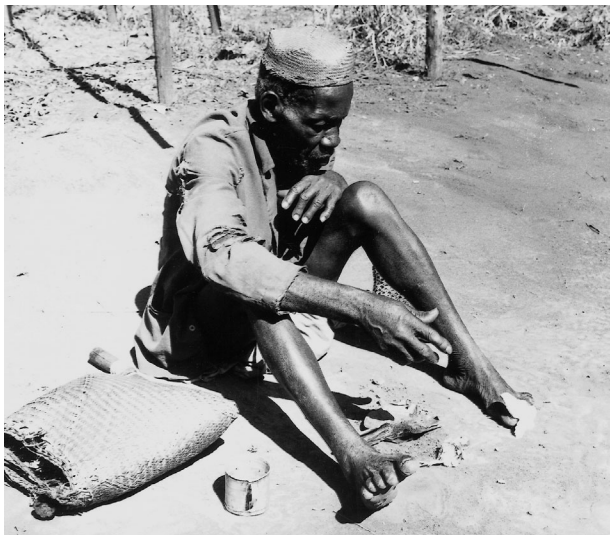

Fig. 1: The oracle poison *benge (Strychnos icaja)* is administered to young chicken for the consultation of the oracle. The response of the oracle is positive or negative, depending on the survival or not of the test animal. Two chicken are required each time for the oracle consultation, one for the actual question (here the chicken already lies dead on the floor) and one for the confirmation of the first response.

2. *Tongbiloli* (unidentified) is used as diagnostic oracle. The healer administers this poison in order to find out whether he can cure a particular patient or not. An aqueous extract prepared from the bark or the root of this plant is instilled into eyes, nose, ears and mouth of the sick person. A positive reaction indicating success of the intended treatment consists of a strong yellowish, slightly blood tinged secretion from mouth and nose, appearing after a few minutes. The eyes are closed in a spastic manner, the neck is bowed (fig.2 & 3). In most cases vomiting occurs some time later and general well

Fig. 2: The poison *tongbiloli* is administered to the patient's eyes, ears, nose and mouth as a diagnostic oracle. A toxic reaction indicates to the healer that the illness is curable.

Fig. 3: The positive reaction to the diagnostic oracle *tongbiloli* consists of a strong yellowish and slightly blood tinged secretion from nose and mouth, appearing after a few minutes. The eyes are closed in a spastic manner. Vomiting may occur later on.

feeling is affected over many hours. There is some indication that persons have on occasions died through this "treatment". To date it has not been possible to identify the plant. On initial pharmacognostic testing no significant amount of alkaloids could be found that would suggest a parasympathicomimetic agent similar to physostigmine. The extract of the plant shows remarkable antimicrobial effects, as indicated above. Toxicological investigations indicated significant poisonous action and confirmed the observation made in the field. However, at this time nothing can be stated about the ingredients responsible for such action. In test animals, death often did not occur before 72 hours after administration of the poison. Toxic symptoms were pulmonary haemorrhage, disturbed blood coagulation, CNS-induced spasms, or gangrene of the extremities. A dose-effect relation could not be produced. Mice of equal size from the same breed, which received identical drug amounts by intraperitoneal injection of equal speed, would die after 15 min., after 2 to 3 days, or would survive without further symptoms.

3. *Mokoko (Tephrosia Vogelii)* is the fish poison of the Azande and contains an active principle similar to rothenone. The leaves are pounded and put into a basket, which is immersed into the water until foam appears all around. Dead or numbed fish will surface after about one hour. This plant is therapeutically used in the treatment of scabies. The affected areas are washed with an aqueous solution of this drug several times a day. Bed frames are also washed with this solution, in order to combat bed bugs.

4. *Ngbandia (Periploca lineari folia* and *Parquetina nigrescens)* are the two arrow poisons of the Azande. They have been given identical indigenous names because they are used for the same purpose, although people know that these are two different plants. The latex-like sap of the plants is applied to the arrow tips without further preparation. Its lethal effect is due to the high content of cardiac glycosides. The latex sap is also successfully utilised to mend the inner tubes of cars and bicycles.

Discussion

It is difficult to interpret these antimicrobial activities, for amount and concentration of the active plant substances involved, in the aqueous solutions investigated, are unknown. In order to counter the argument that similar active ingredients are to be found in all plants (in the sense of an omnipresent "antibiotic principle" of living matter), we investigated by the same method medicinal plants known here in Europe (Camomile *Matricaria chamomilla*, Calendula *Calendula officinalis*, Marsh Trefoil *Menyanthes trifoliata*, Plantain *Plantago officinalis*, Melissa *Melissa officinalis*, Golden Rod *Solidago serotina*, *Solidago virgaurea*, *Solidago canadensis*), which are highly prized in our own traditional medicine for use in infectious and febrile conditions.

Only camomile was used in the form of a drug, i.e. dried in accordance with the pharmacopoeia, since, because of the season, no fresh material was available. All the other plants were prepared in fresh state. Surprisingly enough, we were unable to find any antimicrobial action in any of the European medicinal plants examined.

It therefore seems proven that the traditional medicinal plants from Central Africa contain remarkable antimicrobial substances that could definitely enrich our modern pharmacology. The only difficulty is the reluctance of government and non-government research institutions to make available the appropriate research specialists and provide the financing required for the exhaustive investigation involved in the isolation of unknown plant ingredients.

Of the poisonous plants, the oracle poison *tongbiloli* above all appears worthy of further investigation. Its botanical identification must be pursued as a priority. We are planning such a project in the near future, whenever its implementation will be feasible given the political situation in this nowadays very unstable geographical region.

References

De Graer, P.A.M.(1929) L'art de guérir chez les Azande. Congo 10; 1, 2+3; Brussel.
Evans-Pritchard, E.E. (1934) Zande Therapeutics. Essays presented to C.G.Seligman. London
Evans-Pritchard, E.E. (1937) Oracle, Witchcraft and Magic among the Azande. London
Prinz, A. (1978) Azande (Äquatorialafrika, Nordost-Zaire) – Gift Orakel, Film E 2380; IWF.

Publ.Wiss.Film., Sekt.Ethnol., Ser.8, Nr.19, 18 S. Göttingen.
Prinz, A. (1980) Die Pflanzenheilkunde der Azande heute, im Vergleich zu den Ergebnissen De Graer's aus dem Jahre 1929. In: Curare, Sonderband 3, 249-252.
Prinz, A. (1986) Medizinanthropologische Überlegungen zum Bevölkerungsrückgang bei den Azande Zentralafrikas. In: Curare, Vol. 9, 257-269.
Prinz, A. (1993) Ash Salt, Cassava and Goitre: Change in the Diet and the Development of Endemic Goitre among the Azande in Central Africa. In: C.M.Hladik et al. (edit.) Tropical Forests, People and Food. Biocultural Interactions and Applications to Development.Parthenon-UNESCO. Paris.
Prinz, A. (1996) D'un remède ancestral à un médicament moderne. Sur la piste et les fausses pistes du Rauwolfia. In: E.Schröder et al. (edit.) Medicaments et aliments. Approches ethnopharmacologique. Orstom. Paris.

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"Interdisciplinarity": Case Studies of Misunderstandings between Anthropologists, Ethnopharmacologists, and Indigenous People

Ruth Kutalek

Introduction

Modern medicine is almost unthinkable without the contributions of traditional pharmacopoeias. Important substances such as Chinin, Cocaine, Morphine and Codeine, Curarine, Vinblastine and Vincristine have their roots in traditional medicine (Schiefenhövel/Prinz 1984). In view of the loss of indigenous knowledge it is extremely urgent to undertake more and better research in the field of ethno-pharmacology. To reach this goal the cooperation and coordination of the different disciplines and actors involved - anthropology, ethnopharmacology and traditional knowledge - becomes essential. However, this aim is achieved with more difficulties than it may appear at first glance.

Obtaining case-material in the field of misunderstandings between sciences, and especially between traditional and Western science, is difficult because scientists, with some exceptions, rather speak and write about their successes than about their failures. The material presented here is therefore mostly derived from my own field experiences and from discussions with colleagues.

Basic Misunderstandings

Traditional knowledge was never perceived equal to Western science. Science has always been and still is associated with Western culture. Few people conceded to traditional sciences an important role in enhancing knowledge of humanity. This was even more so for traditional medicine and indigenous pharmacopoeias [There are some exceptions though. Weck, who was senior doctor of the Imperial Colonial Troops in German East Africa, is one of the few in his time and maybe even up to now who speaks of traditional medicine as a science (Weck 1908)]. Only recently this attitude seems to change (Nader 1996: XIII). The findings of Western science have always been considered to be universally valid and real. Western science tends to dichotomise between indigenous knowledge and science. This opposition includes certain aspects that are believed to be valid and

excludes others that are seen as invalid or unscientific. "Contrast also tends to fix a positional superiority in the mind of the categorises - the notion that one is superior by virtue of being in a position to create the categories, or to draw the lines." (Nader 1996:2) Laura Nader asks "whether a narrowly demarcated science - one restricted to contemporary Western ways of knowing - provides us with the greatest source of truth." (1996:3) Science can only reflect contemporary concepts of truth. Therefore all aspects of traditional knowledge, even if some seem not to be understandable at present, have to be recognised and not termed unscientific. If some scientists say that "magical principles have little to do with science" (Berlin et al. 1996: 44) it shows a disregard for data that might be useful in the future. Armin Prinz has given a very good example about a medicinal plant, *Rauwolfia serpentina* (L.) Bent. ex Kurz, which had been described in many old European pharmacopoeias and acknowledged as an effective herb. In the 18th century many of these herbal books were cleaned of all "superstitious" or "useless" plants, among them the *Rauwolfia*. In the 1950 this plant was rehabilitated, because investigations showed that it is rich in important chemical constituents (Prinz 1993). Are we able to decide at present what will be "magic" and what will be "science" in the future?

Another very basic misunderstanding is the assumption that indigenous pharmacopoeias are synonymous with traditional medicine. However, indigenous pharmacopoeias are only part of medical systems. Even if medicinal plants and other remedies *are* important in traditional medicine, social, cultural, religious and economic aspects play a role that is of equal significance for the health and illness of people. Often traditional pharmacopoeias are valued higher than their underlying systems. They are seen as the "rational" forms of treatment in contrast to the "irrational" forms, which include the use of "magical" substances or the conducting of rituals. This attitude has its roots in the history of colonialism. Since its beginning missionaries from various churches have been fighting the "superstitions" of the people, trying to destroy the manifestations of their religion, including the "irrational" elements of traditional medicine. The local knowledge of plants, however, was often accepted because it was thought to be comprehensible and useful. The attitude to contrast "rational" with "irrational" forms of treatment is still found in many scientific articles.

Misunderstandings Concerning Concepts of Disease

It is difficult to translate terms of disease from one medical system to another, in the same way as the indication, why a certain remedy is used, can't be simply transferred. Definitions of disease as well as the concepts how, why and in which part of the body a remedy is seen active are to a great extent culturally bound. Considering this it is surprising what some scientists understand of ethnopharmacology. Long lists enumerate plants and their uses, and they are compared with other pharmacological or pharmacognostic works, alphabetically listed by symptoms and/or scientific names. In ethnomedical reality this kind of "smooth" comparisons are virtually non-existent. Rarely one finds in these contributions indigenous points of view [For an exception see Harjula 1980]; rarely it is mentioned that medicinal plants are only part of an indigenous healing system. A traditional treatment is not merely the "sterile" provision of roots, barks and herbs. It also involves the understanding of nature and ancestors, spirits or gods in the healing process (Iwu 1995: 118). So called personalistic aspects or indigenous notions of efficiency are almost always neglected. They are often called unscientific or irrational and are excluded from further research. Armin Prinz (1990:97) has given an example to show that this neglect is merely unjustified [Many others have also criticized the investigation of indigenous pharmacopeas merely by the point of efficency, dosage and contents as too limiting (Friedberg 1990:77, Westerlund 1989:204)]. He cites N.E. Himes on the use of contraceptive plants by South Sea islanders: "These are undoubtedly ineffective since no drug taken by mouth is known to Western science that will prevent conception." (Himes 1936:25) In a later edition of the book this statement had to be taken out overtaken by the findings of Western science.

Misunderstandings regarding terms of diseases can greatly influence scientific research. During field research in Belize Michael J. Balick found out that several plants are used traditionally to treat "cancer". He further on recorded these

plants as having presumed "anticancer" activity. Only after some time did he realise that the word "cancer" amongst healers in Belize and also elsewhere in Central America is the local word for "an ailment characterised by severe, weeping open wounds that are chronic, spreading and difficult to heal" (Balick 1995: 5/6). This is, by the way, one of the few scientific works that also admits failures in the course of a research.

The Swahili expression "Ninauma tumboni" can be translated as "I am suffering in the stomach". However, the meaning can be manifold, reaching from diffuse complaints in the belly to pain in the stomach or pain during pregnancy. When a traditional healer therefore claims that a plant is "good for the stomach" it may include several meanings. Recently I had a discussion with a medical doctor, who is also working on shamanism. He believed that for all people in the world "stomach" is the same thing as well as the perception, how it functions, is similar. I gave him my example from Tanzania that didn't really seem to convince him.

A. A. Craveiro gave a vivid example concerning data in pharmacognosy research. He and some colleagues were studying a plant from the *Euphorbiacea* family called *Croton sonderianus*. It was brought to his laboratory with the information that it was a very effective contraceptive. They decided to find out why this specific plant is used by the local population and not anywhere else. He learned that the long sticks the plant yields are kept by the wife next to the bed and when the husband comes home during her fertile period, she just hits the husband three times with the stick. That is seen as a very effective contraceptive. (Craveiro 1995: 55) For the ethnopharmacologist it may not be of interest to ask any further questions. He has decided that this information is of no use to his research. The anthropologist's task is to go beyond this assumed "superstition" and ask questions regarding indigenous concepts of effectiveness. Why do people think that this method/plant works? What do they understand by a certain disease? What are the social aspects of a certain disease? etc.

Misunderstandings in Communication

The following field experience is from Richard A. Shweder who did research on cultural psychology in Orissa, India. One might assume that this field of science has nothing to do with ethnopharmacology. However, regarding problems of communication this example is important for ethnopharmacology and in fact for social anthropology in general. Shweder was speaking to some of his colleagues who were bilingual in Oriya and English about a woman whom he intended to employ as an assistant. Someone said: "You should hire her to work with you. She is a very shy girl. Yes, hire her. She is a very shy girl." He immediately realised that there had to be some kind of communication problem because they seemed to use the word "shy" in a rather unexpected way, at least not designed to emphasise the virtues of an assistant-to-be. Shweder came to know that they used the word "shy" as a translation of the Oriya word "lajja", which has a lot of lexical meanings. In the end of his investigation he arrived at the notion of "respectful, restraint" as a translation of "lajja". This virtue is seen as powerful, good and civilised. This experience in cross-cultural translation led him to the question, "What are the component parts of the concept of an "emotion" that might enable us to make reasonable decisions about whether mental state terms are equivalent across languages?" (Shweder 1999: 68) Isn't the same reflection applicable for terms of disease?

Misunderstandings between Western Scientists and Indigenous People.

My first encounter with ethnopharmacology was in the course of ethnomedical field research aimed at documenting the life story of a traditional healer, Steven Lihonama Lutumo, in Tanzania (Kutalek 1999). Besides recording his biography I took part in divination and healing sessions, participated in rituals and learned about the medicinal plants used by Lutumo.

It was at the very beginning of my first fieldwork. I was sitting in the courtyard of Lutumos compound, practising participant observation which means I waited for "something to happen". Lutumo and one of his helpers carried piles of various cut roots, barks and herbs out of a small chamber to be dried in the sun. They placed everything carefully on a small platform in the middle of the courtyard. I watched them,

wondering what was going to happen next, not daring to help them, because I was unsure whether I was allowed to touch the plants at all. Finally Lutumo waved me to come. He explained to me that he wanted to show me the different uses of these plants. Happily I unpacked my tape-recorder and asked him if it was ok. to record everything what he was saying. He nodded. One after the other he pointed to the chips of roots and barks and powders lying in front of us, explained the use of each of them, and gave me their names. Each pile looked more or less the same to me, varying only little in colour and texture. Stoically I recorded everything and transcribed it in the evening. On the next occasion I asked him to show me the same plants in the bush, hoping that I would get to find out what they really looked like. He agreed immediately. However, the visit was postponed many times and finally I got the impression that he was actually not willing to show the plants to me in their original surrounding. Some friends told me that he was probably too polite to tell that he didn't want to do so. I had to change my method. From now on, whenever he brought a bundle of plants from the bush, I would pull out one of them and ask him everything I wanted to know. To this he responded openly. I was obliged to go to the bush by myself later to find the plant to put in my herbarium file. It cost me hours and hours but most of the time I was successful. Sometimes Lutumo and I met in the bush by chance, waving at each other and asking what the other had found.

On another occasion I asked him about the ingredients of his "universal medicine" - various powders that are each kept in separate calabashes, closed firmly with a maize-spadix. For every patient he mixed the powders individually. After several discussions he said he would label all the calabashes so that I would know what plant was in which calabash but he never actually did so. After some time I gave up. I accepted that he did not want to show me. He told me that I would come to know the plants better with each patient. His motto was "learning by doing". He refused to only show me the plant, describing the symptoms it is used for and its preparation without a practical context. This was his way of teaching me.

The first misunderstandings I encountered were manifold and I suppose, many researchers encountered the same problems. First Lutumo explained to me his already processed or half-processed remedies. It was impossible for me to differentiate the various piles of barks and roots, let alone identify a single plant. It seems to be a usual method of traditional healers to show foreigners and even their own kin only powders or otherwise processed remedies, suspecting that they might use the information for their own benefit. But I do not believe that Lutumo feared this because he did explain the plants to me, but he obviously did not want to show me the place where they grew. I had to find out myself. Our basic misunderstanding took root in different concepts of learning. He must have presumed that I already possessed certain knowledge of indigenous plants, the day-to-day knowledge of a Bena. He expected me to learn in the practical situation watching what kind of remedies he would apply in a certain case. I expected him to explain the plants outside these situations as well.

From the very first day it was striking to me that quite a lot of his remedies were used for magical purposes, to defend *uchawi* - witchcraft. I also noticed a discrepancy in the information he gave me in the beginning to what he told me later. First he stressed the magic use of a plant, later, when I saw him using it in a concrete situation, he underlined its, what we would call, physiological effects. Only after a while I realised that this discrepancy only existed in my own mind - Lutumo himself did not see any contradiction. For him both uses were equally valid. Should I include this magical use in my field data or leave it out because of its supposed unscientificness? Should these findings be handled as ethnopharmacological data or not? If we are to document indigenous pharmacopoeias from the point of view of the people will it not be our duty to include information that may seem "unscientific" to us but very logic to the concepts of local people? Shouldn't it be essential to accept the informant's world vision entirely? I finally decided to take an emic approach feeling that this is the way we can most appreciate the other's way of seeing the world. At the same time I am very well aware that this can only be done approximately. I wouldn't dare to say that anybody could fully know the other's truth.

This kind of misunderstandings can give rise to

a great distrust of indigenous people towards all kinds of researchers and scientists. To illustrate this I want to talk about an experience I had in Ethiopia where Armin Prinz and I visited one of our department's Ph.D. students. One day we were invited by the director of the Ethiopian Healer's Association. This organisation was founded by traditional healers and issues licenses for traditional health practitioners. Its office is in the building of the Institute of Biodiversity. Apart from the director, who is a traditional healer himself, two other gentlemen were awaiting us in the office, both traditional healers as well. Our discussion was a bit slow moving because none of the present spoke English and the translation from and into Amharic took a lot of time. The topic evolved around herbalism. All present declared that they would only use medicinal plants in their work and denied that members of their association practised any form of ritual or spiritual healing. We said that herbal medicine was certainly very important, but we were much more interested in these other aspects of healing. They seemed to be quite astonished about that. Before, they made the impression of being withdrawn in their talking and gestures in an almost lethargic manner. After changing the topic, however, the conversation became much livelier. One of the healers very vividly described his own work as a traditional healer, still a bit cautious in the presence of the director but none the less did he include also the spiritual aspects of his work. Everybody wanted to be first in telling his stories. But "officially" they are all herbalists, not wanting to have anything to do with this "superstitious nonsense".

During the conversation the director was holding a small bottle filled with a liquid. He explained that this remedy helped in various kinds of eye-infections. He would not tell anybody its composition, and certainly not to the pharmacognosists, because they did not respect the work of the association. To stress his statement he gave the example of the discovery of a molluscizidous plant, *endod (Phytolacea dodecandra)*, which was based on the knowledge of some traditional healers who did not benefit at all from revealing their knowledge to Western science.

A few days later we were invited to a meeting with, as we assumed, other members of the association. However, besides the director of the Healer's Association only members of the Institute of Biodiversity, among them a biologist, were present. The latter spoke English fluently and played a major role in our discussions. At one point I recalled the conversation with the director and mentioned that a cooperation between pharmacognosists and traditional healers seemed not to be favoured by the traditional healers. Whereupon the biologist reprimanded the director rudely in Amharic telling him that he shouldn't say this sort of things to Westerners. This was translated to us only after the discussion.

… between Ethnopharmacologists and Anthropologists

The basic misunderstanding between ethnopharmacologists and anthropologists seems to lie in their different perceptions concerning the approach to ethnopharmacology - the way of social science or natural science. "Ethnologists as representatives of the 'ethnological' point of view often regard our field merely as an 'ethnography of human concepts concerning the effects and uses of medicinal plants in a cultural and social context', while on the part of the scientists of the 'pharmacological' school, the fact that certain plants are used in ethnic medicines frequently just replaces the random principle in their selection of plants for further chemical analyses." (Prinz 1990:95)

Difficulties also evolve out of the misperceptions of the other's methods, the other's possibilities and limits. The social scientist usually learns about disease concepts and disease aetiology, he knows how the people he works with perceive the human body, how they understand it functions, what role ancestors and spirits play in illness/health of "their" people. When a traditional healer speaks about a certain disease the anthropologist is aware that the healer's understanding of the disease does not necessarily correspond to the premises of western bio-medicine. Anthropologists and other social scientists collect necessary and important information about the basics of human relationships and illness. But asking them about medicinal plants you come to know that some of them do not even know about the basic techniques of collecting plants let alone how and where to have them identified. Some are even ignorant about the

fact that a herbarium file is necessary for further documentation. Others present plant material that is impossible to identify - ominous barks, roots and powders that are used in traditional medicine, hoping that "something can be done with it". I saw social anthropologists whose field-data were - to say the least - questionable. Some didn't collect plant material to have it identified. The data relied on indigenous plant names and was not verifiable otherwise. I also saw nicely collected herbarium files, correctly numbered on each sheet, but the numbers on the sheet didn't correspond with the documentation in the field notebooks. I saw careless documentations with missing data as to where the plants were collected and what they are traditionally used for. Anthropologists usually know about the basics but they often have no idea about other data necessary for a qualitative and balanced scientific research. Botanists and other natural scientists, on the other hand, know well how, what parts and what amount of the necessary plant has to be collected so that it can be used for further scientific research. What they often do not care to investigate is the specific indications the plant is used for traditionally. In their reports they may document that it is used for certain diseases. They might not know or have not cared to ask whether according to the ethnic group's body concepts this certain disease may have varied meanings and therefore may not be easy to translate into Western terms of disease. Often natural scientists forget the social, economic or religious background of an illness. Another point that pharmacologists do tend to underestimate is the time factor. I can't conceive how field data of dozens of plants from various families can be collected in a few weeks only, as Hedberg et al. (for example 1982) were doing. Maybe they used a special method, which they, however, didn't find necessary to mention.

As Nina Etkin put it: "Anthropologists … have studied medicinal plants as cultural objects in order to relate medical cosmologies to perceptions of the biological universe. And botanists have been more likely to investigate phytochemical constituents devoid of cultural and other contextual data. Thus, until recently, much of ethnopharmacology was either biologically disinterested or ethnographically naive." (Etkin 1990: 149)

Research from Within

For ethnopharmacological research it is vital that emic views of the people we work with are accepted. Up till now this has not been given enough consideration. As David Young and Jean-Guy Goulet put it, "emic views are not considered as serious alternatives to Western scientific conceptions of reality." (Young/Goulet 1994:10) To illustrate this emic view I would like to give you an example from my field studies.

The Bena of Tanzania understand by the term *lyang'ombe* a group of plants (of which one could be identified as *Geniosporum aff. rotundifolium* Briq., *Labiatae)*, a technique to bewitch somebody and a disease at the same time. Most *lyang'ombe* plants are trees or shrubs, only one of them is an herb. To differentiate these plants they are designed as, e.g. the old, the big, the small, a male or a female *lyang'ombe*. *Lyang'ombe* is also the term for a disease which begins with pain in the feet and the knees, the legs begin to swell, the patient generally feels weak and is not able to work anymore. Further symptoms can include bloody diarrhoea, loss of weight, vomiting and dizziness. The cause for this disease is bewitching with *lyang'ombe*. One of the *lyang'ombe* plants is used as an agens. The plant is treated magically and buried at a crossroad were the victim will "jump on it" and thus get infected. *Lyang'ombe* moves through the blood. It "sucks the blood from the victim". He becomes weaker and weaker until he eventually dies. As the traditional healer Lutumo puts it: "*Lyang'ombe* first attacks from the stomach, then it runs to the legs where it stays for some time. Then it comes back again to get more blood from the victim. The person gets very weak. It comes up slowly from the legs. When it moves here (he points to his stomach), it stays. But when it stays here (points to the upper part of his stomach), if it dries here, if it has sucked everything, the victim will die." The death of the victim, however, doesn't mean that *lyang'ombe* becomes ineffective. It is seen as a personified being that starts to develop a life of its own. If *lyang'ombe* is once set free it can go on existing without his former "owner" or "sender". It searches for another victim who is most often blood-related to the first one. Therefore it is extremely important to interrupt its circulation

what can be done with special techniques and the administering of one of the *lyang'ombe*-plants as a counter-medicine.

In the minds of people the effectiveness of drugs very often implicates much more than just physiology. A natural scientist may only see the plant and its use for certain indications. He might further note that it is used for magical purposes without understanding that these plants are not merely plants in our sense but imbedded in a whole cognitive system of nature perception.

Conclusion

Qualitative methods should be the basis of ethnopharmacological research to overcome these misunderstandings and to give people the space to express their own concepts. Ideally, scientists from different disciplines should know about each other's methods and possibilities. An anthropologist working in the field should know the basics of how to collect medicinal plants, what parts of the plant to collect, how to prepare these parts, and what questions to ask of the informants in order to render material that is useful for further scientific investigation. A pharmacologist should know about the adequate anthropological field methods like participant observation or interview techniques and the problems that are likely to be encountered. If we can overcome these misunderstandings a fruitful cooperation will be possible.

Literature

Balick, Michael J. (1995) (reprint from 1994) Ethnobotany, Drug Development and Biodiversity Conservation - Exploring the Linkages. In: D. Chadwick and J. Marsh (eds.): Ethnobotany and the Search for New Drugs. Ciba Foundation Symposium 185. Wiley: Chichester, 4-18

Berlin, E.A.: Berlin, B.; Lozoya, X.; Meckes, M.; Tortoriello, J.; Villarreal, M.L. (1996): The Scientific Basis of Gastrointestinal Herbal Medicine among the Highland Maya of Chiapas, Mexico. In: L. Nader (ed.): Naked Science. Anthropological Inquiry into Boundaries, Power, and Knowledge. Routledge: New York/London, 43-68

Craveiro, A.A. (1995) (reprint from 1994) Discussion - Contribution. In: D. Chadwick and J. Marsh (eds.): Ethnobotany and the Search for New Drugs. Ciba Foundation Symposium 185. Wiley: Chichester, 55

Etkin, Nina (1990): Ethnopharmacology: Biological and Behavioral Perspectives in the Study of Indigenous Medicines. In: T.M. Johnson and C. F. Sargent (eds.): Medical Anthropology. A Handbook of Theory and Method. Greenwood Press: New York/Westport/London, 149-158

Friedberg, C. (1990): Méthodologie d'enquête sur les plantes médicinales dans le cadre de l'ethnoscience: exemples Indonesiens. In: Actes du 1er Colloque Européen d'Ethnophamacologie, Metz, 77-86

Harjula, Raimo (1980) Mirau and his Practice. A Study of the Ethnomedicinal Repertoire of a Tanzanian Herbalist. Tri-Med Books, London

Hedberg, I.; Hedberg, O.; Madati, P.J.; Mshigeni, K.E.; Mshiu, E.N.; Samuelsson, G. (1982) Inventory of Plants Used in Traditional Medicine in Tanzania.I. Plants of the Families Acanthaceae-Cucurbitaceae. In: Jounral of Ethnopharmacology, 6, 29-60

Himes, N.E. (1936) Medical History of Contraception. Williams & Wilkins, Baltimore

Iwu, Maurice M. (1995) (reprint from 1994) African Medicinal Plants in the Search for New Drugs Based on Ethnobotanical Leads. In: D. Chadwick and J. Marsh (eds.): Ethnobotany and the Search for New Drugs. Ciba Foundation Symposion 185. Wiley: Chichester), 116-126

Kutalek, Ruth (1999) Steven Lihonama Lutumo. Leben und Arbeit eines traditionellen Heilers der Bena Südwest-Tansanias. Ph.D Dissertation, Vienna

Nader, Laura (ed.) (1996) Naked Science. Anthropological Inquiry into Boundaries, Power, and Knowledge. Routledge: New York/London

Prinz, Armin (1990) Misunderstandings Between Ethnologists, Pharmacologists and Physicians in the Field of Ethnopharmakology. In: Actes du 1er Colloque Européen d'Ethnophamacologie, Metz, 95-99

Prinz, Armin (1993) Von der Schlangenwurz zum modernen Pharmakon. Wege und Irrwege der Rauwolfia. In: Curare 16, 3+4, 223-236

Schievenhövel, Wulf; Prinz, Armin (1984) Ethnomedizin und Ethnopharmakologie - Quellen wichtiger Arzneimittel. In: F.-C. Czygan (ed.): Biogene Arzneistoffe. Friedr. Vieweg & Sohn, Braunschweig/Wiesbaden, 223-238

Schweder, Richard A. (1999) Why Cultural Psychology? In: Ethos 27, 1, 62-73

Weck, ? (1908) Der Wahehe-Arzt und seine Wissenschaft. (The Wahehe-Doctor and his Science). In: Deutsches Kolonialblatt XIX, 1048-1051

Westerlund, David (1989) Pluralism and Change. A Comparative and Historical Approach to African Disease Etiologies. In: A. Jacobson-Widding; D. Westerlund (eds.): Culture, Experience and Pluralism. Essays on African Ideas of Illness and Healing. Uppsala Studies in Cultural Anthropology 13, Acta Universitatis Upsaliensis, Uppsala, 177-218

Young, David E.; Goulet, Jean-Guy (eds.) (1994) Being Changed by Cross-Cultural Encounters. Broadview Press, Peterborough/New York

Plants in Traditional Healing Practices of the Seereer Siin in Senegal

Doris Burtscher and Felicia Heidenreich

Introduction

The discussion of several plants in traditional Seereer healing practices will allow the presentation of the wide scope of their use. We will show how plants and their different ways of administration are chosen not only from a functional perspective, but how in most cases an underlying symbolic meaning has to be taken into account. Plants are not only used for curing, but also for ablution and protection in the larger sense of physical and social well being. All practices concerning the use of plants as remedies – plant search, preparation, and administration – are regulated by ritual prescriptions.

Method

Our ethnological research aimed at establishing life-stories of traditional Seereer healers. In the beginning we worked with few of them in the region of Fatick who often treated just one sickness. Later on each one of us continued working with one healer who had the knowledge on a large scope of practices, comparable to a general practitioner.

In observing healing practices we came across the widespread use of plants and discovered a system of symbols and rules which determines their handling. Our data therefore relies mostly on the work with these two healers; it does not pretend to be representative for all Seereer healers nor to establish an integral view of traditional practices. This research comes in the framework of a quest on the becoming of a healer, on the essential elements which are responsible for a person's healing ability. Medicinal plants and their traditional use represented only a small part of what we got to know from the healers.

We believe that knowledge of applications and prescriptions is essential in evaluating the effectiveness of remedies and also their traditional signification has to be taken into account. We will present several plants identified on field-research in Senegal from 1996-1999 which give a good illustration of the different uses of plants and we will try to explicit the traditional beliefs explaining their use. For identification we referred to the botanical work of Baumer (1995), Berhaut (1967, 1971-1995), Fortin et al. (1997) Kerharo and Adams (1964, 1974) and the linguistic references of Cretois (1983). Substantial work on Seereer traditional medicine has been done by Kalis (1997a).

Plant Search

Before undertaking any action concerning treatment the healer must purify himself in case he has had sexual intercourse – literally or in his dreams. For plant search there are rules concerning the days and the times of the day that are permitted or most appropriate for it. Propitious weekdays are Mondays and Thursdays, believed to reinforce the efficiency of the plants for treatment because in oral history accounts good events have taken place on these weekdays. Friday is said to be a "heavy" day, the Seereer term for Friday "jumaling" is derived from *kaa jumb* and means "something is mixed up, dangerous". On Fridays plants are searched only for serious cases or very special uses. *Ngojil (Anogeissus leiocarpa)* for example has to be searched on Fridays but must not be used on Fridays. The times of the day chosen depend on whether the healer should not be seen by anyone or does not want to encounter natural spirits believed to circulate at certain hours. The healer has to pay attention to the position of the sun because he should not be touched by the shadow of the plant. In some cases his own shadow should not be cast on a root because cutting it he would harm his own soul.

In order to establish contact the healer has to address the plant with its family name according to whether or not it has thorns: *naam ñas* (= rough), *naam ley* (= smooth); this has also been described by Kalis (1997b:38). Sometimes a prayer is necessary to ask the plant for per-

mission to cut it and to ask God to support the healer in his work. In several cases plants have to be "bought" in order to be efficient. Means of payment are often symbolic: white objects like cotton, milk and millet flour stand for purity; powerful objects like fire, stones, metal, meat and blood implore force. There are rules on how to cut roots. The proximal part has to be blessed before cutting the ones at the far end in order to prevent a retraction of the healing-agent into the stem. Certain plants should not touch iron; therefore their roots have to be beaten with a stick to take them out of the ground.

Preparation

Practically all parts of the plants are used: roots, bark of roots, barks, leaves and branches, fibres, seeds and fruits. Most of the time they are dried and reduced to small pieces crushed or pulverised. Some, mostly leaves, are used fresh; for example *sus (Dichrostachys glomerata)* and *seew (Parkia biglobosa)* are crushed fresh, mixed with salt and applied to a swelling. Branches are dried on the thatched roofs of the huts and sometimes pulverised. In most of the cases virgin girls should powder plants for purity reasons others must not be touched by anybody but the healer. The powders are kept in textile bags in the healer's room. Roots and barks are immediately cut into sticks of equal length and then dried behind the healer's hut. Later on he will compose barks, roots and branches into different remedy-bundles. These bundles are macerated in fresh cold water and used for beverages, washings and meal preparations. Knots are made in fibres and cotton threads and go with prayers and incantations; they are believed to "fasten" or prevent illness. Amulets are made from roots and branches for protection purposes. Sometimes the healer measures the length of the amulet with the patient's finger.

Administration

Beverages
Most medicinal beverages are macerations of powders, crushed plants or stick-bundles. The healer gives exact instructions on how long and when to use them. One bundle is usually macerating for one week in fresh water without changing it and is used instead of drinking water by the patient, sometimes even for meal preparations. In rarer cases a decoction of one or more plants is made and put into bottles and drunk three times a day. For every illness the healer prepares a special combination of different plants. Powders are often dosed more precisely and given in "severe" cases: for example three or four pinches per glass (0,1 l) of water. In these cases the dosage depends on the sex of the patient; the healer explains that men need stronger doses than women do because they are stronger. In all aspects of live numerical symbolism is found: four is the number of men, three of women and seven is the complete number.

Washings
Washings play an integral part in every patient's treatment and its purifying function prepares the body for the cure and seems to be essential for the establishment of the healer-patient-relationship. At the end of every treatment patients are supposed to come back for a final washing. Ritual washings are used for different purposes: purification, prophylactics, therapy and to "open chances". Sometimes the healer prescribes to do washings at home, but in most cases patients come to his house for the ritual. In the healer's backyard is a special place for the washings, where he has installed several basins. Each one of them has its own signification and contains a mixture of many different roots, sticks, stones, shells, broken instruments and other unidentified objects. Their composition is given by the healer's ancestor spirits and is never changed, only water is added. It has not yet been possible to identify the plants contained in these compositions and the healers did not want to reveal their "secret". Washings at these basins have to follow an exact order beginning with the one for purification, then protection and finally the "opening of chances", therefor the three basins cannot be used separately, but always have to be associated.

Other washings are prepared especially for patients who come and ask for them. They are for example intended to "open chances" in finding a job or a spouse, or they may have special protective functions. In these cases the healer sprinkles different plant-powders on the water. When powders are stirred into the basins and foam develops this is considered as a good augury. To give an example: a young boy asked for help to pass his school-exam. The healer

prescribed three basins, two for his protection and one to "open his chance". The following plants were used in the composition: bark of *ngariñ (Khaya senegalensis)*, roots of *ndeel (Hippocratea africana)* and *ngiic moon (Zizyphus mucronata)* leaves of *ngeegesaan (Heeria insignis)* and *ngiic (Zizyphus mauritiana)*.

One of the healer's basins is exclusively used for treatments of eye, foot and hand illnesses. In particular cases a special location is chosen for washing, its symbolism reinforcing the healing powers: on top of an anthill, at crossroads or at the place where the leading bull of the herd is tied at night. Standing on a hill helps washing down all bad elements. At the crossroads the illness will take the other way. The bull's power is transferred onto the patient and helps him to get rid of the affliction.

In only one case we observed the washing with a decoction and rubbing with the warm leaves of *soop^ (Tamarindus indica)* for the treatment of a sickness called *o nqas*. The symptoms described by the healer are pathognomonic of measles.
In all washings there is again a numerical symbolism, a man has to do four washings, a woman three. The best days for washings are Mondays and Thursdays, washings being sometimes prohibited on Tuesdays and Fridays.

Steam and smoke baths
Another very important mode of application is the steaming or smoking of substances. Active agents are believed to enter the body via the natural orifices and the skin. One or more plants are cooked in water, the pot being covered; the pot is taken from the fire, the patient bends over it, covers himself with a cloth and removes the lid of the pot. The first steam is considered the most effective. The patient stays in this position until he begins to perspire heavily. Most of these steam baths have to be done twice a day for one week and it is always the same water that is boiled again. Sometimes only the affected part of the body is held over the steaming medicinal water. A mother has to cover herself with her sick child. An example for a partial steam bath is the application of *t^aaf ndurub^aab^ (Anacardium occidentale)* in case of retained placenta, where the woman has to take the pot between her legs in order to apply the steam to her vagina. For tooth-ache the leaves of three plants are used: *nqayoox (Piliostigma reticulatum)*, *mbos (Gardenia ternifolia)* and *saas (Acacia albida)* are boiled and inhaled, four times for a man, three times for a woman; when the water has cooled down it is also used to gargle.

Massages
Massages are ways of treating patients by gently stroking parts of the body in certain directions or by holding the head accompanied by prayers. Often the healer applies substances to the patient's skin. He uses a brownish liquid which he keeps in a bottle and sprinkles over his hands, he prays, spits on his hands and touches the body or the affected part of it in a certain pattern. The liquid is a mixture of several plant-powders of seven roots: *aric^ (Sclerocarya birrea)*, *sap^ (Ximenia americana) ngiic (Zizyphus mauritiana) ngiic moon (Zizyphus mucronata)*, *ndom yeeq (Acacia seyal) njambayaargin (Bauhinia rufescens)*, and *seew (Parkia biglobosa)*. Massages are also done with dry plant-powders or with sand. The massages are believed to stroke away the illness, lead back the soul who has been scared away to its place and to protect the body.

Rubbings
In some cases *karite* (shea butter; *Vitellaria paradoxa*) is used to rub dislocated joints that have been put back in place. After certain steam baths the patient has to take the hot macerated plants out of the pot and rub them on the affected part of the body. Leaves of *lamapec (Ricinus communis)* are crushed and the paste obtained is used to rub on the legs in case of "paralysis".

Preparation of meals with medicinal plants
Certain plants are used in food-preparation, e.g. with oil, eggs, milk, chicken, things that people get only rarely to eat and that are thought to be nutritious. For stomachache a chicken is cooked with the root of *nandook (Nauclea latifolia)* and has to be eaten without salt on an empty stomach. To increase the blood the root-powder of *beleñ (Ficus iteophylla)* is given with butter.

Vomiting
As a means of internal purification certain plants are given to make a patient vomit. The

ashes of the root of *ndaamol (Euphorbia balsamifera)*, the bark of *seew (Parkia biglobosa)* and roasted ground-nuts are crushed together and mixed with half a litre of fresh milk. A little later the mixture is squeezed out and the liquid has to be drunk by the patient at noon. It is believed to attract all bad elements in the body and to eliminate them by vomiting. Vomiting is mostly used in cases of suspicion of sorcery where something bad has been "thrown" into the patient's meal.

Amulets

For the protection of the patient or to bring him luck the healer produces amulets and other devices. Amulets are worn on different parts of the body, around the waist, the neck, on arms and legs, across the chest. Other protections are put at certain places in and around the house, on the fields, on animals, in cars, or in shops. Some are made from sticks, others are powders or crushed plants in horns or sewn in white cloth.

Prohibitions and Conditions

Almost always the use of plants in whatever form is subject to conditions and prohibitions, when these obligations are not respected the healer does not assume any responsibility for the efficiency of the remedy. There are rules concerning storage and utilisation; quite often the patient has to respect a certain diet and should avoid certain food. There are also recommendations concerning behaviour e.g. protection against weapons works only if the wearer is aggressed and not when he is the aggressor. Prohibitions and conditions seem to constitute a system of moral values and regulations showing the social dimension of sickness and healing.

Symbolism

A whole system of symbolic meaning enters in the comprehension of the plant's effectiveness. The signification of vernacular plant names implies already their use (Kalis 1997b:39f.). The plant *ndimle (Swartzia madagascariensis)* is supposed to help, its name coming from *dimle*, "to help"; it enters in several compositions. The interpretation of the outer appearances of plants as signs of God or natural spirits demonstrating their application and utilisation is a universal finding; it has been described in the so-called "doctrine of signatures" by Paracelsus, Porta and others for the European pharmacopoeia (Arber 1912, Chapter VIII). Kerharo (1968:3) and Prinz (1993:21) mentioned the importance of this conception in ethnomedicine. The colour, shape, scent, etc. of a plant and even the way it grows can be significant: parasite plants e.g. are believed to be more powerful than their hosts.

The protection for a shop-keeper contains sticks of three plants: *baan (Pterocarpus erinaceus)* means "to pass", making the clients come by the shop; a *ngiic (Zizyphus mauritiana)* growing at the entrance of an ant-hill; like ants people are supposed to enter the shop, and *nqaasuup^ (Leptadenia hastata)*, a creeper, that will tie the clients to the shop.

Ideas on Functioning

Generally it is difficult to obtain information about how remedies are believed to function in the body. The healers do not understand our occidental comprehension of rational correlation. Concepts can be derived from remarks about the body and illness in ordinary communications. Illness is said to "go up or down in the body", to "enter or leave at certain places", to be due to worms, or infectious agents; the remedies therefore "weaken or kill the illness", make it "go out of the body", "cut or blast the tissues woven by the illness". Illness is associated with impurity and purifying agents play an important role.

Doses depend on the sex and the age of the patients, as well as on the seriousness of the illness. Every plant is given from God and has its own soul. Some plants are only effective when they have been searched in a certain manner. The healer has to pray for them and they have to be prepared and used correctly.

Traditional Knowledge about Plants and its Acquisition

The population has a wide knowledge on the efficiency of certain plants that are searched without any ritual. For mild affections they first try to help themselves, before going to the healer. The healer's knowledge exceeds this popular education. He is socially recognised for his

healing capability, and his competence is based on the knowledge he inherited from his ancestors. He consults his ancestral spirits by means of a sand-oracle and they advise him for the choice of the treatment. Ultimate responsibility is with these ancestral spirits, the healer being just an executant of their will. Another part of the knowledge is learned from parents, mostly from the person who was a healer before. Already at a young age the children are sent to search for plants; in this way they learn plant names and their locations. Knowledge can also be exchanged with other healers or "bought" from natural spirits.

Conclusion

The "healing power" of traditional remedies has been studied with the example of Diabetes mellitus at the "Centre Expérimentale de la Médecine Traditionelle de Fatick" by Prinz et al. (1994); significant effects on blood glucose levels could be proved. In the same way research could be done on the effectiveness of many plants, but the verification by means of modern medicine does not take into account the holistic view of plant use.

The specific preparation of a plant is as important as the spiritual understanding of its nature and the whole cosmogony underlying it. The healer has to respect strict rules and prohibitions concerning the search of every plant and its preparation. He gives the patients exact directions considering the way of administration and the prohibitions associated with it. Symbolism in words and in ritual plays an important role, and often the meaning of a vernacular name suggests already an effect.

The healer's knowledge about plant use is often inherited in the paternal or maternal family, since already at a young age children are sent to fetch plants for their parent or grandparent. The vulgar knowledge about simple remedies is quite common as well and almost everybody knows the use of some plants. Nevertheless, the great knowledge of the traditional healers is seen as something apart being handled only by the initiated healer and as coming from the ancestral spirits and hence from God.

References

Arber, Agnes (1953) (1912) Herbals. Their Origin and Evolution - A Chapter in the History of Botany 1470-1670. Cambridge: The University Press.
Baumer, Michel (1995) Arbres, arbustres et

Plant-names:

Seereer	Scientific name	
aric^	Sclerocarya birrea (A. Rich.) Hochst.	Anacardiaceae
baan	Pterocarpus erinaceus Poir.	Fabaceae
beleñ	Ficus iteophylla Miq.	Moraceae
karite (shea butter)	Vitellaria paradoxa Gaertn.	Sapotaceae
lamapec	Ricinus communis L.	Euphorbiaceae
mbos	Gardenia ternifolia Schum. & Thonn.	Rubiaceae
nandook	Nauclea latifolia Sm.	Rubiaceae
ndaamol	Euphorbia balsamifera Ait.	Euphorbiaceae
ndeel	Hippocratea africana (Willd.) Loes. ex Engl.	Hippocrateaceae
ndimle	Swartzia madagascariensis Desv.	Caesalpiniaceae
ndom yeeq	Acacia seyal Delile	Mimosaceae
ngariñ	Khaya senegalensis A. Juss.	Meliaceae
ngeegesaan	Heeria insignis Kuntze	Anacardiaceae
ngiic	Zizyphus mauritiana Lam.	Rhamnaceae
ngiic moon	Zizyphus mucronata Willd.	Rhamnaceae
ngojil	Anogeissus leiocarpa Guill. & Perr.	Combrataceae
njambayaargin	Bauhinia rufescens Lam.	Caesalpiniaceae
nqaasuup^	Leptadenia hastata (Pers.) Decne.	Asclepiadaceae
nqayoox	Piliostigma reticulatum (DC.) Hochst.	Fabaceae
saas	Acacia albida Delile	Mimosaceae
sap^	Ximenia americana L.	Olacaceae
seew	Parkia biglobosa Benth.	Mimosaceae
soop^	Tamarindus indica L.	Caesalpiniaceae
sus	Dichrostachys glomerata (Forsk.) Chiov.	Mimosaceae
t^aaf ndurub^aab^	Anacardium occidentale L.	Anacardiaceae

arbrisseaux nourriciers en Afrique occidentale. Dakar: Enda-Éditions.
Berhaut, J. (1967) Flore du Sénégal. Dakar: Éd. Clairafrique.
Berhaut , J. (1971-1995) Flore illustrée du Sénégal. Dakar: Éd. Clairafrique, 8 tomes.
Cretois, Léonce, Père (1983) Le vocabulaire sereer de la flore, N°S 8, recueil présenté par Charles Becker (CNRS). Dakar: CLAD.
Fortin, Daniel, Moudou Lô et Guy Maynart (1997) Plantes médicinales du Sahel. Dakar: Enda-Éditions.
Kalis, Simone (1997a) Médecine traditionelle, Religion et Divination chez les Seereer Siin du Sénégal. Paris: L'Harmattan.
Kalis, Simone (1997b) La dimension symbolique et sémantique des végétaux dans la pratique médicale traditionelle des Seereer Siin du Sénégal. In: Ethnopharmacologia 20, 35-66.
Kerharo, Joseph (1968) Les plantes magiques dans la pharmacopée sénégalaise traditionelle. In: Etnoiatria 2 (1), 3-6
Kerharo, J. et J. G. Adams (1964) Les plantes médicinales, toxiques et magiques des Niomika et Socé des Îles du Saloum (Sénégal). In: Acta Tropica Supplementum 8 (Plantes médicinales africaines). Basel: Verlag für Recht und Gesellschaft, 279-334.
Kerharo, J. et J. G. Adams (1974) La pharmacopée sénégalaise traditionelle; plantes médicinales et toxiques. Paris: Éd. Vigot.
Prinz, Armin (1993) Ethnomedizin. In: A. Stacher und O. Bergsmann, Grundlagen für eine integrative Ganzheitsmedizin. Wien: Facultas, 19-28
Prinz, Armin (1994) Die Behandlung des Diabetes mellitus mit den Mitteln der traditionellen Medizin - Erste Ergebnisse aus dem Zentrum Fatick, Senegal. In: Mitteilungen der Österreichischen Gesellschaft für Tropenmedizin und Parasitologie 16, 67-74.

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History and Practic of Ethnopharmacology in Ethiopia

Afework Kassa

Introduction

The purpose of this paper is to assess and bring forth some of the important activities in the field of ethnopharmacology that have been undertaken in Ethiopia. It attempts to explain the most common source of traditional remedies utilised in the country.

Ethnopharmacology is a recently developed field, and Rivier and Bruhn defined it as "a multidisciplinary area of research, concerned with the observation, description and experimental investigation of indigenous drugs and their biological activities". Later on, in 1981 it was redefined as "the interdisciplinary scientific exploration of biologically active agent traditionally employed or observed by man" (cit. Nymann 1995: 343/344).

Furthermore, ethnopharmacology studies how people derive medicines from plants, animals and minerals (Etkin 1990). Being a multidisciplinary subject, it involves ethnology, ethnobotany, ethnomedicine, pharmacology etc. However, there is no proper cooperation until now to develop this fledgling discipline (Prinz 1990).

This article is divided into the following sections: I. traditional medicine in Ethiopia; II. historical background of ethnopharmacology in Ethiopia; III. herbal medicine; IV. animal and animal products as medicine; V. Minerals as medicine; VI. Future efforts and direction in the development of ethnopharmacology and conclusion.

Traditional Medicine in Ethiopia

The World Health Organisation (WHO) has estimated that more than eighty percent of the world population depend on traditional medicine (WHO 1993). For instance, Ethiopia is one of the developing countries where more than half of its population of sixty million relies on

traditional medicine (Ministry of Health 1992).

The Ethiopian traditional medical system is based on empirico-rational and magico-religious elements (Zein 1988). Therefore, traditional healers are involved in both medical and non-medical practices [Nonmedical practices are many in the country. However, some examples according to Levin (1986) are to protect one from bullets, to bring rain or make it stop, and to plague the householder by turning all of his possessions against him, using the expertise of his knowledge (healer) of plants and herbs that can heal the sick or poison the client's enemy.] in the country. The most popular practitioners in former times were *tenquay* (sorcerers) [*Tenquay* (sorcerer) is thought to be consulted for exorcising demons as well as curing physical ailments, particularly in treating a *zar* (spirit possessed) and *buda* (evil eye) infected patient. He can summon the devil to liquidate the enemy of a client, besides, he can interpret dreams, predict the future etc. (Levin 1986)] and *debtera* [*Debtera* is a learned man in the Ethiopian Orthodox Church with esoteric knowledge. He acquired his knowledge while attending church schools and believed to have more supernatural power than *tanquay*.]. According to Levin (1986), the *debtera* is thought to be superior to the *tenquay* because he consults his books known as *Awde-negest* [*Awde-negest* is a book written in *Geez* about horoscopes and magico-religious practices; *Geez* is a language used in the Ethiopian Orthodox Churches.]. Besides, there are other major categories, like *medhanit-awaki* (herbalist), *awalaj* (traditional birth attendant), *wegesha* (bonesetter). The *wegesha* includes the following specialisation: *gerazh* (circumciser), *intel-korach* (tonsil surgeon), *and nekash* (tattooer).

The traditional practitioners, *awalaj* and *wegesha* are mostly strictly functional in accordance to their specialisation. Whereas, *debtera*, *tanquay* and *medhanit-awaki* may interchange with multiple medical and nonmedical traditional practices. In general, a considerable variety of remedies, plant and animal medicines, inoculation, thermal water, cauterisation, counter-irritation and surgery, evolved in the traditional practices of healers for the prevention and cure of diseases in the country (Pankhurst 1965).

In former times, no attention was given to traditional medicine. However, since 1978, after the Alm-Ata Declaration, the Ethiopian Government showed its commitment to strengthen the traditional medicine in the country. The reason behind it was that traditional medicine became one of the strategies of primary health care to achieve the Declaration, "Health for all by the year 2000" (Bannermann et al. 1983). Since then, many workshops and trainings have been offered to the traditional healers by the Ministry of Health (MOH) to update the knowledge of traditional healers regarding modern medicine.

Currently, traditional healers are organised in an association which is recognised by the government, and which was formed for fostering traditional medicine in the country. The MOH has a mandate to control and license the practice of traditional medicine. In this respect, the MOH has given due emphasis to encourage the expertise of traditional healers in the use of plant medicine. This is aimed specially at reducing and further abolishing the nonmedical practices of traditional healers in the country.

Historical Background of Ethnopharmacology in Ethiopia

The Coordinating Committee of traditional medicine was the first established body in the MOH regarding all activities of traditional healing practices in the country. Some of the major activities achieved by the committee are organising the healers in an association, implementing a responsible body at the former provincial and district health bureaux and offering several workshops and training to the healers. Moreover, the first newsletter of traditional medicine was published in 1980.

The idea and practice of ethnopharmacology was initiated in Ethiopia in several institutions. These were the Department of Pharmacognosy in the School of Pharmacy and the Departments of Botany and Geography at the University of Addis Ababa, the Department of Traditional Medicine in the National Research Institute and the Institute of Biodiversity in the Ministry of Agriculture. All the above mentioned institutions have contributed something in one way or another to develop our knowledge on medicinal plants in the country.

The University was the first institution in the country to initiate studies on the basic concept of ethnopharmacology. These studies focused on medicinal plants and related issues (Amare 1976, Kloss 1976). Recently, the Department of Pharmacognosy has started to analyse experimentally the efficacy of medicinal plants used by traditional healers for the treatment of AIDS infection.

The major transit in the progress of ethnopharmacological researches in the country was the discovery of *endod (Phytolacca dodecandra)* in the prevention of schistosomiasis. *Endod* is commonly known and has been cultivated for centuries in Ethiopia as soapberry plant and used to masker (lit. "intoxicate") fish in the rural areas. The detrimental effect of endod can be explained by its constituents, saponine and tannine which reduce the surface tension of the water which effects that the gill of the fish is not able to exchange oxygen and carbon dioxide.

Lemma observed in 1964 while conducting a research in his native Ethiopia that downstream from where people were washing clothes with *endod*, dead snails were found floating in the water. After several years of intensive investigation under the University of Addis Ababa and abroad, he discovered that the sun-dried and crushed *endod* berries had a detrimental effect on all major species of snails, but was not harmful to animals, and completely biodegradable (Lemma 1990). As a result, Lemma and his colleague, Wolde-Yohannes, were awarded the "Alternative Nobel Prize" of the Right of Livelihood for discovering a natural mulluscide against snails that carry the schistosomiasis parasite.

Furthermore, Lemma (1990) and his colleagues (1991) discovered the lethal effect of *endod* on zebra mussel in North American water. *Endod* became a promising plant against zebra mussel, which would create a $ 2 to 5 billion loss to fisheries by the end of this decade. The damage might get much worse if the mussels were to spread into inland waterways (Howard et al. 1993, OPI 1990).

The aim of the Biodiversity Institute of the Ministry of Agriculture is to preserve indigenous plants in the country. The Institute has provided an office with its full secretarial service for the Association of Traditional Healers. Besides, the Institute has employed the staff of the association on permanent salary to encourage the future collaboration of traditional healers.

The Department of Traditional Medicine in the National Research Institute began to carry out all responsibilities of the former Coordinating Committee at the MOH. The MOH has provided assistance to equip the Department with manpower and material. The Department is still under-staffed and has shifted to the newly built building. Despite many constraints, the Department initiated to conduct researches on medicinal plants and published a book in 1993 entitled "Medicinal Plants and Enigmatic Health Practices of Northern Ethiopia" (Dawit et al.).

However, if all the above institutions had been provided with all necessary supports from the policy makers, they would have contributed a little more in developing appropriate drugs and techniques to evaluate the traditional remedies in line with the classical concepts of pharmacy, pharmacology and pharmacognosy.

Herbal Medicine

Medicinal plants are basically used in two ways in the country. These are indigenous household therapy and herbal medicines prescribed by herbalist. Both therapeutic procedures use all parts of the gift of nature, i.e. herbs. They include leaves, bark, berries, roots, gums, stems and flowers. They have been used for generations to keep and maintain good health of human beings and animals. This knowledge is transmitted orally and maintained from generation to generation.

The medicinal plants are used and prepared in different forms: juice of plants, paste, powder, ash and oil. Besides, there are other modes like smoking, baths, toothbrush and vapouring with medicinal plants. The common administrations of traditional medicines are in the form of oral or through nasal intake, gargling, topical usage, inhalation, washing and smoking. There are many instructions and rituals followed in collection, preparation and administration of medicinal plants [For further information on medici-

nal plants, please refer to the paper, "Indigenous plants and their uses in Ethiopia", presented in this conference.].

Although more than half of the population rely on herbs for the prevention and cure of several ailments, efforts taken by policy makers, particularly the Ministry of Health, to standardise and to scientifically ascertain medicinal plants remain very unsatisfactory in the country (Belachew 1984, Twelde-Brehan 1979).

Animal and Animal Products as Medicine

The most common animal products used in the indigenous medical system are butter, honey, *sib* or *mora* (animal fat), egg, flesh and skin of wild animals, etc.
1. Butter: is applied for the treatment of many ailments in the country. In comparison, the rural population uses butter more frequently than the urban dwellers. It is believed traditionally that smearing *lega-kibe* (fresh butter) on the head prevents headache, dandruff and eye disease and dryness of the skin. It is administered mostly in the following ways:

- *Awalaj* (traditional birth attendant): makes the newly born infant swallow *lega-kibe* for the prevention of childhood infections and other sicknesses. Similarly, parturient/lactating mothers smear butter on the head with the belief that it restores the weight lost during delivery.

- *Wegesha* (bonesetter): also applies butter during the restoration of dislocated joints, to smoothen the tendons in cases of cramps, sprains and bruises.

- Herbalist: uses butter by mixing it with other components of plants for the preparation of traditional remedies. Popularly, it is also suggested to take butter mixed with coffee and food in some cases of illnesses like cough, and nasal bleeding.

2. Honey: there are two kinds of honey used as medicines: the honey of bee, and *tazma-mar* [*Tazma-mar* is wild honey made by *Trigna sp.* underground.]. The most valued one is *tazma-mar*, which is used in the treatment of *derek-sal* (coughing), asthma and abscess. It is believed that the potency of the medicinal power of butter and honey increases over time.

3. *Sib* or *mora* [*Sib* and *mora* are two forms of fat. However, they have a different meaning. *Sib* is a fresh animal fat, while *mora* is a dried animal fat.] (fat): is fat of a goat, sheep, chicken and fish. These are used in the preparation of herbal medicines as well as in traditional practices.

4. Egg: is used for the treatment of *tiktik-sal* (whooping cough) and in case of medico-spiritual practices and beliefs.

5. Flesh: the flesh of certain animals is thought to have medicinal effect, other than its nutritional value. For instance, the flesh of *shikoko* [*Shikoko* is a certain kind of bird(?).] is considered to make a person fat; *yelelit-wef* (bat) is used in the treatment of liver infection and *derchet* [*Derchet* is also a certain kind of bird.] and *erekum* (Abyssinian Ground Hornbill), for the prolongation of old age.

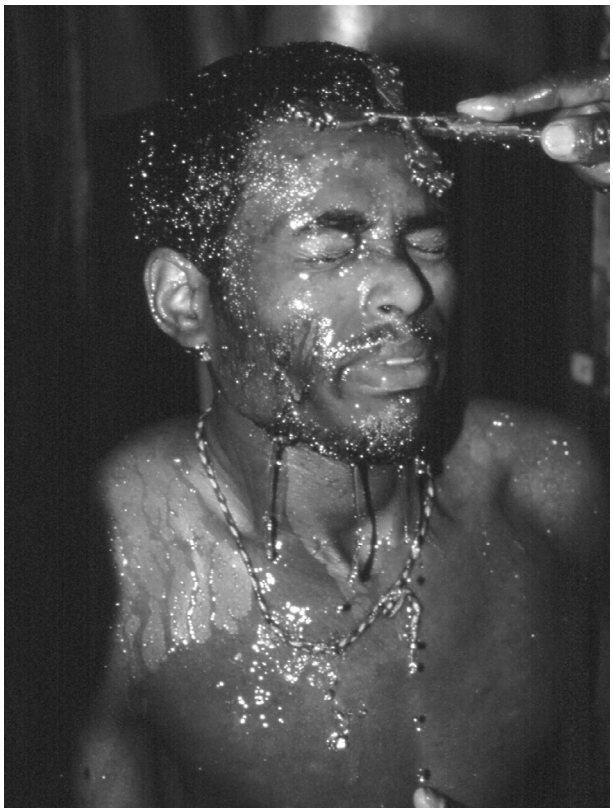
6. Skin of wild animals, such as hyena and monkey is recommended for the prevention of evil eye and preparation of amulets. For example, if a hyena is found killed, people take part of the ear, nose, eye shield and skin to be used in the prevention of the effects of *buda* (evil eye).

Water as Medicine

In Ethiopia *tebel* (holy water) is used a lot in traditional medicine. It is extensively practised throughout the country to fight many kinds of illnesses, particularly mental illness. Usually it is applied by the Orthodox priests. *Tebel* is found in different Ethiopian Orthodox Church sites, or close to them and it is blessed regularly by the clergy. The concept of this healing system is based on fighting Satan or evil spirits since disease is believed to be caused by evil spirits.

The majority of the rural population utilises it prior to any other kind of medication. The urban population may apply it alone or along with modern medicine due to the belief that it cures or alleviates certain symptoms of untreatable infections like AIDS and cancer.

Tebel is used in two forms, either for drinking or/and for bathing. Bathing is traditionally recommended in cases of mental sickness and dermatological infections, whereas drinking is



Ritual use of water as medicine and for exorcism in Waliso, Ethiopia Foto R. Kutalek

for internal infections. However, the administration of bathing and drinking may interchange with each other or both may be used together. It is normally advised to administer it early in the morning and before breakfast.

Also hot springs and minerals like iron (Pankhurst 1961), *degn* (sulphur) (Messing 1968), and *kibre-semay* (copper sulphate) (Kloos 1976) are involved in the treatment of several sicknesses.

Future Efforts and Direction in the Development of Ethnopharmacology

The centralised administration of the Ministry of Health was decentralised in 1992. Currently, all *kilel* (regions) have their own Regional, Zonal and District Health Bureaux, and by now each of them deals with traditional medicine. However, these institutions need technical and material assistance, which will enable them to strengthen and integrate their activities within the scope of ethnopharmacology.

The need of further studies of all sources of traditional remedies to investigate experimentally which of them are non-toxic and safe, will provide promising herbal remedies that are locally available, inexpensive and acceptable to the people for treating several sicknesses. Besides, studies may help to minimise the side effects of traditional remedies, the problems related to over dosage, frequency of administration and storage of drugs. On the other hand, the success of the above objectives also depends on the traditional healers. Consequently, the collaboration and upgrading of the knowledge of traditional practitioners should be given due emphasis. Such integrated efforts will substantiate the present overburdened health problem in the country.

Conclusion

The efforts directed at standardising and ascertaining traditional remedies in the country is minimal, even though the majority of the population still relies on traditional medicine. Therefore, it is necessary to evaluate traditional remedies in line with the classical concepts of pharmacy, pharmacology and pharmacognosy.

Besides, it is vital to build up capacity by training the people involved, upgrading of laboratories and by increasing research funds in decentralised regional institutions dealing with traditional medicine which will enable them to conduct ethnopharmacological investigations.

Necessary assistance should be given to the traditional healers to minimise the gap between traditional and modern medicine. Besides, policy makers should be convinced to give due emphasis to such activities, which will have an impact on the present inadequate health service of the country.

References

Amare, G. (1976) Some Common Medicinal and Poisonous Plants Used in Ethiopian Folk Medicine. University of Addis Ababa.
Bannerman R. H., Burton J. and Wen-Chieh C. (eds) (1983) Traditional Medicine and Health Care Coverage. A Reader for Health Administrators and Practitioners. WHO, Genf
Belachew, D. (1984) Ethiopian Traditional Herbal Drugs: Potentially and Appropriate Utilization. 8th International Conference of Ethiopian studies, 763-766.
Dawit A. and Ahadu A. (1993) Medicinal Plants and Enigmatic Health Practices of Northern Ethiopia. Addis Ababa

Etkin N. L. (1990) Biological and Behavioural Perspectives in the Study of Indigenous Medicines. In: M. Johnson and F.S. Carolyn (eds.) Medical Anthropology, Contemporary Theory and Method. New York: Praeger, 149-158.
Howard L., Lemma A., Bennett, H. (1993) Towards Control of Zebra Mussel: The Use of Endod (Phytolacca dodecandra) in Zebra Mussel. In: T.F. Nalepa and D.W. Schloesser (eds.): Biology, impact and control.
Kloss H. (1976) Preliminary Studies of Medicinal Plants and Plant Products in Markets of Central Ethiopia. In: Ethnomedicine 4, 63-103.
Lemma, A. (1990) Overcoming Obstacles to Science from the Third World: The Story of Endod. Paper presented at the Biology Department of the University of Toledo, Ohio, on 15 June.
Lemma, A. et al. (1991) Endod is Lethal to Zebra Mussels and Inhibits their attachment. In: Journal of Shellfish Research 10, 2, 361-365.
Levin D. N. (1986) Wax and Gold: Tradition and Innovation in Ethiopian Culture. The University of Chicago Press, Midway reprint; 55-94.
Messing S. D. (1968) Interdigitation of Mystical and Physical Healing in Ethiopia: Toward a Theory of Medical Anthropology. Behavioural Science Notes 3, 87-104.
Ministry of Health (MOH) (1992) Reproductive Health: A Family Planning Training Manual for Health Professionals in Ethiopia.
Nyman U. (1995) A Critical View at the Ethnopharmacological Chain. In: P. Pushpangadan et al. (eds): Glimpses of Indian Ethnopharmacology. Copenhagen: The Royal Danish School of Pharmacy, 343-350.
Office of Public Information (OPI) (1990) Common Africa Could Control Zebra Mussel. Press Release. University of Toledo, October 15.
Pankhurst R. (1961) An Introduction to the Economic History of Ethiopia. Lalibela House: London, 238-247.
Pankhurst R. (1965) The Beginning of Modern Medicine in Ethiopia. In: Ethiopia Observer, 114-160.
Prinz A. (1990) Misunderstandings between Ethnologists, Pharmacologists and Physicians in the Field of Ethnopharmacology. In: Actes du 1er Colloque Europeen d'ethnopharmacologie. Metz 22-25.
Tewelde-Brehan G. et al. (1979) The Potentiality of Traditional Healers and Indigenous Drugs in Health Care in Africa. 13th Annual Meeting of the Association of Medical Schools in Africa, Addis Ababa.
World Health Organization (WHO) (1993) Research Guidelines for Evaluating the Safety and Efficacy of Herbal Medicines. Manila.
Zein A. Z., (1988) Health and Health Services in Ethiopia, a General Survey. In: Zein A. Z. and Kloos H. (eds): The Ecology of Health and Disease in Ethiopia. Bouder: Westview Press

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Indigenous Medicinal Plants Used in Ethiopia

Wondwosen Teshome

Introduction

Traditional medicine in Ethiopia has been of interest for a number of scholars for the last five decades. Apart from the noted Ethiopicist, Richard Pankhurst, whose works include the contribution of herbal medicine in the treatment of diseases like rabies (1969), and typhus (1975), there are also scholars whose investigation encompassed herbal medicine in one way or another. Young (1970), Kloos (1974, 1978) and Vecchiato (1993) can be cited as examples. The coverage of the modern health care system in Ethiopia is less than 50 per cent and almost half of the population still depends on traditional medicine. (MOH 1992).

Herbal medicine has plaid a fundamental role in the Ethiopian traditional health care system. Almost every part of a plant is used in the preparation of medicine such as, root, leaf, stem, shoot, fruit, flower, seed, bark, and juice. In the traditional medical system of Ethiopia, special kinds of plants, known among the ranks of herbalists as *takatila* (plants that grow on others) are very important. European travellers, who visited Ethiopia in the earliest days, have noted the role of plants in the traditional health care system of the country. For instance, the variety of Ethiopian vegetation had impressed Plowden (1868:124) who astonishingly opined, "no country in the world probably comprises, in so small a territory, so

rich a herbal as Abyssinia, owing to its various elevations".

The aim of this paper is to describe the utilisation of indigenous plants in Ethiopia based on rural and urban practices of traditional medicine. Besides, it explores the rituals related to the collection, preparation, and administration of medicinal plants.

Research Methods and Techniques

The study was conducted in Addis Ababa, the capital city of Ethiopia from July to December 1998. The total population of Addis Ababa in 1994 was 2,112.737. The dominant ethnic groups are Amhara which represent 48.3 percent, the second largest are the Oromos who account for 17.5 percent, and the third largest are Gurages who represent 17.5 percent of the total population. Furthermore, 82.0 percent of the total inhabitants are Orthodox Christians, 12.7 percent are Moslems, and 3.9 percent are Protestants. The average annual population growth rate of Addis Ababa is 3.8 percent (CSA 1995:2). In this study, practitioners of traditional medicine, patients and vendors of herbal medicine are included.

The Naming and Identification of Herbals in Ethiopia

When we say "medicinal plants", the term includes not only those which are used to treat disease (in its strictest sense), but also those which are used in treating illnesses. As Prinz (1990:96) precisely stated, illness also encompasses biological, psychological and social problems. Therefore, it goes without saying that plants that are used by the people to treat the aforesaid problems could be categorised as "medicinal plants".

In several regions of Ethiopia the names of plants (including medicinal herbs) are varied, largely because of the presence of various tribes and ethnic groups. For instance, *Opuntia ficus-indica* is known as *ye bahir qulqual* in Amharic (Neuwinger 1998:266), *beles* in Tigrigna and *adami* among Oromiffa speakers. Even in an area where only one ethnic group lives (e.g. Amhara), the terms used by the church intellectuals may not be necessarily understood by the ordinary people. Mostly, churchmen speak and write in *Geez* [Geez is the church (Orthodox) language in Ethiopia.], which is not understood by the rank and file (Tawlda Berhan:1980). All this makes the identification of medicinal plants very complicated.

Classification of Medicinal Plants in the Indigenous Medical Systems

We can categorise the herbals which the herbalists use as *wana ese* [I have used the Amharic term "*wana ese*" in this article to denote a principal herb used in the treatement. To refer to two or more plants the plural term will be "*wana esoch*".] and *memelesha*. *Wana esoch* are those herbals, which are principally used to treat diseases, and the *memelesha* are basically used as antidote. Normally, herbalists consider a *wana ese* as very strong if it has one or more of the following characteristics. These are pungent smell, taste, strong aroma, and unpleasant or bitter taste. Before applying *wana ese* medicines, herbalists roughly attempt to assess the patient's age, physical condition, and the seriousness of the illness. The *memelesha* is administered if the patient is unable to take any more strong *wana ese*, or if the pathogenic agent has already been removed from the patient's body. The principal motive of giving *memelesha* to the patient is to stop the further action of the *wana ese*. Although herbalists use a multitude of *wana esoch* for various illnesses, the types of *memelesha* administered are very limited. In other words, a particular type of *memelesha* can be applicable to many types of illnesses (Young 1970). But this does not mean that a *memelesha* has a universal applicability. The most common *memelesha in* Ethiopian indigenous medicine are milk, whey, butter, *basso* [*Basso* is a restorative made of barely flour.] and coffee.

Traditional Household Therapies in Ethiopia

Sick people do not always go to professional healers. There are remedies (mostly, herbals) which are commonly used by the people and this knowledge has been passed from generation to generation as part of oral tradition. In this case, diagnosis and treatment of illnesses start at a family level, and if no improvement is seen, professional healers will be consulted.
Regarding the people's use of household therapy in the earliest days of Ethiopia, Ludolph

(1684:377) remarked, "in most distempers, every person is his own physician, and uses such herbs as he learnt were useful from his parents".

The Collection, Preparation, and Administration of Medicinal Plants

The gathering, processing and administering process has its own rules and specifications in the indigenous medical system of Ethiopia. It is believed that unless certain precautions and rituals are performed when the herb is collected, processed and administered, its curing power will be lost.

The Collection of Medicinal Plants

The first step at this stage is to identify the medicinal plant. This involves knowing the appearance of the plant and its habitat. Most medicinal plants are exotic or alien to most of the people and are found in lowland areas and jungles. The precautions and rituals recommended for the collection process deal with the instrument, gatherer, time, and the manner of the collection.

When cutting a part of a plant there are certain specifications: for example the instrument must be unused, or it has to be made only from one piece of iron, or it has to be double edged or one edged, or the handle of the instrument should be a horn or a piece of wood. Particularly when *takatila* (plants which grows on others) are cut, these precautions are given special considerations. It is believed that the power of the *takatila* will be lost, if the instructions are not strictly followed. Prescriptions are also given regarding the gatherer of the herbs. Most of the time the instructions might insist on ritual purity and innocence of the gatherer. Instructions include that he has to be a *dengel* (virgin boy), be naked, or face a certain direction, east, west etc. If the gatherer is female, the ritual purity involves instructions such as being a non-menstruating woman, a post-menopausal woman, or a virgin girl. Regarding the manner of collection, the instructions could be to gather an herb far from a hyena's howling, to avoid contact with water and/or soil and to collect herbs in silence. Other points can also be added, such as collecting herbs by using only the left or the right hand, not letting the collector's shadow fall on the herb during plucking, standing on one foot, right or left, wearing a silver ring when plucking. The recipes also include specifications regarding days, weeks, seasons and even years. Sometimes even weather conditions can be part of the instruction e.g. to collect herbs only during clear sky. In addition, the rituals to be performed in this process include offering prayer and reciting special words.

The Processing of Medicinal Plants

The recipes of healers also include a set of instructions regarding the processing of the gathered herbs. The herbs can be processed in different forms: they are used fresh, dried, crushed, ground, soaked, or boiled. The herbalists prepare medicines which are taken orally, or they can be applied in a different manner. Hence, they prepare medicines in the form of drops, snuffs, inhalants, gargles or ointment. The recipe may also give instructions like cooking or boiling the herbs with *birz* (hydromel), or with spirits like *araqi* [*Araqi* is an alcoholic drink believed to be introduced in to Ethiopia by Europeans in the 16th century.]. In other instances, the recipes may direct to process the medicaments by rubbing the herb across the palm, or chewing it, boiling or burning it, so that it can be administrated as a vapour or smoke. Regarding equipments during processing, the recipes give instructions such as using a new mortar, a new stone, and a new pot. Most of the time, the recipes encompass precautions when using an instrument, which include not to put it on the ground, or to avoid that it touches soil.

Administration of Medicinal Plants

The recipes may involve sets of instructions to be followed while administering or applying of the herbs, considering the time of administration, the condition of the patient, and the rituals to be performed. Concerning time instructions they could prescribe to administer the medicine early in the morning, during mid day and before going to bed. Usually, herbal medicines are given in combination with foods which include water, dairy products (milk, yoghurt, whey, butter), egg, spice, oil seed, or meat. The instructions may request of the patient to rest in a very isolated place for a certain period of

time with the aim of protecting him from *tilla* [*Tilla*, (lit. "shadow") refers to people who had sexual intercourse during the previous night, and who are therefore believed to cause an illness]. In other cases patients may be advised to sit in the open air and/or in direct sunlight. The recipes can also include instructions to be followed by the convalescent after all the symptoms of the sickness have disappeared, so that the illness will not recur. One of those is to avoid the food or drink, which was used in the treatment. During the administration of medicines herbalists always avoid using the name of the herb in front of patients. Though herbalists claim that mere mentioning of the name of the herb makes the medicine ineffective ("*yareksewal*" lit. "it makes it cheaper"), this instruction probably is aimed at keeping their knowledge secret and avoid competition.

Professional Secrets of Healers

Mostly, healers hide their knowledge regarding the collection, preparation and administration of the *materia medica*, from the public, patients, and from each other. They justify their secrecy by claiming that if the public knew it the healing power of the medicament would disappear, and thus greatly damage the image of the healer. Unfortunately however, healers fail to explain how, and why the healing power vanishes. Moreover, this secrecy has contributed to the existence of differences among healers in the collection, preparation, and administration of plant medicines.

Medicinal Plants and Their Role in the Preventive and Curative Aspects of Indigenous Medicine

Since herbal medicine of Ethiopia involves a countless number of plants, in the following section, I give examples of three of the most common ones which are easily available both in urban and rural areas of Ethiopia: *qulqual (Euphorbia candelabrum)* [For the scientific name of the plant, consult Neuwinger 1998:485.], *nech shinkurt* (garlic), and *esa fares* (*Datura stramonium*).

Qulqual
This plant is used to treat diseases like *kitigne* (syphilis), *chebit*, (lit. "seize") (gonorrhoea), *siga dewe* (lit. "disease of a body") (leprosy) and *mojale* (jigger flea). Popularly, syphilis is thought to be caused by urinating facing the sun, or urinating over a stone warmed by the sunlight. The sap of *qulqual* is used to treat this disease. Recipes instruct to boil the sap of *qulqual* alone and make the patient drink it, or to mix the sap of *qulqual* with honey and make the patient eat it. Gonorrhoea is a prevalent venereal disease in Ethiopia. Traditionally it is believed that it can be contracted if a person urinates at the spot where a dog had already urinated. Indigenous medical systems offer a variety of treatments. One of those is ingesting the sap of *qulqual* with bread or *basso*. The other prevalent and dreaded disease in Ethiopia is leprosy. Various travellers such as Alvarez (1961:297) have recorded the existence of the disease in the country since the early times. In most cases, marriage with a person having a history of leprosy in the family is not acceptable since it was believed that leprosy is hereditary and affects the family line up to seven successive generations. In certain areas of Ethiopia, people whose family history shows cases of leprosy undertake a sort of professional begging with the belief that leprosy will not attack people who perform such an activity. These people are called *lalibeloch*. They perform this activity in pairs (man and woman) early in the morning. They stand at the entrances of a compound and beg the occupants of the house with loud voices. Usually, rhythmical songs, mentioning the owner of the house and showering him with various blessings accompany the begging. The treatment of leprosy in indigenous medical systems includes mixing the bulb of *qulqual* with honey, and smearing the paste over the afflicted part of the body. *Mojale* (jigger flea) attacks people who walk barefooted. Since, this is a very common problem in the country, indigenous medicines suggest removing the flea and its eggs using a needle, or a thorn. Then, apply the sap of *qulqual* to the pricked part of the body.

Nech shinkurt (lit. "white onion"), (garlic)
In Ethiopian traditional medicine, garlic *(Allium sativum)* occupies a very important position. It is used to treat diseases like jaundice, tooth ache and many other diseases. *Yewof beshita* (lit. "disease of a bird"), (jaundice) is traditionally considered very serious and if untreated fatal. The hovering of the *yellelit wof* (lit. "bird of a night", (bat)

around a person and contact with its droppings is popularly believed as the cause of the disease. According to healers the disease has various symptoms such as tiredness, vomiting, loss of appetite, the changing of the colour of urine, fingernails, and yellow eyes. *Yewof bashita* is one of the diseases where the majority of people strongly believe in the efficacy of traditional medicine. It is popularly believed that cosmopolitan medicine has no efficiency in treating this disease. Therefore, patients resort to indigenous medicine when afflicted by this disease. Traditional practitioners prescribe medicine according to the patient's physical condition, and age. The treatments include using the stem of *nech shinkurt* mixed with dried and powdered flesh of a bat. Furthermore, the household therapeutic system of the indigenous medicine advises to treat *yeters himem* (toothache) by poulticing the gum with *nech shinkurt*.

Esa fares (Datura stramonium)
[For the scientific name see Pankhurst 1969:12.]
The name of the plant literally means "plant from Persia". It is used to treat a disease known as *ye ebid wusha bashita* (lit. "mad dog's disease), which is rabies. The medicine is prepared by crushing the leaves of the plant, and the juice is given to the patient after mixing it with the milk of a cow that has a calf of similar colour.

Conclusion

Despite the increasing supply of modern manufactured drugs, traditional medicine has continued to be widely used in Ethiopia. Unfortunately, very little is known about the potential significance of plant medicine and the pharmaceutical uses of plants in modern medicine. The availability of medicinal plants in abundance in the urban markets of Ethiopia shows how traditional medicine is also popular among urban residents. This condition encourages the author to suggest that the pharmaceutical industry should give due consideration and make a scientific approach to promote the systematic use of medicinal plants. At present, the combined effort of anthropologists, traditional healers, agronomists, botanists, pharmacists, and clinicians will be necessary to exploit the rich medicinal plant resources of Ethiopia.

References

Alvarez, Francisco (1961) The Prester John of the Indies. Vol. II, rev. & ed. by Beckingham and Huntingford. Cambridge: The University Press.
Central Statistical Authority (CSA) (1995) The 1994 Population and Housing Census of Ethiopia. Results for Addis Ababa. Summary Report. Addis Ababa: Office of Population and Housing Census Commission.
Kloos, Helmut; Tekle, A. and others (1978) Preliminary Studies of Traditional Medicinal Plants in Ninteen Markets in Ethiopia: Use Patterns and Public Health Aspects. In: Ethiopian Medical Journal, 16 (2), 33-43.
Kloos, Helmut (1974) The Geography of Pharmacies, Druggist Shops and Rural Medicine Vendors, and the Origin of Customers to such Facilities in Addis Ababa. In: Journal of Ethiopian Studies 12 (2), 77-94.
Ludolph, Joab (1684) The New History of Ethiopia. 2nd ed., London: S. Smith.
Ministry of Health (MOH) (UNFPA) (1992) Reproductive Health: A Family Planning Training Manual for Health Professionals in Ethiopia.
Neuwinger, Hans Dieter (1998) Afrikanische Arzneipflanzen und Jagdgifte. Chemie, Pharmakologie, Toxikologie. Stuttgart: Wissenschaftliche Verlagsgesellschaft .
Pankhurst, Richard (1969) The History and Traditional Treatement of Rabies in Ethiopia. Addis Ababa: Hailesselassie I University.
Pankhurst, Richard (1975) Some Notes for the History of Typhus in Ethiopia. Addis Ababa.
Plowden, Walter (1868) Travels in Abyssinia and the Galla Country with Account of a Mission to Ras Ali in 1848. London: Longmans Green & Co.
Prinz, A. (1990) Misunderstandings Between Ethnologists, Pharmacologists and Physicians in the Field of Ethnopharmacology. In: Actes du 1er Colloque European d'Ethnopharmacologie, 95-99.
Tawlda Berhan, G/Egziabher (1980) Research Needs on Traditional Medicine. Traditional Medicine News Letter 1 (1), 11.
Vecchiato, Norbert L. (1993) Traditional Medicine. The Ecology of Health and Disease in Ethiopia. In: Helmut Kloos & Zein Ahmed Zein (eds.). Bouder: West View Press, Inc.
Young, Allan Luis (1970) Medical Beliefs and Practices of Begemder Amhara. University of Pennyslvania.

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An Interview with Margaret Lock

Ruth Kutalek
6 June 1999 in Erdberg/Poysdorf

My first question is about the beginning of your life, from England to Canada. Why did you move to Canada?

Well, I moved to get work. My first degree was in biochemistry, which I took at Leeds University in the North of England. When I graduated it was time to find a job or to do graduate work, one or the other. I decided at that stage that I wanted to find a job but I also always wanted to travel. I had done a little bit of travelling in Europe but I had never gone to anywhere very far. At that time there were opportunities to go to Canada. The Canadian government would pay your airfare if you had a degree, which had to be paid back slowly after arrival in Canada. It was a way to get qualified people from England – the "brain drain" from England to Canada. So I became part of the brain drain and I went to work at what is called the Frederick Banting Institute in Toronto which is a very famous place because that is where they discovered insulin and the mechanism of diabetes. Banting made the discovery and the institute was named after him. So I was a lab technician there for a man who has since become the head of the Rockefeller Foundation. He was a heart surgeon at the time and I was doing research on lipid metabolism for about a year in his lab. And then I had to decide whether I was going to do graduate work in biochemistry or whether I was going to do something else. I think that during the course of that year I came to the conclusion that I didn't want to do graduate work in biochemistry. I applied and was accepted to do a graduate degree in biochemistry, but I decided in the end not to do that. Instead I got in a car with an Australian woman and we drove across the whole of Canada and up to the Yukon territories and on to Alaska and then back down to British Columbia and eventually I went to California.

So you started to study anthropology in Berkeley, California?

Yes. After I had been to Japan. When I got to California – actually I was in San Francisco first, I needed money so I worked in a lab in San Francisco but I always felt that was sort of temporary. After a relatively short period of time I met the man who was going to become my husband and he was also working in a lab having training in physiology and biochemistry and so on. He went to Japan to train in Judo and I joined him, after about six months. While I was in Japan I was teaching English and I started to learn a bit of Japanese. In the course of that one and a half years I decided I wanted to go into anthropology and so we came back to Berkeley. First the anthropology department wouldn't accept me because I had no training so I went into East Asian studies and did a year in East Asian studies, but with a lot of anthropology as well, and that took me into the anthropology department. In the end I got my Ph.D. at Berkeley.

Margaret Lock is Professor of Anthropology at McGill University since 1987. 1997 she was awarded the Wellcome Medal of the Royal Anthropological Institute of Great Britain for research in medical anthropology. In May and June 1999 she was guest-professor at our Department.

Why did you study anthropology? What was the attraction?

Well, I suppose … ever since I was a small child I had always read a huge amount about other cultures and other places and I was attracted to exotic places, although I never had a chance to go anywhere because I grew up in an ordinary lower middle class English family. I was reading about Africa and India from a very young age, and then when I was a teenager I was reading novels and literature relating to South America, Africa, and India and so on. I was always fascinated with other ways of life. And I suppose really what that meant was that I was discontented with my own life. I always felt … I grew up in post-war England and I felt limited somehow, felt narrow, even though I was close to London. I grew up in Kent and I went to London very often. By going to London I always felt that that was a window onto much bigger things and I wanted to get out of my narrow world. So I think that was part of the attraction. But also, from a very early age, being near London, I was exposed to the beginnings of big waves of immigrants from places like the Caribbean and Africa and other places. I was beginning to be very sensitive about the conflicts they were going through and was always fascinated about how that could and should be resolved and about what I thought was the very conservative reactions of the government and people in power. So I suppose that was one of the attractions. But then living in Japan, for between 18 months and two years the first stay, really convinced me that here was a culture which is extraordinarily difficult to become part of. It's impossible as an outsider ever to be really integrated. Obviously, one could never pass as a Japanese. The language is a huge challenge, and also understanding the country busy transforming itself at a great rate is another challenge – Japan had started to modernise in the middle of the last century, but because of the war was devastated and then took off again.

I got to Tokyo in the 1960s, the capital of what was just beginning to become a very powerful nation, but was clearly not like the West, although thoroughly modern. And casual visitors would keep going there and saying "Oh, it's so traditional." but it was quite clear to me that although there was a self conscious preservation of some aspects of tradition, a massive amount of change was going on. It was obvious that it would be a fascinating place to make really serious comparisons with Europe and with North America. That was what I always thought would be a good research angle.

Once I finished training at Berkeley I went to do my fieldwork in Japan. What I wrote up in preparation for the fieldwork was a study of the whole of the Japanese traditional medical system, but this was really rather naive and nobody knew any better to tell me that this was much too big a project. It would have been a life-long project, right? I had a whole range of things in mind to study from herbal doctors through to acupuncture specialists and shamans. You know, I wanted to do the whole thing (laughing) and nobody told me that this was a crazy idea. Once I had got to Japan I was introduced by William Caudill to the first herbal doctor that I met in Japan, Dr Otsuka. Herbal doctors are M.D.s, as well as being trained in herbal medicine. When I met him, Dr. Otsuka, who is still a very close friend of mine, sat me down and talked to me. He speaks German very well but no English, so he talked to me in Japanese. I only understood a very small part of what he said at the time, but I knew that he was telling me that I should not do this huge thing, that I should just study what's called *kampoo* – the herbal medical system. When I went along to his house he showed me all his books on classical medicine; he has a fabulous collection of books, some of them originals, on medical theory and also pharmacopoeia of various kinds, it's outstanding. Dr. Otsuka obviously loves his work. While he told me all about this "natural" medical system, he was smoking and drinking (laughing). And of course I had brought along stereotyped ideas about these holistic doctors, about how upright they would be! So I went away and thought about it and realised fairly quickly that the shamans would have to be dropped entirely. I could not do this type of research because a study of shamanism would be a totally different project, and so I immediately cut that out. Depending on how I framed the project, I could either focus entirely on the herbal medical system and limit myself perhaps to one clinic and really study it in depth, including details about the exact medicines that they used and so on, or I could study more generally what is called *tooyoo igaku* – the East-Asian literate medical

tradition, which includes the herbal medicine clinics and the acupuncture and massage clinics. Sometimes these specialities are together in one place, but more often they are separated, however, they all use fundamentally the same conceptual approach taken from early Chinese knowledge, although it's highly modified in Japan. So I decided that was what I wanted to do rather than focus in depth on the specifics of the pharmacopoeia and the ways in which diagnoses and treatments are made with respect to specific sets of symptoms. What I focused on was the topic I spoke about in class – the broader question of "Why is this system having such a huge revival?" There was a big boom in traditional medicine at this time – when I was doing my Ph.D. research in 1972 and 73. So the question was why is there this revival in traditional medicine, when there is good socialised health care in Japan with easy access for everybody and lots of high-powered technology. Why were people still making extensive use of the traditional system? So that became my major question. I moved across a range of clinics, from massage clinics to the *kampo* clinics and back again. I felt it was important for me to make some broad generalisations and I think that was actually the right decision. I am very fond of Dr. Otsuka and I go and see him whenever I go back to Japan. He is one of my main Japanese mentors. So for me it wasn't the best thing to sit in just one clinic and focus on the micro-aspects there; I needed to be able to say something more about Japanese society at large and what East Asian medicine means in contemporary society.

What was your first impression when you came from the academic world and moved into the world of fieldwork? What were your first difficulties?

Living in Japan?

Yes.

Well, I already had children, I had a child of two and a baby, and my husband – my whole family was there. So there were the complications of daily life, everything was complicated. But in terms of the actual fieldwork … I think with Japan, inevitably the biggest problem is the language. It is so difficult. Speaking is hard enough and the reading and the writing are very, very difficult. When you learn to speak you learn one level of Japanese, but formal and informal speech is very different, and in any case with every new subject you often still can't understand because every single word is brand new. There are no associations, nothing to hold on to, no way to build up things very easily. So you just have to work through it. The Japanese themselves say that it takes ten years to do anything properly, and that's what it's like (laughing). So for a long time you feel very much like an outsider! When we were first there, even in the early 1970s, foreigners were still somewhat unusual, especially women. So I was stared at a lot, people are polite but they are cautious. The first thing about you that counts when someone is talking to you is that you are foreign. And then when you start talking people say "Ah, you are so good at Japanese, you are so good!" And you know perfectly well that you not so good. So, it is very hard to enter into the kind of relationship that the Japanese call *shitashi*, that is a close relationship that comes from the heart rather than being more superficial and formalised. It takes years to develop that kind of relationship. I have talked to many people who have worked in Japan, and even those of us who have lived there for years and those of us whose Japanese gets reasonably good, and even among those few people whose Japanese gets incredibly good, they still say that being lonely is one of the big problems. Even though one is surrounded by millions of people (laughs). Japanese life is so busy and people have so many responsibilities so it is very hard to act spontaneously, to suddenly do something without planning and that kind of thing. You are on your own. So, that's one of the difficulties. In some ways, though, Japan is a lot easier to live in than other countries. One doesn't have to worry about illness. All the basics of life are fairly straightforward, although in the early days things could be complicated. And I guess the other thing that always strikes everybody when they go and live in East Asia, and particularly in Japan I suppose, is the density of the population. It's so crowded that in the hot summer days particularly one gets so tired with the trains, of being packed in tightly with other people. So many people around you all the time, and the noise level, and the activity. There's no privacy and you always have to fit yourself into a small space (laughing). And of course none of the

clothes in the stores used to fit me. Nowadays it's all different. It's still crowded and noisy, it's even noisier, but there are spaces now where you can relax properly and no problem of food, procuring material goods is not problem at all! So many things have changed, but in the early days basic things were a problem.

How was your approach to the people you interviewed? Was it easy to bridge the gap with the so-called "normal" people?

Well, I think I have always had an advantage because I have mostly been interviewing on subjects that relate to the body and to health and illness. This is obviously a subject, which interests a lot of people. In my first study almost all the interviews were actually done in clinics and so I talked to patients who were waiting or who had seen a doctor. So they were often very eager to talk. In fact they often said much more than I wanted them to say. I would want to go home and they would still be talking (laughing). I have never had any difficulties in Japan about talking to people about their bodies and their concerns about their bodies and about what they think caused their illness. No difficulties with that at all. But I think that when doing the Ph.D. research because my language was only mediocre that the exchanges with people were limited and not very spontaneous. Informants answered me but they gave, you know, fairly limited responses. Even when they gave me full answers I couldn't really follow up on them. In the following years when I did more research on different subjects and particularly the research I did with the middle aged women in connection with menopause and female ageing, I felt I was really engaged in a dialogue with many of the women. I had many real exchanges and the women I was talking to might ask me about Canada and the United States and what I thought about women's health matters there. These exchanges became much more of a conversation and much less of an interview. Some women didn't want to do this, but most did. And I think it helped because I was the right age, I was their age. A few women actually told me things that they said they had never told anybody else. They were comfortable telling a foreigner something that for them was quite a secret and they didn't want to tell even their husbands, well, maybe especially their husbands (laughing). So that was quite nice actually. Many of the interviews I did about ageing and the body took place somewhere the woman herself had chosen. I mean it was either in her home, and I travelled specially to meet her, or else it was a community centre in the village and I would meet people there. So the interviews were much more on the women's terms; it was the women who made the ground rules. And by this time, after more than ten years of research in Japan, I felt they realised that I knew quite a lot about their country. It was altogether a much better exchange than with the earlier interviews in the herbal clinics. It takes years to be in that position I think where the informant has some confidence in the interviewer. This must be true for anthropologists just anywhere they do research. Informants must be comfortable that you really get the nuance of what they are saying and with what you are going to do with the information they give you.

Also the topics are very sensitive, concerning the body.

Yes, and more than that. Sometimes interviews are about sex and lovers and things like that. And they are sensitive, sure. And often, with middle aged women, they want to talk about their concerns about the care of the elderly. So they often tell me secrets about mother-in-law, which is "verboten" really. (laughing) They would grumble away to me about mother-in-law and sometimes she would be trying to listen in from the next room!

The topic "Anthropology of the Body" seems to be a very important issue at McGill University. You are not the only one dealing with that.

Well, it's the anthropology of medicine that several of us teach. I teach anthropology of the body, but my colleague teaches the anthropology of the mind. He is the man and does the mind and I am the woman and I do the body (laughing), a natural division of labour, right? Our department is recognised throughout North America for the anthropology of medicine. The person who started our department is actually a historian, and he hired the rest of us. He is a M.D. and an historian of early European medicine. He had a vision in the 1960s that the teaching of the social sciences and the history of

medicine should be done in an interdisciplinary program where we teach both medical students and students in our own disciplines. So what he set up was a department in the Faculty of Medicine in the heart of the Osler library of the history of medicine, but each of us is also fully appointed in our own discipline in the Faculty of Arts. First a sociologist, a medical sociologist, was hired by the historian, and then I was hired next in 1977. Later we hired another historian and then another anthropologist. Ideally we were supposed to have a second sociologist at that point but the big cutbacks we have had put an end to that for a while. Finally we were able to get a third historian, and one more half-time anthropologist. So what we have in all are three historians, two and a half medical anthropologists, and one medical sociologist – that's the whole department. And all of us focus on medical topics of one sort or another. Of the historians, Faith Wallis is a medieval historian of Europe; Don Bates, the founder of the department, works on Thomas Sydenham and William Harvey and the circulation of the blood and so on, and the third historian, George Weisz, works on 19th century and contemporary France, Germany, and Quebec. Actually he is both a historian and a sociologist, and he works on the professionalisation of medicine in the 19th and early 20th century and on complementary medicine in Europe, the hot spring baths and so on. The sociologist is Alberto Cambrosio, who is of Swiss origin, and who does research on the sociology of science and technology. He works closely with Bruno Latour and Michel Callon and other various French groups. He has focused recently on the development of knowledge about the immune system, the use of various instruments and measuring devices and how they affect the way in which one actually "sees" scientific objects. My close colleague Allan Young works primarily on issues relating to psychiatry; he is cross appointed in psychiatry as well as in anthropology as well as in our department of Social Studies of Medicine. Allan works on "post traumatic stress disorder" and the way in which knowledge about memory is produced. In his early research he worked on Ethiopian medical practices. Ellen Corin, who is part time, is the wife of the medical anthropologist Gilles Bibeau, and she specialises in both psychiatric and medical anthropology. She is half time more or less and also runs a clinical practice. Ellen has worked for years in Africa, in Zaire where she did a great deal of work on mental health issues, but now she limits her work mostly to schizophrenia in many parts of the world.

My early work, as you heard, was to do with the East Asian medical system, but since then almost everything that I have worked on has been to do with issues to do with the body. I have been interested in how the body consciously or unconsciously operates as a medium for the expression of social norms and ideologies, and also as a means of expressing distress. I also focus quite a bit on life-cycle transitions and how those are understood, experienced, and represented differently in different locations. When I did a large study examining the concept of menopause cross-culturally it became very clear to me that not only women by physicians in Japan understand and think about ageing and menopause and women's bodies in a profoundly different way from that of doctors in America or Canada. There is an engagement going on among popular knowledge, ordinary women, patients, doctors, and governments about what middle aged female life should be all about. In Japan this is not the same discourse as that in Montreal or San Francisco, there are different emphases; the female body has different meanings attached to it and is subjectively experienced in a different way. The respective feminist movements also have different preoccupations.

Then, because I did a large quantitative study, I was able to show that the actual biological changes that women go through in Japan and North America, although not qualitatively different are quantitatively different to a significant extent – many fewer Japanese women experience problems at the actual end of menstruation, many fewer than in North-America. And reporting of the "typical" symptoms of menopause, hot flashes and night sweats, is extremely low. This is an area of study that I would like to develop further, research into what I call "local biologies". This approach is an entree into understanding the way in which culture and biology work together as a dialectic, or rather in the terms of Bruno Latour, how culture and biology are co-produced. This relationship is so tight knit that you can't really call it a dialectic; both elements are enmeshed with each other. Local biologies evolve in part from the long

history of living in a specific ecological niche, but they also arise as a result of current factors such as diet, cultural behaviours, and knowledge. These variables interact with the human in significant ways but thus far we have not really been able to come to grips with this issue. Medical anthropology has often been set out as a potential for bridging biological anthropology and cultural anthropology but I think thus far it has really failed to do that. It's one of these areas that I think I would like to see treated seriously. It is very difficult to talk about this. It is very difficult to talk about biological difference in certain parts of Europe and in America. It's almost impossible to talk about biological difference because everybody immediately thinks of racism and of races of people and of a biological determinism, which is horrifying. But I feel that this is one of the tasks that I would like to see anthropology deal with. To find means and the language and ways of breaking through some of those awful stereotypes which are dangerous and false but are naturalised as though they are biological truths although they are complete nonsense. But I think anthropology, instead of taking on those ideologies, has actually in some ways reinforced them – inadvertently reinforced them by avoiding dealing with them; by always talking as though there is clear differences between groups of people based on this thing called ethnicity or whatever which just not the case. Anthropology has inadvertently reinforced the sense of marked differences between groups of people, which I think is inappropriate. Paradoxically, I think being able to talk about biological difference in a serious way, not as a biological determinism but a biological variation of local biologies, if we want to talk about that seriously, is a way of opening a door to talk about such questions. This may appear to increase a sense of difference but paradoxically it actually flattens out a lot of the differences because you get an idea of so much more variation. These are not marked by some superficial thing like skin colour or something ridiculous like that. But it's a very difficult problem to tackle.

You also did a lot of work on the relationship of body and power. Would you like to say more about that?

Well, I think this is to do with my work that deals mostly with gender, but actually it started on work with children in Japan. I did a brief bit of research on children who in Japan are labelled as having "school refusal syndrome": they have trouble going to school and they tend to stay at home all day. It was a problem that was being medicalised in Japan. In other words, these children suddenly become a question in the media everyone was discussing, saying "This is terrible, this is part of modern society, what shall we do?" Psychiatrists were being called in to help and to counsel the children and ideally counselled the families but usually it was just the mother and father. So I was interested in this problem: I started by being interested in the taxonomy in the way it's called "school refusal syndrome" and the way in which they focus very much on the level of social relationships. And within that category are children that might be depressed, children who might be potentially schizophrenic, or children who might have really nothing medically wrong with them, who certainly don't need medicine but who are miserable at school for one reason or another, they are being teased or they are not very clever or something like this. And all of them get lumped into the same social category – the focus is on the fact that these kids are not in school. Whereas in America where I made a comparison there is of course a category called "delinquent" but this is not the same thing. The children who don't go to school in America, where they are medicalised, would be clearly broken down into specific medical categories that are familiar. And the others would be put into this box probably of "delinquent" or something like that and they would be psychologised in a way. But the issue of not going to school would not be the primary thing that held this bunch of kids together. So I was interested in it as a taxonomic problem but because I became interested in it when analysing the Japanese situation, I got very interested in power relationships, in ideas about hegemony. The Japanese school system, from my point of view, my outsider's point of view, is quite hegemonic, quite demanding, somewhat inflexible. Primary school is fine but middle school and high school are really tough. Children are exhausted, travelling hard, working hard, doing day school and doing extra school afterwards to study more. More language, more English, more Japanese, more math, really, really hard work and it's a really hegemonic system, that's the only way to describe it. If you don't go through

it you are not going to get into the best jobs, you are not going to get into the best universities and all the rest of it. So I became interested in this lack of correspondence between the overall hegemony of the ideal of what should be going on and the lives of these individual children and their families; and the way in which that was becoming medicalised – the sort of discontinuities between these two types of approaches, of understanding. I took that same viewpoint when I started studying the women and the life-cycle process and ageing in general. But I … yes I think I did carry it right through into my analysis of ageing and the way in which the woman's body is heavily medicalised at this stage of the life cycle. I saw – and still do see – that this another form of a very complex form of power and policy-relationships because it's not simply … it's clearly not directly the government that is forcing women's bodies to be medicalised, it's a very clear example in some ways of what Foucault talks about: women these days having absorbed ideas about needing to look after themselves, needing to preserve their health, needing to be responsible for their bodies and being fed constantly, at least in America and Canada, information which I believe is false information, that at middle age the body is likely to break down, it's likely to become pathological and the only way to stop this is to take medicine, powerful medicine, every day for the rest of your life. And as far as I am concerned this is false science. We do not have the data to demonstrate this; we have no long-term studies. Because we changed … we started with oestrogen, now we get hormone replacement therapy which is different, combining estrogens with progesterone, but we have no studies lasting twenty or thirty years to show what a dose of HRT (Hormone replacement therapy) does for that period of time – we don't have the faintest idea what this is going to do to people. And there are all sorts of other problems with the statistical work but it's taken as a truth and it's presented to women who believe it. It's also presented to gynaecologists and GPs (general practitioners) who also believe it, but many of them don't have the knowledge or the ability to deconstruct this epidemiological data. But the problem is very difficult because I suppose if I were pushed I would agree that some women probably do need medicine and do need help but it's rather a small percentage of women. So that's one problem. The other problem, which I am constantly fighting, is this idea that menopause is a universal event and everybody has the same levels, the same risk for heart disease and breast cancer and osteoporosis. It's stupid! It's really silly, there is enormous variation in what people are at risk for. It's such an oversimplified rhetoric, which is pumped up by the interests of the pharmaceutical companies. But it's a very hard battle to fight this and I become, yeah, I personally become fairly politicised when I am dealing with these arguments. But I very often give talks at gynaecological meetings and public health meetings and so on. What is interesting is that there are always a large number of doctors who are opposed to what I am saying but there is equally quite a large amount of doctors who thoroughly agree with what I am saying. I am now at the point where I am realising very clearly that hegemonies are not as hegemonic as we have painted them! There is much more disorder, as Michael Taussig would say, much more variation at all different levels. So the women get prescribed the HRT but they don't take it. As far as we can tell in America only about 10% of eligible women do take the medicine – the rest get it but they don't fill the prescription or they don't take it, so they are not complying. A lot of the doctors are sort of ambivalent about whether they should or whether they shouldn't prescribe HRT. So they discuss it with the woman and … so it's not nearly as hegemonic as you think but if you read the literature, if you read the newspaper, the women's columns and if you read the gynaecological editorials you would think it is absolutely cut and dried. So I think this is a really important function that anthropologists have, to keep talking about complexities, to keep battling the oversimplified arguments.

In a new work … well my manuscript has just gone to the press so it's not so new but the work is on brain death and organ transplants. In this work I am dealing much less specifically with power relationships and much more explicitly with epistemologies of knowledge around what is death. I mean this is one of the most fundamental questions that we have (laughing). Doing this research I am just surprised all the way, every time I just find out something else, I am just bowed over. It is all so macabre! We have moved into this incredible world with modern biotechnologies in which we can modify the

body at a rapid rate. But we are not really thinking properly about what we are doing, so in America, Canada, Britain and in most of Europe and it seems to me in Austria, too, the assumption is that organ transplants are a good idea, that people who need organs should get them, that people should give organs in an unqualified way to people who need them. That side of the argument seems somehow problematic. There are all sorts of difficulties around organ transplantation but the other side is not examined at all: what does it really feel like to … First of all: is brain death, death? When we are talking about a dead body we have made it into a dead body but it isn't a dead body. We have covered up ambiguities about this entity, which is not dead. And secondly we have assumed that people around this sudden horrible accidental death, the people around that person should be prepared to donate organs. And that assumes that the dead body is merely a bunch of organs that has no longer any meaning; that any memory we are going to have of this person has to be recreated out of memento mori, out of artefacts of various kinds but nothing really should be directly associated with the actual physical body. In a way, the physical body itself is divested of all meaning. It seems quite clear from my research that a huge number of people are unable to make the transition as far this is needed in order to procure organs. If your child is killed, run over in a traffic accident, it takes more than a few hours to adjust and to have this body wheeled away to donate organs. So that's one half of the story: Why have we made so little fuss about this? Are we frightened to talk about death and so we have allowed it to become medicalised?

The other half of the story, of course, which got me into it, is the fact that the Japanese have got a huge concern about death and misdiagnosis and didn't recognise brain death until recently, and most of them still don't. And therefore people who need organs in their country suffer enormously, but they are not talked about and not thought about until very recently. So I started out thinking about this contradiction but what it becomes really is a comparative study in the way in which of the interaction of technology, medical technology, culture and the medical system and the globalisation of ideas. The knowledge is flowing back and forth all the time. The Japanese doctors know, the neurologists share knowledge very tightly but what happens in this local setting is very different because of what I call a different "conceptual space" in Japan and North America with respect to the brain dead entity: is this entity alive or dead? In America it's counted as dead and in Japan it's counted as alive. And that's partly to do with how the concept of a person is constructed differently in Japan and North America. It has also partly to do with the way in which a dying and dead body is understood as having different significance on the whole. This is a truly global study and in writing it up I have integrated the two arguments all the way through. So I don't have a first section about North America and a second section of Japan. Every chapter has both all the way through to really have it very tightly knit. And then I am slowly moving into areas to do with genetics and the new genetics and what that is going to signify in terms of new ideas about what is normal and what is abnormal, what is pathology and what can be transformed through technology. At the same time part of my struggle with this is really to clarify what is the role of the anthropologists in this new arena of biomedical technology. It's not altogether clear to me. I know that there is something there to be said which bioethicists don't say because bioethicists are functioning … their knowledge basis comes out of western philosophy and therefore is grounded in unexamined assumptions about autonomy and identity and all the rest of it. So we anthropologists have a contribution to make which bioethicists don't. But it is not a contribution which points out that one ethnic group does one thing and the other ethnic group does another. I hope that anthropology is more or less past that stage because we really are dealing with much more complex exchange of ideas. I guess I do see a large part of modern anthropology's task to be to deconstruct contemporary professional knowledge, contemporary knowledge perpetuated through the media and through government documents.

The work for me, then, still involves interviews; I think it is very important always to represent ordinary people's responses to these kinds of questions. If anthropologists don't do that then nobody is going to do it; and we must do it through interviewing not through survey research or that kind of thing. That really is still a very important task. But I think it is also important to represent these professional bodies

and these government bodies in an anthropological fashion which shows an engagement between the public and various powerful bodies and to show how people's every day lives are transformed through the intervention of technologies that we are creating for ourselves.

What would you hope for the future of medical anthropology, especially in this field?

I would like to see it much more integrated into the medical world, I suppose, and more than that. I've had twenty years of teaching in medical school and it's actually become much easier. That's not because I have got better but it's because the people who go into medicine these days, the medical students and young doctors, are much more sensitive to the idea that the practice of medicine is more than just dealing with diseased bodies. Although obviously they try to be "scientific" but they realise that medicine has nevertheless got values built into it all the way. Almost all of our medical students understand that now – probably even before they get into medicine. So it's become easier to teach them. They are certainly not resistant; they are often actively engaged with what a social scientist has to say – provided it's presented in a way, which is appropriate for them. So I would like to see more medical anthropologists in medical schools; it works reasonably well in our medical school but it's not happening in all medical schools. It's not happening much in Britain, I don't know about the rest of Europe. It's not happening in Japan, certainly not in China or India, and I would like to see much more real engagement on the part of medicine with social science in general and also with history, I think there should be a serious engagement with history, not the history of great doctors, but the way in which history and medicine are connected, I would really like to see that taught much more seriously. So that, I think, is part of our job. That doesn't just mean that you go and teach medical students. It means that you work in a university to transform this kind of idea. There is a huge gap between the different faculties who all think that each is sacred, and don't talk to each other. The hardest part I find in my university is dealing with the anthropologists, not dealing with the medical people at all. I would also like to see more of our graduates going into public health and into epidemiology and taking their knowledge with them, you know, and asking different questions. And nowadays, the various North-American aboriginal groups all have their own health boards, possible to do fully staffed by aboriginal peoples, so our medical anthropologists now do joint research. One of my Ph.D. students is herself a MÈti, (half aboriginal) and is working on this terrible problem of foetal alcohol syndrome. She works together with various aboriginal health groups, and she is able to bring an academic point of view to it which most of the aboriginal women themselves are not interested in doing. What my student does is to look at the way in which the foetal alcohol syndrome is constructed by the psychologists and the psychiatrists as a biomedical problem. So she is able to help these people to talk across the different approaches and the different conceptualisations they have. So I think that kind of work is very important. Another of my students, who is an M.D, working on AIDS in West Africa, will be looking at NGOs and what their expectations are, how they have very political agendas, are not innocent by any means: this seems to me to be the perfect anthropological task.

Thank you very much!

You are welcome!

Congresses

Medicinal Plants, Traditional Medicines and Local Communities in Africa: Challenges and Opportunities of the next Millenium.
16-19 May, 2000; Nairobi, Kenya

Themes: Medicinal plants and traditional medicine, global context, sustainable use and conservation, commercialisation and economic value of medicinal plants.

To submit abstracts, to register or for inquiries, please contact:
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The Social Forum
Networking and Departmental News

New Scholars in the Department of Ethnomedicine

We are proud to be able to announce that Christine Binder-Fritz was awarded the "Hertha-Firnberg Stipendium". This grant from the "Österreichischer Fonds zur Förderung der wissenschaftlichen Forschung" (FWF) is specially designed to support women in the sciences at university level. For the coming three years she will be assisstant at our Department, doing research studies on the topic "Transcultural Aspects of Women's Health". This will include another ten months of ethnographic research in New Zealand. Hereby she will continue her work on Primary Health Care Services for Maori women in New Zealand, who are in fact an ethnic minority group in a multi-ethnic society. Because of the participating role of Maori women in health care, specific programmes are created, that are not only culturally appropriate but "gender-sensitive" too. The final goal will be to create a framework of "ideas" to support the implementation of transcultural health care services for female migrants in Austria.

Photograph last page

The traditional healer Geidj Faye, Senegal

A woman and her child fell from a cart. Both were injured, "the bones were displaced", the mother says and the "child is moaning when carried on the back". Geidj Faye massages the child, praying and spitting in his hands. Then he treats the mother. He says that the massage brings the bones back in their original position.

Photographed in the house of Geidj Faye in Thiolaye

Photograph: D. Burtscher

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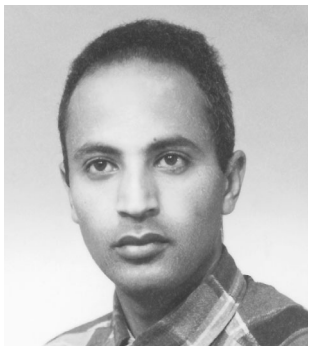

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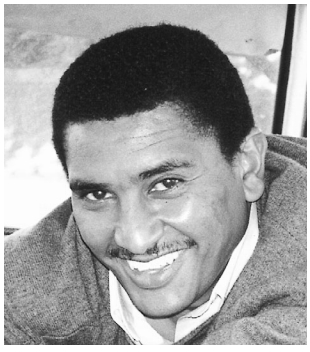
Armin Prinz, M.D., Ph.D. (social anthropology), head of the Department of Ethnomedicine (University of Vienna), since 1972 research among the Azande in Zaire



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The traditional healer Geidj Faye, Senegal

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