ICWA
LETTERS

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SUBSAHARAN AFRICA

Randi Movich is a John Miller Musser Fellow of the Institute spending two years in Guinea, West Africa, studying the ways in which indigenous women use forest resources for reproductive health.

Malian Medicinals

(Part II)

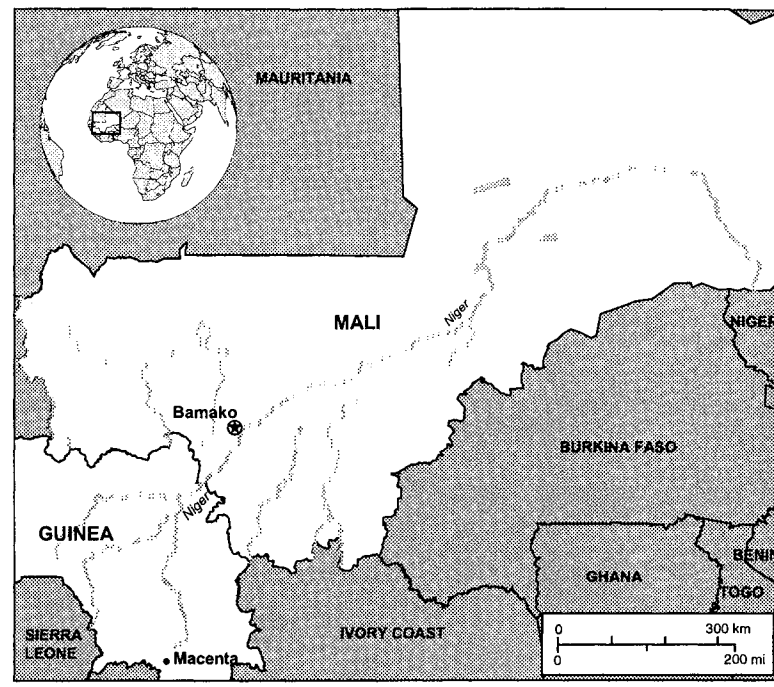
MACENTA, Guinea January, 1998

By Randi Movich

SCIENCE MEETS TRADITION

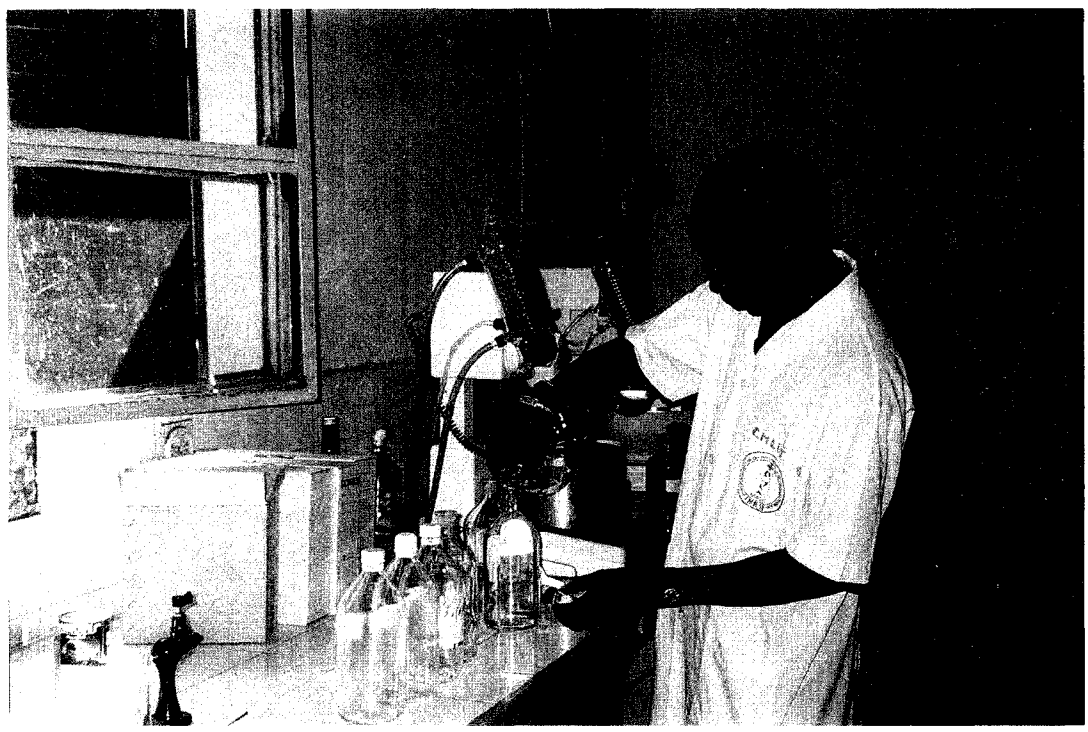
Students scurrying around in white lab coats, bubbling test tubes and beakers, large vats of bark and leaves. This is where western Science meets African Tradition. I am ushered into the office of Professor Arouna Keita, who sits calmly behind his desk, cigarette and strong black coffee in hand. He greets me warmly and invites me to sit down on a comfy chair in his air-conditioned office. "Do you mind if I smoke?" he says — the question perhaps conditioned by his many visits to the U.S. He asks if I would like coffee. Having already started out the day with a cup, I graciously decline. He then half-jokingly comments on the irony of consuming intoxicants while being the head of the Department of Traditional Medicine (DTM) at the Malian National Research Institute for Public Health. Professor Keita is a pharmacist by training, and as director of the Department of Traditional Medicine is responsible for the research and development of medicinal plants. Here some 21 people are employed in collecting, testing, administering and packaging medicinal plants.

Creating an "MAT," or *Medicament Traditionnel Amelioré* (Improved

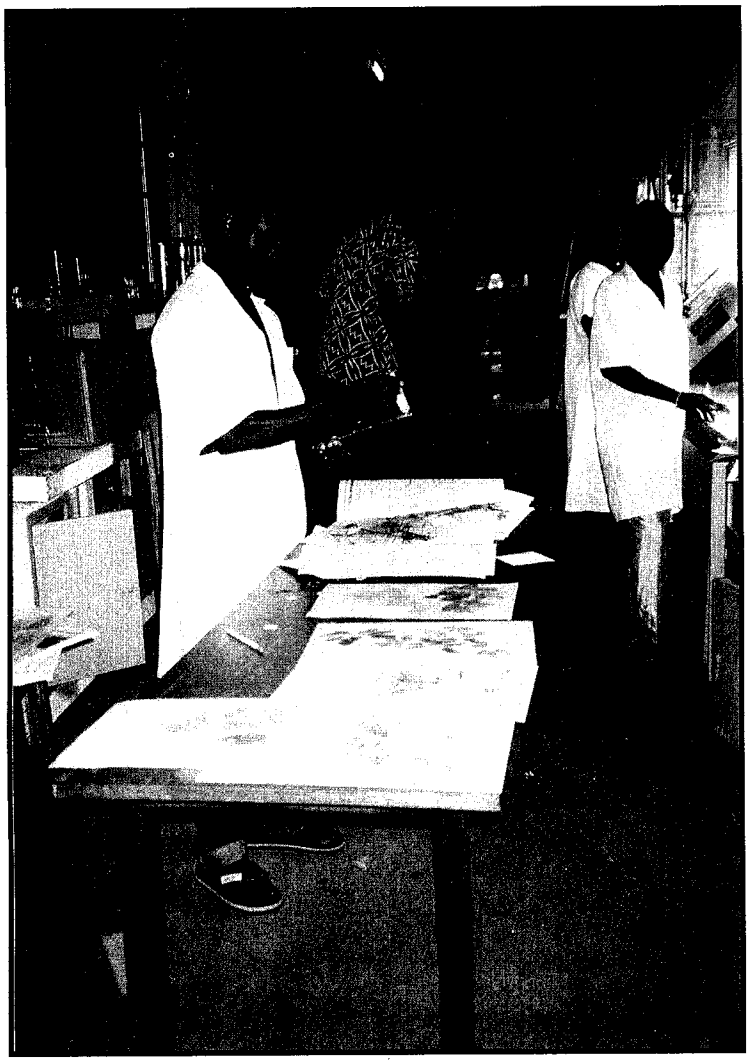


Professor Keita in his office at the Department of Traditional Medicine

Traditional Medicine) — scientifically tested and neatly packaged medicinal plant(s) in powder, syrup, tea or ointment form with directions for use and specific dosages — is a long process, not unlike pharmaceutical development. First, popular use of the plant is determined. If a plant has wide acceptance in a number of regions as well as between ethnicities for a specific illness, then it can be a candidate for testing. In most cases the Mali Department of Traditional Medicine focuses on remedies for illnesses that can't be treated satisfactorily with expensive pharmaceuticals. The second step is evaluating the plants' toxicity. This is accomplished by giving a human dose to mice. If 50 percent or more of the mice die, the remedy is considered toxic. If the remedy is not toxic,



Cheik Mohammad, a pharmacology graduate student distilling alcohol to use for medicinal plant analysis



Ngolo Balo, a pharmacy graduate student working on herbarium samples in the lab.

then the scientists move on to the third step: determining the pharmacological activity of the plant by isolating active compounds. The isolated constituent is then tested on rabbits or mice, which have been artificially given the illness to be treated. If the rabbits or mice are healed, the plant is considered to have a positive pharmacological result. It is then fabricated into an appropriate form and tested on people.

Unlike synthesized pharmaceuticals, the plants that are being scientifically tested already have a long history of use by people. Therefore the patients that come to the clinic at the Department of Traditional Medicine are not really "guinea-pigs" in the true sense. An initial analysis of their illness using modern methods is conducted. The *Medicament Traditionnel Amelioré* (MTA) is administered and then followed by additional analysis. If a large enough number of patients are healed, the lab brings the *MTA* to a government-appointed independent scientific committee composed of medical doctors, pharmacists, and botanists. The committee evaluates the test phases and determines if the *MTA* is ready for mass production. The entire process can take several years.

Currently the Department of Traditional Medicine produces *MTA*s for hepatitis, constipation, amoebic dysentery, coughs, skin rashes, ulcers and malaria. These are sold to pharmacies, which in turn sell them to customers at fixed prices ranging from 200 to 1120 CFA (U.S.40 cents to $2.20). The *MTA*s are much more affordable than pharmaceuticals imported from the west and generally more available, given that the knowledge, materials and combine place with Malian resources and know-how.

Although Professor Keita and I have talked a lot about isolated compounds and active constituents, we have not discussed the social, cultural and spiritual aspects of these remedies. When I bring up the subject, he tells me his lab only tests plants in a scientific framework. But, is traditional medicine simply the sum of active chemical plant compounds? Professor Keita is quite comfortable with the invisibility of much of traditional medicine. "There is one healer that I often refer people to. He is capable of having someone sit in a large calabash and spinning it until the person is actually flying in the air. The occult is a whole different realm. We can not analyze everything in the name of science. Some things we can't explain. We can't judge them and we can't say they are false."

Keeping in mind questions that science can and cannot answer, I pay a visit to the former director of African Traditional Medicine for the World Heath Organization. Professor Mamadou Koumaré is the grandson of a traditional healer and formally trained as a pharmacist. He readily embraces and preaches the holistic aspects of traditional medicine. He is less likely to take the strict "science" path than his former student Professor Keita. For his "retirement" Professor Koumaré is in the process of establishing a private lab, pharmacy and clinic all in one at his home. He plans to offer his patients choices, the best of both modern and traditional. He is confident about this approach and somewhat critical of those who do not take traditional medicine at face value, "We can not speak of scientific rigor because there are difficulties especially testing on animals like rabbits and mice. After one has spent millions on animal research it might [still] not work. In traditional medicine, man was the first test animal. Researchers need to have a certain confidence in the past."

He is quick to point out the almost polar opposites of traditional and modern medicine. "Traditional medicine is an ensemble of constituents, whereas modern medicine focuses on the extraction of one active principle. The phi-

losophy of traditional medicine is polytherapy. The modern concept is analytical; it breaks things down to something singular. The concept of traditional medicine is systemic vision, global, holistic. Spiritual, physical and intuitiveness are intertwined." We finish our talk just as it is time for him to leave for Friday afternoon prayer at the mosque. "These are two valuable models. The best solution is to find something in between."

PUBLIC POLICY AND PRACTICE

A presidential decree, signed in August 1994 by Malian president Alpha Oumar Konaré, provides the framework and rules by which *herboristes*, traditional healers and producers of *Medicaments Traditionnels Ameliorés*, must abide by. Although the legislation is simply worded and clear in terms of it's requirements, I saw little compliance in the selling of medicinal plants and the practice of traditional healing. The exceptions were the *MTAs* produced by the laboratory at the Department of Traditional Medicine. Perhaps this is not surprising because Professor Keita is one of the main authors of the legislation.

The legislation primarily requires that healers requesting permission to open a private practice must assure that each medicine they use is effective and non-harmful as well as having a stamp of approval from the Minister in charge of Public Health. Secondly, they must provide samples of at least 30 different medicines they sell. Thirdly, the scientific and local names of the remedies, their use, doses, secondary effects and precautions of use must be submitted.

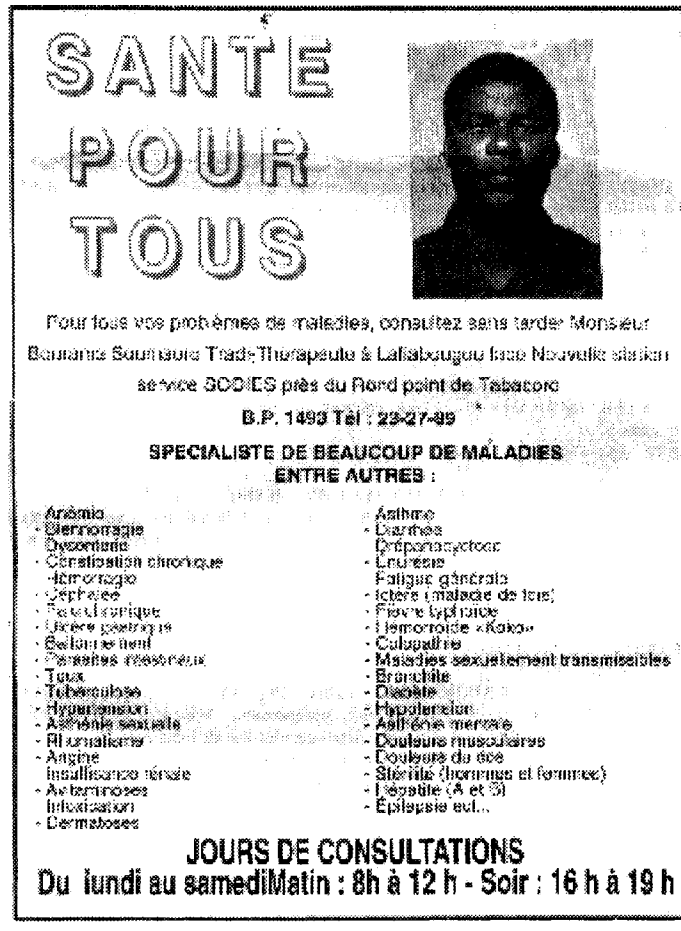
The problem with these requirements is that most of the people who sell medicinal plants or practice traditional medicine cannot read. Mali's literacy rate is one of the lowest in the world, with only 24 percent of women and 41 percent of men able to read and write a short simple statement about their everyday life.[1] Moreover, any healers are reluctant to "give up" 30 of their remedies simply to be sanctioned by the government when they are currently practicing without such approval and there is simply not enough funding or trained personnel available to evaluate and monitor their work of *herboristes* and healers.

Things move slowly in West Africa, and

[1]D'Aluisio, Faith and Menze, Peter. (1996) *Women in the Material World.* Sierra Club Books, San Francisco, California.

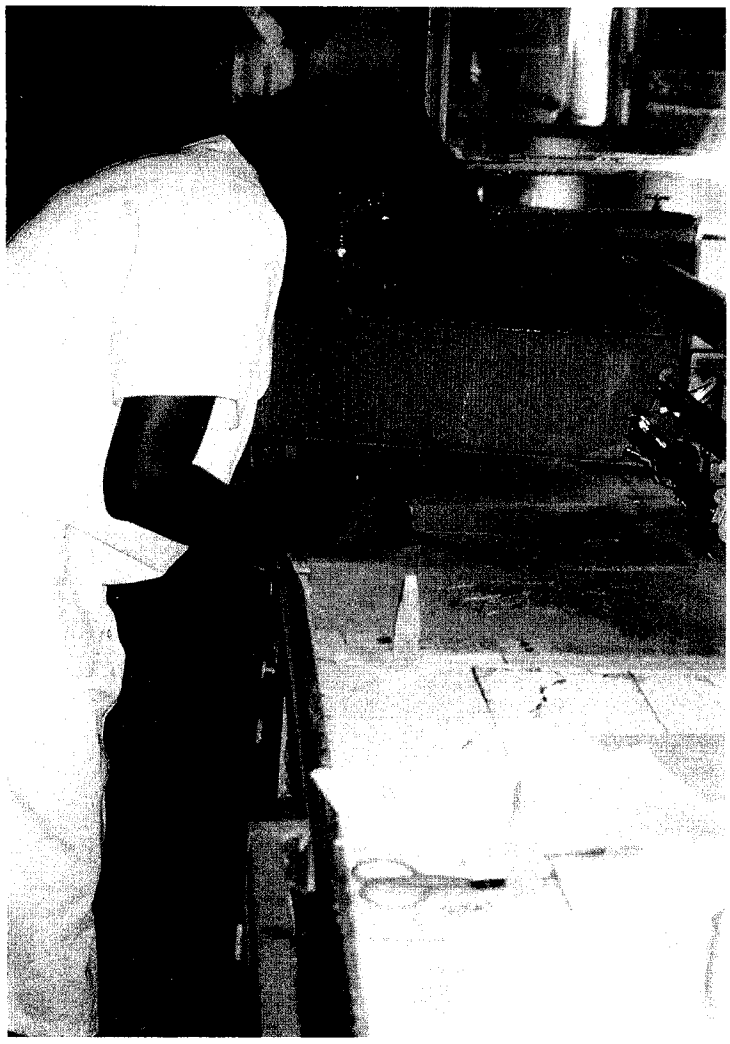
Newspaper Advertisements

The advertisements below appeared in the Malian journal *L'Inspecteur*, No. 218, of October 27 1997.



"HEALTH FOR ALL: For all your problems of illness, without delay consult Mister Bourama Soumaoro Traditional Therapist. Specialist in many illnesses"

"HEALTH FOR ALL AT THE HOME OF YOUR TRADITIONAL HEALER ABOU MAIGARY: Specialist of many illnesses.* Impotence, Painful periods, chronic malaria, epilepsy, venereal disease, hemorrhoids. Consultations Every Day. (Last two sentences read) - By invitation of certain patients, Abou is currently in Gabon. He will be returning soon.



Haoua Keita, a Nigerian 6th year pharmacology student working with medicinal plants for eye problems

even the steps taken by the establishment of the *Herboristerie Traditionnel* and associations like *KENEYA-YIRIWATON* (*see* RM-6) are a tremendous leap toward meeting the legislation's goals. Further, Professor Keita thinks that traditional medicine in Mali is being seen more positively by the "educated" population because of the scientific credibility established by the research at the Department of Traditional Medicine. He also believes that the Department of Traditional Medicine's collaboration with healers has helped gain the confidence of those who possess the base knowledge of the plant's healing properties.

Yet not all is blooming in the world of medicinal-plant development. Factors such as pharmaceutical revenues, bio-pirating and compensation for intellectual property come to play in the overall equation. Professor Keita is skeptical of a number of large drug companies that are using medicinal plants as the base for manufactured pharmaceuticals. "Many companies buy plants that are collected in the wild or cultivated on a huge scale in places like Africa. The only benefit the country of production receives is the money paid to low-wage field workers." A second approach is a company buying parcels of land and cultivating the plants themselves to assure some quality control. In either case the country of origin receives little benefit compared to the pharmaceutical company. The government of Mali is currently working on laws that define the framework for more equitable partnerships with foreign companies.

For example, Mali has a contract with the U.S. National Institutes of Health that has paid the Malian government 40,000,000 CFA (U.S.$80,000) for the right to test Malian plants. Also, U.S.-based Shaman Pharmaceuticals, which founded a non-profit organization called the Healing Forest Conservancy (HFC), is helping fund a medicinal-plant garden in Dogon county near the town of Bandiagara. In a rare attempt by a pharmaceutical company, HFC was created for "the specific purpose of returning benefits to local communities for their intellectual contribution to the drug-discovery process after a product is commercialized."[2]

These initiatives do not signal the end of the debate over intellectual-property compensation and conservation of plant resources. In fact some working in the field suggest that pharmaceutical companies that prospect for pharmacologically active compounds can actually have a negative effect on local economies as well as their resources. This can happen by adding external value to local natural resources that may cause control to be taken away from those who traditionally exercised it. Additionally, increased demand or direct compensation could even encourage unsustainable harvesting. And how, or should, individuals be compensated? It is quite common that several people or communities may have independently discovered the medicinal properties of a plant. Therefore it is extremely difficult to establish rights to specific discoveries. This problem is exacerbated because African traditional medicine, unlike Chinese and Aryuvedic systems, has no history of written records. Fundamental to any future compensation will have to be the establishment of well-established legal rights. Given customary land-ownership systems in much of Africa,

[2] Martin, Gary J., Hoare, Alison L. and Darrell A. Posey, Editors. (July 1993) *Protecting Rights: legal and ethical implications of ethnobiology*. People and Plants Handbook, Issue 2. UNESCO, WWF, RBG, KEW.

this will be a huge stumbling block.

THE FUTURE OF MALIAN MEDICINALS

Sitting amid drying parrot heads at the traditional medicine market in the center of Bamako evokes images of dark, deep, campfire-lit village rituals. The whizzing of traffic and the sounds of sellers hawking plastic sandals bring me back to the reality of animated city streets. I look up from my conversation when a man presents me with a National I.D. card. Under the profession category is typed "Doctor of the Occult." He wants to buy a large lizard head from the animal-part seller I am talking with. Today the going rate is 500 CFA (U.S.$1). The "Doctor" is gone almost as quickly as he has come and I am left wondering what the lizard head is to be used for.

Apart from lizard heads and body-less parrots, the animal medicine seller offers a full range of parts. There are skins of vipers, wild rabbit, antelope, porcupine and wild cat. There is also an assortment of horns claws, quills, shells and skulls. All the animal-part sellers claim to be strictly *commerçants*, insisting that they have no knowledge about which parts are used for certain illnesses or social problems. Similar to the *herboristes*, the animal-part salesmen buy their goods from those living in rural areas. Generally they can get most of the parts they need, but sometimes it is a question of chance. Like plant medicines, the parts can be used for good and evil. Typically a *féticheur* (doctor of the occult) acts as intermediary between the fetish (animal part) and the person making a sacrifice, which in most cases entails the spilling of blood. Sacrifices are undertaken for a wide range of reasons including interpretation of dreams, wishes for good luck, honoring the ancestors, female excision, exorcisms, and a show of thanks to the gods.

"The purchase of manufactured pharmaceuticals to replace traditional medicines that effectively heal certain illnesses for a huge percentage of the population may simply be an social, economic and health disaster."

I come across Gasou Coulibaly, one of several dozen animal-part sellers in Bamako's central market. He explains the importance of animals in sacrifice. "There is so much of an interrelationship between man and animals. It is actually part of life itself. The cycle of birth, living and death will continue in the lives of animals as the lives of humans." I ask if any of the animal parts are becoming difficult to find. "Now it is more difficult to find skins because the animal population has gone down. Before, you could find hyenas, lions and gazelles. There have been too many hunters." I wonder if there are replacements for these animals. He warns me that it is only the *féticheur* who could make these changes.

If current events continue, the *féticheurs* and traditional healers will be making many changes. Mali's base of both animal and plant resources is dwindling rapidly. And it is not at all clear that the development of traditional medicine will have a positive effect on the resource base.

This leads to the first of three large questions that loom in my mind when I think of Mali and her traditional-medicine future: With few exceptions medicinal plants come from the wild, and demand is expected to increase given increasing populations. Yet Mali's vegetated habitats are drastically declining due to clearing for agriculture, livestock grazing, fuelwood collection and uncontrolled burning.

Where will medicinal plants come from in the future? Although Mali has begun to address this issue by the establishment of legislation for medicinal plants, more intensive efforts may need to include: 1) the identification and protection of core natural areas that are specifically reserved for medicinal plants; 2) phasing out or control of unsustainable harvest practices in the wild; 3) investigations into the feasibility of commercial cultivation; and 4) the establishment of botanical gardens and field gene banks. Of course the above efforts must be accompanied by education and training programs that include the participation of traditional healers, *herboristes*, government agencies, international cooperation and pharmaceutical companies. Without political and financial intervention for such programs these are pretty words with little substance. But countries like Mali may have little choice. The purchase of manufactured pharmaceuticals to replace traditional medicines that effectively heal certain illnesses for a huge percentage of the population may simply be an social, economic and health disaster.

When one speaks of the future of traditional medicine, the discussion often ends at the isolated active constituents of medicinal plants. My second question looks at the intricacies of biological interactions. *How will Malians retain the complex actions of using a full range of whole plants in healing?* "Herbal remedies differ from highly purified pharmaceutical compounds in that they contain a complex variety of active inert ingredients...By using herbs in their raw or semi-processed form, herbal practitioners help to insure that ancillary compounds, which are believed to enhance synergistic action, remain intact. Some herbalists even claim that the use of whole plants somehow captures a 'vital' force, which is necessary to ensure full efficacy."[3] The concepts of polytherapy will need to be studied further in trying to gain a better understanding of how plants work together. This will probably

[3] Fuller, D. (1991) *Medicine from the Wild.* TRAFFIC USA, Washington D.C.

mean a greater emphasis on field work, as researchers observe first hand the results of using many plants together.

My third question looks beyond biology. *How will Mali manage to keep alive the spiritual, communal and ancestral aspects of a system that is far more interactive and holistic than healing based on pharmacology?* In West Africa good health can be considered as a balanced state of peace and harmony. Therefore illness is often perceived as a disruption of balance in the person who suffers. The rhythm of the body is troubled. In order to re-establish balance, rhythm and vital ties to society and the universe must be restored, which often requires interventions beyond the plant world. Traditional healers often have the means to accomplish healing beyond the physical. Since this aspect of healing is not necessarily lab-study friendly, we will probably not be able to "prove" it's efficacy. A recognition that science alone will not provide a sufficient perspective from which to view healing will also give an opportunity for this "unseen" aspect to be developed. If the formal research sector insists on "scientific" verification of hypothesis as the sole mode of moving traditional medicine to the future, then it will certainly marginalize other components of traditional medicine that are just as important as the plants themselves.

There is no clear path to Mali's traditional-medicine future. Rising populations and increased urbanization are creating health-care dilemmas of a range and scale never before seen in Africa. Mali has started the journey by including *herboristes*, traditional healers, associations, pharmacists, doctors, researchers and government organizations in attempts to blaze the trail. The continued recognition of all the participants and their perspectives may shed light on the questions of conservation, polytherapy and holism. In the end, both modern science and ancestral wisdom will be needed if Malians are to deal effectively with the health problems that will face them as they enter the twenty-first century. ❑

Index to ICWA Letters by Randi Movich

Entries refer to ICWA Letter (RM-1,2, etc.) and page, with Letter number given before each page entry