

GENERAL SCIENCE

Science Aids Africa's Progress

Science and education are major forces for progress and civilization in Africa today, assuring a better and brighter tomorrow in the once dark continent, Lillian Levy reports.

► THE CIVILIZING forces of science and education are attacking and conquering disease, poverty, hunger and ignorance in Africa.

An arsenal of the most modern weapons of medical science—antibiotics, preventive vaccines, therapeutic drugs and serums, insecticides—as well as an intensive campaign in personal hygiene and sanitation, are overcoming such ancient scourges of the once dark continent as leprosy, sleeping sickness, malaria, yaws, typhoid, influenza, river blindness (onchocerciasis), smallpox, yellow fever, polio and bubonic plague.

The World Health Organization of the United Nations has predicted that leprosy, which now afflicts one out of 100 Africans, can be vanquished in the next generation. Sulfonamide treatment will cure all African lepers, except those in the body-wasting stage of the disease.

Africa has about 2,500,000 lepers, 275,000 registered in the Congo alone. More than a million currently are under a two-year program of sulfa therapy which is both simple and inexpensive. The annual cost per patient is from \$2 to \$8; and even those who cannot be cured will be helped.

Sleeping Sickness Epidemics Over

The days of enormous sleeping sickness epidemics in Africa are over as a consequence of an all-out assault against the tsetse fly. This disease-bearing insect and its 23 known species once dominated the 4,500,000 square miles of lush tropical Africa. This is the area northward from Zululand to the southern edge of the Sahara Desert.

The tsetse is a carrier of trypanosomes, minute organisms which produce sleeping sickness in man or cattle. Man himself often is the host of the trypanosome. When African territories were maintained by the French, British and Belgian governments, sleeping sickness services were maintained on a large scale.

As the territories gained their independence, these services were continued, except in the Congo, by the new governments working with WHO. As a result of regular mass examinations, deaths from sleeping sickness have been reduced to 20,000 annually in all of Africa. Between 1896 and 1906, 200,000 died of the disease just in Uganda.

Anti-tsetse drugs, developed in the United States, have proved effective both as cures and prophylaxis. Among these are trypanamide and the diamidines such as pentamidine. DDT and other insecticides are used widely against the fly. Once free of the tsetse, the land must be irrigated and cleared before it can be safely worked. This requires extensive funds, and economic aid in this

direction has been made available to Africa through the U.S. international aid program as well as through the United Nations.

Malaria still causes the most deaths in the underdeveloped countries of Africa, particularly among the children. In Lagos, 40% of the children die before they become five years of age as a result of weakened resistance from malaria. Like the tsetse fly, the mosquito carrier of malaria infests lands that are potentially rich and fertile. Spraying with insecticide and anti-malaria drugs are making inroads against this crippling and costly disease. However, it is difficult to get large masses of the population to take drugs regularly. As a consequence WHO has undertaken an experiment in Ghana combining antimalarial drugs with the salt used by almost everyone daily. In

the future, bulk supplies of salt for Africa and other malaria-ridden areas will be so medicated if the Ghana trial is a success.

The conquest of malaria may be among the most important contributions to social and economic progress in Africa. The weakening effects of this disease cut down on production by reducing efficiency and work output of available manpower. Estimates are that a malaria victim is incapacitated for work an average of six days a year and requires two months to regain normal output and efficiency.

Insect control of the simulium fly by spraying rivers where this insect thrives is reducing onchocerciasis (river blindness); but effective therapy for the afflicted still is being sought.

An offensive against filth, combined with improved sanitary facilities and instruction in personal hygiene on a mass scale is eliminating yaws, a highly contagious disease to which children are most susceptible. A

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SLEEPING SICKNESS DETECTIVES—World Health Organization technicians from mobile unit in Congo check blood sample for trypanosomes that cause sleeping sickness.

Science Aids Africa

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minute organism, *Treponema pertenue*, found in filth is believed to be the primary cause of yaws which can cause permanent facial disfigurement and premature senility as well as death. Cleaning campaigns and penicillin have successfully reduced yaws in Africa from 20,000,000 to 12,000,000 in little more than 10 years.

Nigeria, Ghana, Uganda, and the Ivory Coast Republic are among the new African states actively promoting better sanitation, personal hygiene, and improved dietary habits among their populations.

Protein Deficiencies

Malnutrition, particularly in protein deficiencies, also is under attack by the African governments. President Felix Houphouët-Boigny of the Ivory Coast has initiated a program to increase meat and other proteins in the national diet. Insufficient protein causes lethargy and poor resistance to disease. When deficiencies are severe the result may be kwashiorkor, a disease like pellagra, which usually strikes children. Kwashiorkor victims have swollen heads and bellies, shrunken chests and limbs, and persistent fatigue. Milk is the best medicine for children suffering from this disease. In three months, milk and good feeding provide a cure.

Smallpox, yellow fever, influenza, polio and bubonic plague no longer are a serious threat in Africa. The total of deaths from all these diseases now is less than 2,000 annually.

While the benefits of civilization have reduced these ancient diseases, and advanced social and economic progress, its demands have caused a significant rise in nervous and mental disorders among the African population. Maladjustments of Africans transferred from rural tribal life to the new

burgeoning cities are reflected in recent statistics by WHO which show that 75% of the mentally disturbed are male city workers originally from the closely knit tribal villages of the bush country. Schizophrenia, the most common mental disease in the United States, also is the most common mental disease in Africa today.

Governments of the newly independent African states have been quick to recognize the need for psychiatric aids to assist their populations in adjusting to civilization without suffering mental disorders.

Three years ago, WHO helped organize in Brazzaville the first seminar on the education and training of mental health personnel in Africa. It was attended by 15 European and African psychiatrists. In Bukavu in the Congo that same year, specialists on mental health met.

Africans under modern psychiatric care are being treated with the new tranquilizers as well as with insulin shock and electroshock therapy.

Africa today has little more than 100 trained psychiatrists. About 6,000 are needed. Of course, the doctor shortage is not limited to the field of psychiatry. Last year, at a WHO meeting in New Delhi, the Liberian representative said his country had only one doctor for every 60,000 people. This is roughly the average for most of the African countries. The U.S. has one physician for every 790 inhabitants; the USSR, one to 550 and Israel one to 420. In the Congo, since the Belgians withdrew, there are only two doctors. However, a training program under WHO is remedying this lack and volunteer physicians from Europe, the United States, Canada, and Israel are working under WHO to help check disease and suffering among the Congolese.

As medical science is improving the physical health of Africa, so other fields of science are advancing the economic strength of this vast continent whose riches have only been tapped.

• Science News Letter, 81:389 June 23, 1962

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