Stopping epidemics: the French military legacy

Garance Upham Phau, a Paris-based member of EIR's Biological Holocaust Task Force, looks at the pioneering public health work of 19th-century French scientists, a model for today's war on AIDS.

French military medicine is unique in world history. We may trace it back to the economic reforms instituted in France, by Jean-Baptiste Colbert in 1664. In more recent times, French colonial medicine fell into the hands of an extraordinary body of scientists, led by a student of Louis Pasteur's who worked at the Pasteur Institute.

In January 1890, by a decree of French President Sadi Carnot (nephew of the great Lazare Carnot of the Ecole Polytechnique), the "Corps de Santé Coloniale" (Colonial Health Corps) was formed, as a veritable army of scientists. Its members were trained at the Pasteur Institute, which was associated with the Bordeaux Naval School of Health, and the Marseille Pharo (military) School, and then deployed throughout Africa and Asia.

Youths enlisted for a seven-year program in which they got a Pasteurian multi-disciplinary training before deploying into tropical climates: First came training in chemistry and physics, followed by many-faceted medical training, which included general medicine, microbiology, laboratory techniques, routine surgery, emergency "big" surgery, and especially obstetrics. Final examinations involved "practical demonstration." The teachers were field military physicians who had spent years in Western or Equatorial French Africa.

They taught for five years and then returned to the field.

The young graduate doctor in military health was deployed immediately into the jungle for one to two years, where he had to do everything from organizing prevention and screening to presiding over births, and treating villagers for disease. After two years, he could settle in a coastal colonial town.

Léon Lapeyssonnie, a French epidemiologist, has just written an excellent book, *La Médecine Coloniale* (*Colonial Medicine*), in which he points out the quality of the men involved: scientists "thirsty to learn and thirsty to teach" and totally devoted to mankind's development. For example, the Pasteurian Jamot organized the fight against sleeping sickness in Africa, and also planned the development of cattle raising in Cameroon. Many of these Pasteurian doctors were also scientific farmers.

As Lapeyssonnie puts it, this "military tropical medicine" combined "the three pillars of operational wisdom: unity of doctrine, agreement in execution, and follow-up on operations." No other colonial power organized its physicians into an *army* of scientists against disease.

The Corps de Santé later gave birth to the Agency for the Coordination of the Struggle against Endemic Disease in Central Africa (OCEAC), and OCCGE, the agency for French West Africa. Lapeyssonnie rightly compares the efficiency of the Corps de Santé with the inefficiency of today's World Health Organization (WHO). Initially, WHO was controlled by French military doctors, only to degenerate at a later point to its present state. He writes, "There have been two World Health Organizations. The first had the ambition of gathering the best experts in the world, many of whom had had colonial experience, which included specific technical knowledge and specific tasks. On the whole it was a success. . . .

"The deterioration of WHO occurred progressively, even though it is not possible to give a precise date as to when this profound change took place. We can chart the transformation of WHO from an emphasis upon technical activities, to a social, philosophical, and then political, orientation. The physicians, veterinarians, engineers, chemists, epidemiolo-

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Dr. B. Zuiderhoek, a WHO leprologist from the era when WHO's personnel were selected by their technical knowledge, is seen here working with Burmese colleagues examining schoolchildren in Mandalay in 1968. Burma's leprosy control program was launched in 1952, when the number of cases under treatment was 4,600.

gists, and biologists who staffed the WHO in its initial years, were replaced by socio-anthropologists, statisticians, policy planners of all types . . . until, during the past decade, it has become impossible to recognize in today's WHO, the WHO of earlier times. . . .

"Even if it wanted to, WHO could no longer go to work and become a technical agency again. The rigid criteria for use of 'equitable geographical distribution' of employment, has cast aside many a Western expert. . . . The sclerosis of a body of functionaries whom nothing incites to action, because action is always full of perils, means that, among other reasons (of which the worst is the scattering of credit and projects), one can no longer expect much from that organization except ecumenical talks." General Lapeyssonnie is himself a "WHO expert."

He concudes his book with a vigorous call for the formation of official panels to study specific medical and agro-industrial projects, that would bring together government officials from the West and developing nations to agree on 5- to 10-year projects and then jointly act to bring them about—in the best Pasteurian tradition.

A military-style emergency program

No infectious disease has ever been successfully defeated except by a combination of improved economic conditions and battlefield epidemiological deployment.

Rightly understood, epidemiology is the art of fighting a disease in its totality, its epidemic, or endemic, existence as a "living being." An epidemic evolves, undergoes mutations, and combines itself hostilely or in symbiosis with another epidemic.

Charles Nicolle established the principles of epidemiology in his famous lectures at the Collège de France, in 1937: "Disease has the characteristics of life," he said. "Therefore, it utilizes the least potential to perpetuate itself." "The existence of a disease has three forms: historical, collective, and individual." Nicolle added that the "mechanistic method" used in ordinary physics was "inadequate to the life sciences. . . . If any moment in a life process might be reduced to physical-chemical reactions, the secret of life lies in the capacity for transformation from one of those moments to the next."[1]

The present breakdown in world health, as shown by the AIDS pandemic, and the resurgence of infectious diseases in the Southern Hemisphere, can be ascribed to a severe deterioration in standards of living, and the concomitant failure to pursue the epidemiological practices first elaborated by the followers of Louis Pasteur.

Recently, the government of Chad stated that an epidemic of chagas, a disease caused by trypanosomes which affect the visceral organs, had affected 10,000 people in the southern part of the country. Health authorities have set up tents in the countryside to treat the sick, but should the epidemic spread to neighboring regions, the authorities said, the health services would be totally overwhelmed and *"help from the international community would be required" to stop the spread of the disease*.

The situation in this crucial region of Africa points to a breakdown in *screening* procedures and insect control. It speaks of the abandonment of epidemiological control, which has become characteristic for the African continent as a whole, as well as for other parts of the underdeveloped sector, such

as Ibero-America. This is no fault of the governments concerned, but is a failure on the part of the international community, and especially the richer Western nations, to stick by the fundamental tenets of natural law in political and economic practice. Usury, invariably disregarding the most precious riches of our civilization, human lives, leads to plagues, as Nicolle warned.

The Pan-American Health Organization (PAHO) estimates that 24 million people in Ibero-America have chagas disease. *Trypanosoma cruzi* is transmitted by one kind of bed bug. It is estimated that 65 million people are exposed to this bug, that is, are prospective carriers of the disease. Two million people have chagas in Mexico, and 20% of the blood supply is contaminated. The WHO says that the incidence of the disease is greatly underestimated in Africa today, and that only occasional dramatic outbreaks get reported.

The WHO 1986 publication on trypanosomiasis in Africa says that today, there exists the danger of an unstoppable epidemic across the continent, as was seen at the turn of the century, of the type that would wipe out the population of entire areas.[2]

But if we do not know the number and location of people infected, or the number of carriers, we shall be helpless before the outbreak of the disease in tens or hundreds of thousands of individuals at the same time, something which Jamot, in his legendary war on sleeping sickness, understood well at the turn of the century.

A similar situation exists in regard to leprosy, which also strikes Central Africa in a most severe fashion today. The Knights of Malta publication, *Acta Leprologica,* warns that the number of lepers has been growing exponentially over the past five years, with a doubling rate every year, reaching an estimated 11 million cases worldwide as of mid-1987.

The number of infected persons would have to be growing ever faster. They ascribe this meteoric rise to the abandonment of *specialized* screening in villages, as an untrained doctor or most often a public health paramedical assistant, has *not* been trained to test for leprosy, for example, by examining the soles of the feet of peasants for signs of anesthesia, indicating that the nervous system has been affected. Undetected and hence untreated, leprosy evolves toward the irreversible disfiguring, mutilating tissue, and neurological damage so well-known. By the time the visibly sick peasant gets medical attention, his suppurating wounds have been contaminating others either through direct contact or through flies, which act as a mechanical vector. Detection and treatment of leprosy before the later contagious and mutilating phase is a necessity to stop the epidemic.

In the same part of the world, we find a breakdown in screening for tuberculosis. TB, like leprosy, is a disease of poverty, which flourishes under conditions of immune deficiency, and in turn induces autoimmune response. We find today a marked correlation between AIDS and tuberculosis, the latter becoming the first manifestation of AIDS in as many as 50% of the patients in Central Africa, Guyana, and Haiti. Furthermore, recent studies[3] indicate that the TB mycobacterium could be a correlating factor predisposing an individual to contract HIV.

The world malaria situation is also deteriorating rapidly. We see the rapid spread of resistant strains of *Plasmodium falciparum* in Africa today, as well as in Brazil, in the same regions most affected by AIDS.

We also witness the dramatic correlation between insect control programs and malaria. The PAHO figures for Ibero-America speak for themselves. PAHO as of September 1987 reported the following in *Health Conditions in the Americas 1981-84*: In 1959, there were 3,202 cases of malaria and 6,560,183 fumigations done in Mexico, while in 1984, there were 85,501 cases of malaria reported, while fumigations were down to 338,538.

In Venezuela, there were 1,210 cases in 1962, and 540,069 fumigations that year, while in 1984, the number of malaria cases reported had risen to 11,128, while only 179,645 fumigations were done. The situation is similar in Colombia. In 1959, there were 4,172 malaria cases and 2,357,627 fumigations were done, and in 1983, 105,360 malaria cases reported, but only 380,043 fumigations were done.

For lack of early detection and treatment, a growing number of children in the Third World are reaching hospital care (when they do!) in a severe anemic condition, and require blood transfusions. It is estimated that hundreds of children in this condition were transfused with HIV-contaminated blood in the past few years in Kinshasa's Mama Yemo Hospital alone,[4] and the blood banks throughout Africa are to this day contaminated, except for a few leading medical institutions.

So far, U.S. authorities and relief organizations have been more eager to distribute condoms to these countries than ELISA tests, lab testing facilities, or even new syringes!

Cholera affects 80% of the African continent today, and the old schistosome, bilharzia, continues to inflict damage on 200 million people or more.

What of AIDS screening?

Mass screening for HIV-I and HIV-II has been strenuously resisted by the U.S. Centers for Disease Control, WHO, and all advanced countries' health ministries and authorities generally—this under the specious argument that since no treatment exists, universal screening would only afflict those found carrying the virus!

It ought to be remembered that Jamot conducted his war on sleeping sickness throughout Western Africa to fight the disease *epidemiologically,* before having the means to efficiently treat the individuals infected, and that the Pasteurian Thiroux in Senegal, heading the first Pasteurian laboratory in Africa at the beginning of this century, was not afraid to institute a segregated village of those with sleeping sickness next to his in St. Louis du Senegal, to isolate the sick from the healthy, so as to reduce the spread of the infection in the villages, and provide the best available medical care to the

sick.

Furthermore, the way in which Albert Calmette, who trained the Pasteurians going to Africa, conducted the war against TB beginning in 1904, in the impoverished laboring population of Northern Europe, remains exemplary. The universal screening, sanitary laws, and prophylactic measures to stop *the epidemic* were taken fully 20 years before he invented the BCG vaccine to cure the sickness.

If we proceed blindly today, in the face of the rapid spread of AIDS and the concomitant rise of other diseases generally,

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we shall find ourselves helpless in the near future. The argument in favor of *laissez faire* is a thinly disguised argument for the elimination of the "colored races," as indicated by the call for African population reduction put forth by former West German Chancellor Helmut Schmidt's Inter-Action Council, during its meeting in Nairobi, Kenya in March, and the financial community's decision to cut off all credits to the continent.

'Opportunistic infections'

AIDS ought to convince us of the gravity of the situation today. One of the crucial and generally overlooked aspects of AIDS is the pattern of associated bacterial, parasitical, and viral diseases.

Under the label "opportunistic infections," there is the underlying assumption that each disease associated with AIDS is a fixed, separate, "mechanical" entity, as it were, an argument that Nicolle had put to rest in 1937, in showing the nonlinear interaction of diseases, and stressing the importance of studying this interaction. The structural assumption that a variety of diseases just happen to take advantage of the immune deficiency is so simplistic as to be misleading.

It has been misleading in the sense that it fostered the belief that the neurological aspects of AIDS were merely clinical manifestations of "opportunistic infections," whereas, without going into detail here, the neurological damage may precede the immune problems by years, and be due to HIV itself, even if, later, the by-then-immunodepressed patients develop additional neurological disease such as that from cytomegalovirus (CMV).

It has also been misleading, insofar as looking at AIDS in the tropics is concerned. So much so, that the U.S. CDC plays games with its definition of AIDS, including "dementia" under the category of clinical evidence of AIDS in July 1987, but simultaneously reducing the number of opportunistic diseases defining AIDS in Africa from 12 to 4, with the excuse that the definition had to fit the meager public health capabilities of the countries affected.[5]

The result is that the medical profession is forced to fight to include this or that disease (the latest being salmonella) in the definition of AIDS, as if the presence of HIV combined with any severe disease were not a sufficient and obvious diagnosis. TB, except for the extra-pulmonary form included in the AIDS definition last July by WHO, is still only part of so-called AIDS-related complex (ARC), which is such a "complex" category as to defy statistics, a very convenient way of minimizing the apparent extent of this pandemic.

Such definition games have been blinding, as all medical researchers and clinicians accustomed to working with diseases affecting the tropical and semitropical regions point out when they insist on the importance of studying co-factors: arboviral infection, TB mycobacterium presence, etc.

Universal screening for all major diseases, plus evaluation of immune status, would be of prime importance in giving us leads on the prevalence of AIDS, and is at present the only efficient means of rolling back the spread of epidemics. *Efficient epidemiological deployment* entails obtaining intelligence estimates on the spread and location of the main diseases by region; on co-factors or correlation of different infectious diseases; and on the state of environmental conditions, such as water and insect status, including the menacing locust hordes.

The brothers Edmond and Etienne Sergent, who pioneered epidemiological studies with Nicolle in Northern Africa, laid great emphasis on what they called the "danger threshold" of a disease, which depends on the number of asymptomatic carriers, the number of sick people, and the number and type of insects for a given area. The existence of endemic diseases and the evolution of endemicity toward an epidemic in the initially invisible form of the asymptomatic carriers, was most essential to grasp, they said.

To find out, track, uncover, treat, or isolate the carriers was to them the first and greatest responsibility of the epidemiologist. Screening should never be done haphazardly, but rather required the most precise technologies. What in Sergent's time was a blood test under a microscope, today entails lumbar puncture, cerebrospinal fluid testing, blood testing, x-rays, electrocardiograms, nuclear magnetic resonance

(NMR) imaging, etc.

The lumbar puncture is needed to precisely evaluate the infection of the cerebrospinal fluid (CSF) by bacillus or parasite, notably for TB and trypanosomiasis. The blood test must include the search for antibodies to HIV and viral infections common to an area.

The blood test should also include an immunological test. A stool examination needs to be conducted in all cases of diarrhea, not just parasitological and bacteriological study, but also *in situ* sample-taking and biopsies must be underlined, which necessitates endoscopic digestive explorations.[6]

Further tests ought to be performed that for the moment can only be done in city hospitals in Africa, though, as we envision a real mobilization for good health care, those ought to be accessible everywhere and to everyone. The electrocardiogram is crucial after a positive TB test, for example, to refine the diagnosis and identify cardiac damage.

Finally, NMR is required to identify even minimal lesions in the brain due to HIV[7] not otherwise detectable. Neither scanner nor NMR imaging are on hand in most of Africa today, as was pointed out in the just-concluded First International Congress on Neurological Tropical Diseases, in Paris's Bégin military hospital.

Such a program would provide a map of viral, parasitical, and bacterial epidemic diseases, endemic diseases, and singular outbreaks; a map of the immune status of populations; and a beginning evaluation of the often-overlooked neurological health, or lack thereof, of the population.

United Nations

A Pasteurian approach in Africa would train school children in the major diseases affecting their areas, such as understanding the schistosome replication mechanism. Pictured is a Filipino child suffering from an advanced stage of schistosomiasis, which afflicts over 200 million people in the world today.

Requirements

Where do we stand today in terms of facilities available? Where could we be in a matter of weeks? What steps—infrastructure, training, financing—must be taken toward the speediest implementation of the full-screening epidemiological control program?

The OCEAC study is an example. The Agency for Coordination of the Struggle against Endemic Disease in Central Africa estimated in 1986 that only 30% of the people infected with tuberculosis in Central Africa were identified. In 1983, the decision was taken to develop only one network of basic laboratories, which would screen for both leprosy and TB.

They decided upon a rapid evaluation of the equipment in national laboratories necessary for bacilloscopies, upgrading of all the regional and provincial labs, which were to play the role of reference centers, yearly upgrading of all labs, and creation of new screening centers.

Evaluation was completed for Cameroon in 1984. The objectives were to get a functional map of all labs, evaluation of personnel, and evaluation of needs defined by local health officials. The second objective was to calculate for each province four sanitary indicators: the number of microsopes per 100,000 inhabitants; the number of leprosy-trained TB nurses per 100,000 inhabitants; the number of bacilloscopies per health worker in 1983; and the number of bacilloscopies per 100,000 population. The conclusion of the study was that the equipment was greatly underutilized: 85 bacilloscopies on the average per year and per agent (variations between 20 and 185). Fifty-six percent of the labs needed stains, reagents, slides, small equipment, etc. There was no repair or upkeep of microscopes. There was a decline in the technical skills of personnel.

The main decisions were to improve the supplies to the lab, mostly a logistical, sometimes a financial question; to get training for the personnel for testing for TB and leprosy, to upgrade theoretical knowledge, to teach laboratory techniques; and to reequip existing labs. For Cameroon, 10 microscopes would be needed to get to the minimal 1 microscope per 100,000 population. For a 1.5 level, 25 microscopes would be needed. The basic price is about $900 per microscope.

This extremely useful and intelligent analysis emphasizes that the program must be sped up and realized, which is not a small concern if we examine the rapidity with which the old diseases are spreading, or the fact that *most doctors and nurses in Africa do not as yet have clean needles or disinfectant,* which are minimal necessities to fight the spread of AIDS. In fact, the new and rapid development of AIDS in Central Africa makes this OCEAC program already obsolete:

We must screen for AIDS as well as TB and leprosy. We must restore to the continent *specialized medicine*. Otherwise, we shall fight this war with the technologies and strategy of the last.

We can envision a three-level program which would speed up the OCEAC program, to upgrade local laboratories and create new ones. At the same time, it would enlarge and equip existing hospitals in Africa, providing those facilities with NMR machines and spectroscopic equipment, circular intensity differential scattering (CIDS), etc., necessary not just for clinical purposes, but also to foster the creation of fundamental research centers in Africa.

New hospitals must be created where needed. There is also an evident need for sophisticated mobile labs, in order to increase the efficiency of epidemiological control and mass treatment, vaccine distribution, etc. French Army capabilities already in existence, such as those deployed with the Bioforce—including mobile lab/hospital airplanes[8]—show the way. I believe that we ought to use the extraordinary capabilities of our space program in the United States and in Europe to devise a mobile "lunar type" surface vehicle, which could be of several different types equipped for different types of terrain, which could carry equipment necessary for all tests, screening, and/or vaccination.

The air-surface craft combination might be the best solution. This is food for thought and ought to be discussed with those scientists working on the Mars colonization program, because they would likely already have the best ideas on the subject.

There is another consideration which I wish to introduce here. Pasteur said that the quality of a nation is given by the quality of the scientists it is capable of generating. Equally, the quality of scientific health care of a nation is the yardstick by which it will qualify either as a great nation that promises to contribute wonders to humankind, or a nation on the way to disintegration. That is not a fixed status, but rather a question of direction, of culture, of applied epistemology.

The recommendation of the Norwegian Red Cross and the Panos Institute that "family planning" personnel are best equipped to fight AIDS in Africa (e.g., sexual talks and condoms) is worse than insulting, it is fundamentally evil, and the resistance to such sexual lectures by the urbanized African population is well taken. There must be a national purpose to increase population capacity, increase the number of nationals, and increase the productivity and creative abilities of all.

Time is short in light of the dangers. We shall either provoke, foster, initiate a renaissance, or we shall fall into the collective hysteria of Sodom and Gomorrah, as often accompanied epidemics such as the bubonic plague in the past.

A Pasteurian suggested to this author, recently, an interesting approach to education: African children going to school would greatly benefit from a solid grounding in the study of the major diseases affecting their areas, such as the understanding of the schistosome replication mechanism. Schistosomes affect over 200 million people today. A national and continent-wide project around conquest of disease would be a very worthwhile endeavor for the short and long term.

The immediate goal would be: to interest children in science through the study of life mechanisms in their environment, and to seek to generate future great scientists in that way; to make school curricula more focused around the study of the ways and means by which man transforms his environment, from the knowledge of living processes to the study of machines, from an historical and live (e.g., direct construction and experimentation) standpoint; to retrain teachers to that effect and assign new ones; to bring children to the area's labs; to make schools into laboratories, bringing to the secondary education level the concept of the mixed training and research facility, and possibly include a medical outpatient treatment center, too; combine that with training in animal husbandry; then, to train and deploy specialized physicians into each and every district, under whom nurses, youth volunteers, and others could deploy to screen, do lab exams, or in the last case, distribute questionnaires or bring medicine to distant villages.

Television could play a very useful role by orienting programming toward the learning of technologies and the science of life. Hence, the young, like the old, would be usefully entertained and educated at the same time, sparing them our "modern" junk, such as Dallas, Cicciolina, and all other degrading programs.

References

1. **Nicolle, Charles.** *Naissance, vie et mort des maladies infectieuses.*

2. *La trypanosomiase africaine, épidémiologie et lutte.* Rapport d'un comité d'experts de l'OMS. Série de rapports techniques, 739. 1986.

3. *Annuaire Inst. Pasteur. Immunologie, 1987,* 138, 521-529. "Is prior mycobacterium infection a common predisposing factor to AIDS in Africans and Haitians?"

4. Kinshasa, Zaire.

5. *Médecine tropicale,* vol. 47, no. 2 (April-June 1987). "Bacteremia with salmonella and generalized cryptococcus, a double indicator of African AIDS."

6. A. Ubry, G. Martet, D. Parzy, "AIDS and diarrhea in the tropics; on the importance of gastrointestinal endoscopic exploration in the search for opportunistic infection." *Médecine tropicale,* Vol. 47, No. 3 (July-Sept 1987).

7. *JAMA,* vol. 13, no. 157 (Feb. 15-29, 1988). Report on AMA-NY Cornell Hospital conference. Communication of Samuel Perry, MD, professor of clinical psychiatry, Cornell, on the importance of NMR to detect even minimal lesions of the brain due to HIV.

8. *Armées d'aujourd'hui,* No. 124 (October 1987). Special dossier on army health services and capabilities. See also "Le Service de Santé des Armées," French Defense Ministry, 1987.

Finally, see the Mérieux Institute publication on the "Bioforce." Institute for Preventive Medicine, Merieux Foundation, 6 Boulevard Montparnasse, Paris 75014.