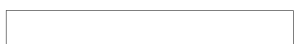


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Republic of the Congo

A. General -- The Republic of the Congo (prior to June 30, 1960, the Belgian Congo) is one of the largest countries of Africa--about equivalent in size to the area of the United States east of the Mississippi River. Its vast resources remained unexploited until the beginning of the twentieth century, and since then the major development of agriculture and livestock has been in the hands of white settlers, chiefly Belgians.

About 47 percent of the 2,017,000 cattle population, the principal productive segment, was in the hands of non-indigenous ranchers up to the date of independence. Even so, requirements for livestock products over and above that of the rural population was not met and animals or meat had to be imported. Native livestock raisers keep animals for purposes of prestige rather than for economic productive reasons. These animals are disease and parasite ridden, limiting their utilization commercially.

In the decade prior to independence, veterinary services had developed rapidly. While the government provided the basic disease investigation and veterinary medicament production facilities, over half of the veterinary personnel were engaged by private European ranchers or companies. Livestock belonging to these enterprises received excellent care and were protected against most of the serious infectious diseases and parasites. However, during this same period, services to native livestock raisers progressed slowly, since the animals were of little economic worth

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and the owners had little appreciation for the benefits of modern health control, or were even hostile toward intervention over their traditional practices.

The Belgians began, under the 10-year plan, in 1950, to augment training and utilization of native technicians to improve native livestock conditions. This process, in many respects, was gradually providing increased services to indigenous livestock owners. As independence approached, in 1960, practically all the Belgian supervisory personnel withdrew and native technicians, with the few expatriate supervisors remaining, were often left without operational funds or salaries for extended periods. In periodic chaotic circumstances following independence there is little opportunity to carry out emergency animal health programs and almost no possibility of establishing the necessary routine animal health procedures.

Regaining the level of animal health progress achieved under the Belgian regime is dependent on internal political stability and a long transition period devoted to intensive training of local people. Such programs require long-term support, both in terms of financing and in providing technical assistance. Currently, this type of assistance is provided through United Nations organizations, but as the political situation becomes resolved a greatly expanded effort will be necessary. 50X1

B. Environmental factors affecting health

1. Topography and climate -- The Republic of the Congo is a vast section of equatorial Africa, 904,991 square miles, approximately the size of the area of the United States east of the Mississippi River. With the exception of a 25 mile coastal area in the region of the Congo River delta it is completely surrounded by land. The major part of the country lies in the Congo River Basin, a part of which is a lush

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tropical area. The major remaining area is principally typical wooded savannah or grassland. The entire area is drained by the great Congo River and its tributaries.

Ruanda-Urundi lies directly east of the Congo and south of the equator. It is about the size of West Virginia, mountainous, and the source of origin of the Nile River.

Climate in the Congo varies from the humid tropical rain belt of the equator to one of bi-annual alternating dryness and wetness in Katanga and the lower savannah.

The climate is not healthful either to humans or animals, and both are continuously exposed to a host of tropical diseases as well as to many that are not peculiar to the tropics. Continuous heavy rainfall in some areas and intermittent extended wet season in others favor the propagation and survival of many insect vectors of disease. To further compound the disease problem, a lack of communication facilities in many areas allow foci of disease outbreaks to reach almost unmanageable proportion before attention can be brought to bear. 1/ 27/ 34a/

2. Socio-economic pattern -- Aside from the herds of a small number of European livestock raisers, the domestic animals of the Congo are in the hands of natives with no concept of husbandry whatsoever except herding, which is primarily designed to protect the individual owners from losses due to straying, theft or predators.

Animals are valued in numbers, as a sign of prestige, rather than for commercial purposes. Tribal chieftain's relative importance is indicated by the size of herds. Animals belonging to these individuals, as well as those of lesser significance in a community, are used as dowry for wives or for special festive occasions. In Ruanda among the Wa-tutsi Mwami, certain cattle herds may be regarded as "sacred," and these animals often receive meticulous care. Generally, other herds are allowed to

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survive or die without regard to attention other than herding, since it is the common concept that man is not intended to be a servant of beasts.

Although European settlers have introduced labor use of cattle (oxen), few native farmers have adopted their use and crop farming remains a laborious hand chore of females.

Slightly over half the cattle population is native owned and, since these people pursue a shifting form of agriculture, the result is a nomadic type of husbandry. This situation is conducive to spread of diseases and, even under the recent Belgian planning to provide health protection to tribal as well as settled herds, such fluid animal movement constituted a continuing problem in health control. 1/ 27/ 34b/

3. Animal and plant life -- The almost innumerable fauna, vertebrate and invertebrate, of the Congo results from a generally equitable climate and environment for its perpetuation as well as a varied and luxurious flora.

(1) Mosquitoes -- Anopheline mosquitoes are common throughout the country, with the exception of a mountainous region in the east and southeast. A. gambiae is the most widely distributed malaria vector. A. funestus, A. moucheti and A. nili are also principal vectors, but A. pharoensis and A. brunnipes also carry malaria parasites. A. hancocki and A. hargreavesi may be potential vectors. A. funestus is also a vector of Bancroft's filariasis. Other identified Anophelines are A. aureosquamiger, A. condolor, A. coustani, A. christyi, A. distinctus, A. demeilloni, A. implexus, A. kingi, A. obscurus, A. maculipalpis, A. paludis, A. pretoriensis, A. rhodesiensis, A. rufipes, A. squamosus, A. transvalensis, A. theileri, A. vinckei and A. welcomei.

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Over 29 species of Aedes have been identified in various areas. A. aegypti is the chief vector of yellow fever and is incriminated in transmission of dengue or "break-bone fever." Possibly important as vectors of sylvan yellow fever are A. africanus, A. vitatus, A. luteocephalus and A. simpsoni.

Culex species, C. quinquefasciatus and (C. fatigans) are known vectors of Bancroft's filariasis. Numerous others have been identified.

(2) Flies -- At least 13 species of tsetse flies (Glossina spp.) have been identified in the Congo. The principal vector of trypanosomiasis (sleeping sickness) is G. palpalis. G. brevipalpis, G. fusca, G. morsitans, G. pallidipes, G. fuscipleuris, and G. sererini have been incriminated vectors of human or animal trypanosomiasis.

Simuliidae (black flies) are troublesome pests in the Congo. In addition to being extremely troublesome to livestock, S. damnosum, which transmits the filarial worm, Onchocerca volvulus is widespread. S. neavi and S. dentulosum are also present. Chrysops dimidiata and C. silacea transmit loiasis to large segments of the population in some areas.

Culicoides grahami and C. austeni have been reported and may be vectors of the filarial nematode, Acanthocheilonema perstans. Culicoides spp. also transmit African horsesickness.

Phlebotomus (sand flies), vectors of leishmaniasis, are common.

(3) Lice -- Pediculus corporis has been a suspected vector of typhus fever and P. capitis (head louse) and Phthirus pubis (crab louse) are also commonly found. Lice have been occasionally incriminated in the transmission of relapsing fever.

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(4) Fleas -- Xenopsylla brasiliensis and X. cheopis (rat fleas), are abundant on rodents and are also found in native dwellings. In the Lake Albert region, X. cheopis has been implicated in plague outbreaks, and is the vector of murine typhus in scattered areas. X. nubicus has been isolated around Leopoldville. Dog and cat fleas, Ctenociphalides canis and C. felis are common. The chigger or sand flea, Tunga penetrans, is a widespread nuisance.

(5) Ticks and mites -- Ornithodoros moubata is responsible for transmitting the spirochete Borrelia duttonii, the organism causing relapsing fever (tick-borne) in areas around Leopoldville and in the eastern plateau country. Other tick vectors, in order of density and disease transmitting importance to man or animals, are Amblyomma variegatum, Boophilus decoloratus, Rhipicephalus sanguineus, R. simus, R. evertsi and Haemaphysalis leachi.

Sarcoptes scabiei (the itch mite), is prevalent throughout the country.

(6) Other arachnids and insect pests -- Several species of spiders, several venomous, occur. Among those identified are Scodra griseipes, Heterocrates didymus, and Phoneyusa bidentata.

Many venomous scorpions have been identified, including Buthus trilineatus, B. hottentota, Babcurus xentririmorphus, B. jacksoni, Isometrus maculatus, Lychas asper, L. burdoi, Pandinus viatoria, P. carimanus and Opisthacanthus africanus.

Large centipedes, probably poisonous, are Scolopendra morsitans, S. subspinipes and Ethmostigmus trigonopodus. Cimex hemipterus and C. lecturlaris (bedbugs) are common in native dwellings.

Dorylus ants are destructive and sometimes dangerous pests in forest regions.

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Locust (Nomadacris septemfasciata) and Locusta migratoria often destroy crops and vegetation.

(7) Mollusks -- A number of fresh water snails are implicated in the transmission of schistosomiasis. Various races of Planorbis (Biomphalaria) alexandrina are intermediate hosts of Schistosoma mansoni. Physopsis africanus globosa is an intermediate host for S. hematobium and S. intercalatum. Limnaea natalensis and Physopsis africana are incriminated in Fasciola gigantica (liver flukes) of domestic and wild ruminants.

(8) Worms -- Animals and humans are infested with a great variety of pathogenic and non-pathogenic worms in the Congo. Among the more important are: Wuchereria bancrofti, Onchocerca volvulus, Loa loa, Dracunculus medinensis, Necator americanus, Echinococcus granulosus, Trichinella spiralis, Taenia saginata, Ascaris lumbricoides and Trichuris trichiura.

(9) Reptiles -- Poisonous snakes, probably of as wide a variety as exists in the world, are found in the Congo. They include terrestrial, aquatic and arboreal species. The more common and poisonous ones are:

| <u>Scientific name</u> | <u>Common name</u> |
|--------------------------------|------------------------------------|
| <u>Bitis arietans</u> | puff adder |
| <u>B. inornata</u> | Cape puff adder |
| <u>B. nasicornis</u> | rhinoceros viper |
| <u>B. gabonica</u> | gaboon viper |
| <u>Causus rhombeatus</u> | night adder |
| <u>C. lichtensteini</u> | Lichtenstein's adder |
| <u>Atractaspis congica</u> | male viper |
| <u>A. irregularis</u> | black burrowing viper |
| <u>Naja nigricollis</u> | black-necked cobra |
| <u>N. melanopleuca</u> | black cobra |
| <u>Elapechis guentheri</u> | Guenther's cobra |
| <u>Dendroaspis angusticeps</u> | tree cobra |
| <u>D. jamesoni</u> | tree cobra |
| <u>Atheris nitschei</u> | tree snake |
| <u>A. squamiger</u> | tree snake |
| <u>Psemmophis sibilans</u> | tree snake |
| (Colubridae family) | rear-fanged tree snake (boomslang) |

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The non-poisonous constrictor, Python sebae, is also found.

Crocodiles (Crocodilus) are common, as are tortoises, lizards, chameleons.

(10) Rodents -- A number of species of rats and other rodents have been identified in the Congo.

| <u>Scientific name</u> | <u>Common name</u> |
|----------------------------------|--------------------|
| <u>Rattus rattus</u> | domestic rat |
| <u>R. alexandrinus</u> | domestic rat |
| <u>R. frugivorus</u> | domestic rat |
| <u>R. wroughton</u> | domestic rat |
| <u>R. norvegicus</u> | brown rat |
| <u>R. kijabius</u> | domestic rat |
| <u>Arvicanthus abyssinicus</u> | domestic rat |
| <u>Mastomys coucha ugandae</u> | domestic rat |
| <u>M. natalensis</u> | domestic rat |
| <u>Cricetomys gambianus</u> | wild rat |
| <u>Otomys tropicalis elongis</u> | wild rat |
| <u>Cryptomys lechei</u> | wild rat |
| <u>Tatera nigrata beniensis</u> | gerbil |

The plague bacillus has been demonstrated in R. alexandrinus, R. kijabius, A. abyssinicus, and M. coucha ugandae. The latter is frequently found in native dwellings and is a major link in domestic to wild rodent transmission.

(11) Wild animals -- The savannah is inhabited by the larger carnivora such as lion, leopard, hyena and jackal, which may be dangerous to man. Hyena and jackal are involved in perpetuation of rabies. Numerous species of monkeys exist in the forests and are linked with several arthropod-borne diseases of man. Wart hogs are a reservoir of African swine fever. 1/ 3/ 7/ 14/ 15/ 23/ 27/ 31b/

4. Nutrition

a. Dietary level -- The daily per capita food consumption in the Congo is similar in quantity and quality to that of other areas in west equatorial Africa. A large share of the daily intake, estimated recently at 2,630 calories per capita, is derived from starchy root crops and plantains. Such a basic diet is notoriously poor in protein requirement; and this condition reflects in considerable malnutrition.

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In addition to the imbalance in major food elements, minerals and vitamins are inadequate, further complicating the nutritional problems. Figure shows the food supply and intake as of 1956. Although this and other estimated food consumption survey material indicate at least an acceptable caloric intake for a tropical area, there are wide discrepancies in the food sources of calories. However, nearly all reports indicate major proportion of calorie source is cassava followed by plantains or bananas. The combined intake of animal protein (meat, fish, milk and eggs) accounts for only 2 percent of the caloric intake. Food consumption habits in the Congo vary amongst the numerous tribes. A great many of these customs are maintained as traditions, although in urban districts their characteristics have altered through contact with European culture. 1/ 11/ 27/ 28/ 40/

b. Food supply and distribution -- The major part of the Congo and Ruanda food is produced and consumed locally, in season. The chief imported food item is flour, which provides nearly one-half the calories provided by imported food. A marked fluctuation in diet related to seasonal availability of certain foods produces unfavorable nutritional levels. One of these periods, known as "the hungry months," precedes the summer-fall harvest season.

A great many of the deficiency conditions are related to low soil fertility in areas where stable agriculture has not yet occurred. Certain specific deficiencies are related to low consumption of animal protein. Food of this category is high in price and not readily available to the lower income segments of the population.

Various reports in 1961-1962 indicate localized famine conditions resulting from the turmoil. There is some evidence that some of these reports have been exaggerated. 1/ 27/ 35/ 37/ 40/ 49/

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c. Food sanitation, storage and technology -- A general lack of food sanitation, storage or technological development, results in seasonal fluctuation in availability of different types of food. Lack of storage, except for a few imported foods in major city areas is general. Rural families do have small granaries or storage units, but losses from spoilage and pests may approach one-third of the crop. Storage of root crops is less serious, for these can be harvested throughout the year and left in the ground until needed.

Since the beginning of the ten-year plan, the Belgians have sought to increase supplies of animal protein by encouraging fish farming, whereby continuous supplies of fresh products can be available. Experimental fish flour production is underway in the Congo and Ruanda-Urundi, and a high protein product quite well received for admixture to local diets may become available on a wider basis.

The veterinary services have been encouraging livestock improvement, feeding and management. The country is still not self-sufficient in livestock products but a potential for adequate production exists.

Food sanitation in the larger cities, where the foreign population supports modern marketing, conforms reasonably well to European standards. Inspection and sanitary handling of perishable products, including meat, milk, fish and vegetables, is carried on although the latter may be contaminated. Meat and fish refrigeration units, including some fish freezing facilities, are maintained.

The native population is continuously exposed to contaminated foods. Meat is grossly parasitized and may often deteriorate under tropical conditions.

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C. Diseases

1. Diseases of man -- The Congo and Ruanda-Urundi, like other newly developed nations of tropical Africa, are confronted by a massive array of diseases and parasitic conditions. Many of these are peculiar to the tropics, but many are also problems common to temperate zones as well. Headway had been made during recent years in establishing disease incidence data useful in planning and developing health programs. However, consolidation of data, partly accumulated by private organizations, missions or government services, has never been accomplished. This, of course, under the unsettled condition and where the United Nations is largely responsible for operations of health programs, makes effective medical and health care planning difficult. Despite the difficulties, epidemiological data accumulated in the past and that being currently collated, provide bases for studying the incidence and spread of disease.

Post-war natural population increase rates have risen over prewar by over 4 per thousand. A large part of the population increase has been due to lowered infant mortality rates, particularly in the cities. Although the attitude towards illness and death has traditionally been one of complacency, the increasing extra tribal population is taking advantage of disease preventive measures which contribute to a steadily increasing population. 1/ 11/ 15/ 27/ 34c/ 41/

a. Diseases prevalent among the population

(1) Malaria -- Malaria is hyperendemic in lowland areas and often reaches epidemic proportion at higher altitudes. At elevations over 5,500 feet it has not been reported and anophalene vectors have not been found in some areas of the eastern highlands. Malaria incidence is highest at the end of rainy seasons.

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Before European influence reached the Congo, this disease probably caused devastating losses among the natives. In recent years, the incidence has fluctuated and it has been reported that a gradual increase from 297,630 cases (864 deaths) in 1952 to 945,000 cases (2,333 deaths) in 1958. About 5 percent of the cases occurred in Europeans. Leopoldville province reports the majority of cases followed by Katanga, Kasai and Equateur provinces. In endemic regions, nearly 100 percent of the children acquire infection before they are 10 years of age. Plasmodium falciparum is the predominant infectious agent in Europeans and natives. P. malariae is common in native children in endemic areas. P. vivax and P. ovale are encountered less frequently.

Antimalaria campaigns in various regions during the past years have included use of larvacides, disinsectization of houses and aerial dusting or spraying. In addition to these insect control measures, large-scale distribution of antimalarial drugs through hospitals, dispensaries and nutrition centers has been undertaken. In 1958, the Director General of Medical Services set a Service for the Coordination of Malaria Control in the Belgian Congo and Ruanda-Urundi (Service de'Etude et de Coordination de lutte antipaludique au Congo belge et Ruanda-Urundi-SECIA). The purpose of this organization was to: 1) determine the exact prevalence of malaria; 2) to carry out malarial research; 3) to coordinate activities of all agencies interested in antimalarial work; 4) to provide a clearing house for malaria information, operations and research activities.

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Since independence, in 1960, the World Health Organization (WHO) has attempted to carry on much of the antimalaria work. Shortages of personnel, unsettled political conditions and lack of transport have seriously curtailed programs underway prior to independence. This situation applies particularly to mosquito control projects. In Ruanda-Urundi malaria control has been much more effective. 1/11/13/27/34e/36/41/45/

(2) Typhoid fever -- Typhoid fever is endemic in all parts of the Congo. It is less common in Ruanda-Urundi. Sporadic outbreaks, particularly in dry seasons, occur along major trade routes. In many instances, typhoid and paratyphoid infections are not differentiated. Where they are, paratyphoid B and C are more frequently incriminated than A. In 1950, 1,800 cases and 61 deaths were reported and, in 1959, 1,528 cases and 75 deaths. Since 1960, outbreaks have been reported in various localities frequently. The population is becoming more vulnerable to these diseases as a result of a breakdown in vaccination programs. Systematic vaccination was once an enforced procedure among government and certain industrial personnel. 27/ 34e/ 41/

(3) Dysenteries -- Bacillary dysentery is common among the Congolese and occurs not infrequently in the white population. An average of over 1,000 Europeans and 6,000 natives suffer from this disease annually, and the case fatality rate is 0.2 percent in the former and 2.4 percent in the latter groups. Shigella dysenteriae and S. paradysenteriae have been reported periodically.

Amoebic dysentery is endemic throughout the area. Incidence is particularly high in Leopoldville, Kivu and Orientale provinces. Infection is spread particularly among the natives, because of fly prevalence, lack of sanitary facilities and almost complete ignorance of basic hygiene. 27/ 34e/ 41/

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(4) Leprosy -- Over a quarter of a million cases of leprosy had been reported in 1957. The disease is estimated to affect 3 percent of the population. Over a course of a few years prior to 1960, a gradual decrease in the annually reported cases began to occur. This is believed to be the result of intensive treatment begun in 1953. The lepromatus variety accounts for 10 percent of the cases and tuberculoid cases approach 90 percent.

In 1959, about 20,000 persons in advanced lepromatus stages or with serious but curable skin lesions, were confined in leprosaria or agricultural villages maintained by the government, the Red Cross or missions.

Sulfones and diphenyl thiourea are provided to patients, but the Congolese often fail to continue treatment after skin lesions disappear. A correlation study between leprosy and B.C.G. vaccination was begun in 1960, since there was an apparent 50 percent decline in leprosy in a limited area of mass vaccination. 1/11/12/13/27/36/41/53/

(5) Trypanosomiasis (African) -- Trypanosomiasis, or sleeping sickness, is endemic in about half the total area of the Congo. Human trypanosomiasis in the Congo is caused by Trypanosoma gambiense, vectored by the tsetse fly Glossina palpalis. Other tsetse fly species capable of transmitting human trypanosomiasis have also been identified, and a few cases of sleeping sickness caused by T. rhodiense have been reported. Besides the relatively large numbers of people (336 deaths in 1957) affected, this disease causes serious economic losses through its effect on animals and by preventing habitation of potentially productive land.

The Belgians had accomplished considerable useful research on the disease and inaugurated several campaigns of chemoprophylaxis which, in 1959, had reduced the incidence significantly in endemic areas. 1/ 3/ 11/ 14/ 15/ 27/ 41/

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(6) Plague -- Sylvatic plague is enzootic in several foci around Lake Albert and Lake Edward. Sporadic cases occur elsewhere. From 1952 to 1958 an average of 28 human cases a year were reported with an average case fatality rate of 60 percent. Several species of rats, which have been identified as reservoirs of Pasteurella pestis, harbor the flea vectors. The Belgian Congo government had established antiplague units in the health service. These units, operating as mobile teams, carried out antiplague measures which included disinsectization, rodent destruction, hygiene extension work in villages and clearing of rank vegetation around villages. This was followed by repeated systematic immunization of inhabitants in enzootic areas. 11/ 27/ 34e/ 41/ 48/

(7) Typhus -- Both louse-borne and murine typhus have been reported periodically in the Congo. Louse-borne typhus is endemic in Ruanda-Urundi and in the Kivu region. Murine typhus foci have been found in a number of areas along the Congo Basin, with the majority of cases in Kivu Province. 11/ 27/ 34e/ 41/

(8) Yellow fever -- Yellow fever occurs sporadically throughout the Congo nearly every year. In 1958, the disease reached epidemic proportion with 75 cases reported. Twenty-three deaths occurred before the disease was brought under control through mass vaccination, quarantine and an extensive disinsectization program. This outbreak was thought to originate from the jungle reservoir, and the vector Aedes aegypti is abundant throughout the Congo. Other Aedes species incriminated in monkey to monkey and monkey to man transmission are also present. International Convention regulations are reportedly enforced at sea and airports. Belgian authorities required vaccination of all white residents. 11/ 12/ 13/ 27/ 33/ 34e/ 41/

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(9) Smallpox -- Under Belgian supervision, extensive mass vaccination in the decade prior to independence reduced the incidence of smallpox considerably. In 1958, a total of 598,526 first vaccinations and 3,782,473 revaccinations was reported. Until 1960 laboratories in the Congo produced required vaccine.

The predominant type of the disease in the Congo has been the mild variola minor, but, in 1959, 36 deaths among 334 cases of variola major occurred. 11/27/34e/41/43/44/47/

(10) Respiratory diseases -- Respiratory diseases account for a large proportion of infant deaths. Pneumonia is prevalent, particularly among laborers. A fatality rate averaging 5.1 percent for the country as a whole was reported in 1957. A great number of pneumonia conditions run their course in rural areas without being reported.

Tuberculosis incidence surveys, utilizing both tuberculosis testing and radiography, have been extensive in rural and urban areas in the past few years. Still the exact prevalence is not known. Whereas the disease was originally largely urban, it has progressed into rural areas as a result of sick workers leaving their jobs to return to their native villages. Fairly large B.C.G. vaccination programs have been carried out in some areas. Treatment and diagnostic facilities are still inadequate. In comparing the number of new cases each year (6,660 in 1957) to the number of treatment centers (18) with 997 beds, it is obvious that proper care and segregation of non-arrested cases leaves much to be desired.

Influenza is endemic and occasionally epidemic in the Congo. In 1958, over 46,000 cases were reported.

Bronchitis is not an uncommon cause of debility in some areas. 11/ 27/ 34f/ 41/

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(11) Childhood diseases -- Whooping cough, measles and mumps are endemic and sometimes epidemic. A substantial increase of about 30,000 cases of measles in the early 1950's to over 72,000 cases in 1959 has occurred. Recently, 1958-1959, an average of 32,000 cases of whooping cough have been recorded. About 12,000 cases of mumps are recorded each year.

Diphtheria is comparatively rare and, although scarlet fever is infrequently reported, Dick test surveys show 93 percent of children acquire immunity by two 11/ 12/ 27/ 41/ years of age.

(12) Dietary deficiency diseases -- A number of nutritional diseases are reported from all parts of the country. Kwashiorkor is probably the most serious, and undoubtedly results in a greater number of deaths (555 in 1957) than any of the other malnutrition conditions. Avitaminosis is common. Beri-beri, pellagra, rickets and scurvy are serious but less frequently reported than the first two mentioned diseases.

A major share of the nutritional diseases is a fault resulting from unbalanced diets as frequently or more frequently than from shortage of foods. 1/13/27/28/34c/35/37/46/49/

(13) Meningococcic meningitis -- Leopoldville and Kasai provinces particularly report meningococcic meningitis as common among Congolese. An average of 575 cases per year (1953 through 1959) have been reported. In the past ten years the percent of death rate has been reduced considerably through the therapeutic use of sulfonamides. 27/ 41/

(14) Venereal diseases--Annual average of 71,954 cases of syphilis among the Congolese and 85 among Europeans occurred over a period from 1952 to 1957. The annual average of 146,834 cases of gonorrhea among the Congolese and 639 among Europeans was reported for the period of 1953 to 1957. Treatment, initiated by the Congo Red Cross, is

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provided at various hospitals and dispensaries. Since most natives discontinue treatment as soon as acute symptoms subside, control is difficult. 11/ 27/ 41/

(15) Filariasis -- Various types of filariasis have been reported from many parts of the country. Bancroft's filariasis and onchocerciasis cases occur most frequently in Kasai and Orientale provinces. As many as 85 percent of the population in some areas where the black fly vector of onchocerciasis is prevalent may be infected. Loiasis is most common in Equateur and Leopoldville provinces. 1/11/12/13/27/41/

(16) Schistosomiasis -- Intestinal and urinary schistosomiasis is an important problem in the Congo. Schistosoma mansoni and S. intercalatum are widely distributed with major foci in Katanga and Equateur provinces. Over 47,000 cases were reported throughout the Congo in 1957. Urinary schistosomiasis, caused by S. haematobium, is principally confined to two foci, one in Katanga and the other in the Bas-Congo district of Leopoldville. Both forms of this parasitism are apparently increasing among the Congolese. 11/ 12/ 13/ 27/ 41/

(17) Animal diseases transmissible to man -- Rabies is reported from localities throughout the country. Both dogs and jackals are sources of infection. The actual number of human cases is confused, since, in the average annual 48 reported human cases in the period 1952-1957, only 26 average annual deaths occurred. It may be that the reported cases actually represented individuals exposed, but it is not known whether or not exposure was defined by definitive diagnosis of the rabies in the attacking animal. Rabies control, including vaccination and elimination of stray dogs, is generally poorly supported. Serious outbreaks in animals are periodically reported from several provinces and Ruanda-Urundi.

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Brucellosis, caused by both Brucella melitensis and B. abortus, is sporadically reported in Europeans and Congolese, particularly in Orientale and Leopoldville provinces. Brucella abortus affects as much as 20 percent of some dairy herds and is considered common in dairy herds around Kivu province and adjacent Ruanda-Urundi.

Anthrax in animals has been reported in all Congo provinces except Leopoldville and in Ruanda-Urundi. The intensity of animal vaccination in the latter area and some Congo provinces indicates a possibility of some human health significance, but no information is available on the number of cases among people.

Cysticercosis is rampant in animals throughout the Congo and Ruanda-Urundi, where investigations have been carried out. Surveys from slaughterhouses indicate bovine infection rates of 54 to 90 percent and porcine rates of 12 to 16 percent. Considering the meat eating habits of the natives, particularly on festive occasions where raw or partially cooked meat is often consumed, both the infestation with the adult beef or pork tapeworm must be of considerable importance in man. Somatic cysticercosis in man from ingestion of the eggs of Taenia solium is a result of insanitary habits. 3/15/22/24/27/

2. Diseases of animals -- The massive array of animal diseases and parasites is tribute to the durable resistance of the native cattle to their effects. The survival of imported breeds under European management attests to the efficiency of the animal health programs carried out by the Belgian supervised veterinary services. Wildlife reservoirs of animal diseases are as great or greater in this area than in any other region of Africa. Despite the multiplicity of problems due to diseases in raising livestock, a progressive increase in numbers had occurred over the past two decades.

1/3/15/23/28/34a/34b/

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a. Prevalent animal diseases

(1) Trypanosomiasis -- Trypanosomiasis is the most complex and important livestock disease in the Congo and Ruanda-Urundi. At least four species of trypanosomes and 13 species of Glossina (tsetse flies) are involved in the various forms of this disease among animals in the area. Although the pathogenicity varies with the trypanosome species infecting animals, all are serious disturbing factors in the ecological aspects pertaining to development of the livestock industry here as well as in other areas of Africa.

Certain tsetse fly infested areas of the Congo and Ruanda-Urundi are rendered uninhabitable as a result of trypanosomiasis, and even normal grazing or market movement of livestock is restricted.

The solution to the trypanosomiasis problem of the area lies in tsetse fly control and eradication. The West African Institute for Trypanosomiasis Research, located in Kaduna (10-31N - 7-26E), Nigeria, and the Commission for Technical Cooperation in Africa South of the Sahara (CCTA), have made recommendations for tsetse fly control in various African areas, and the Belgian veterinary authorities, prior to 1960, carried out a considerable program to recover tsetse infested areas through the use of insecticides, game control and bush clearing.

The most widespread and pathogenic trypanosome to cattle is T. congolense, and the most important tsetse vectors are Glossina morsitans, G. pallidipes and G. brevipalis.

Nagana is the common collective term expressing trypanosome infection in domestic animals. No immunity as such exists for the disease, but certain strains of indigenous livestock are reported to tolerate infection better than others. Non-indigenous

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livestock types are extremely susceptible. Chemotherapy, using various phenanthridium, and more recently prothidium and metamidium, compounds are used as curatives, and the latter may offer a degree of protection for 4 to 6 months.

The trypanosomes causing sleeping sickness in man are not pathogenic to animals. 1/ 3/ 14/ 15/ 22/ 23/ 24/

(2) East Coast fever -- East Coast fever is a virulent and highly fatal protozoal disease of cattle, periodically taking a high toll in the eastern Congo provinces. Theileria parva, the infective agent, is transmitted by the tick Rhipicephalus appendiculatus. All species of domestic cattle are susceptible but the African buffalo is quite resistant, showing only a mild febrile reaction. Although recovery from the disease produces a natural effective immunity, no practical preventive immunization has yet been discovered. Control is dependent on control of the vector. 3/ 7/ 8/ 15/ 23/ 24/ 34b/

(3) Babesiosis (Piroplasmosis) -- This is probably the most widespread of the protozoal infections in the Congo. Babesia bovis is transmitted by a limited number of Ixodidae ticks, the chief offender being Boophilus decoloratus. Indigenous cattle are constantly exposed from birth and develop a degree of acquired immunity. However, the destructive effect of the parasite on red blood cells leads to considerable debility. Loss can be considerably reduced by effective tick control measures. 3/7/8/15/22/

(4) Lumpy skin disease -- This disease, confined for many years to East Africa, was first noted in the Congo in 1955. The virus, immunogenically closely related to that of sheep pox, may produce a highly virulent or a quite mild form of the disease. Because of resulting morbidity, infertility and serious hide damage, the disease is of great economic importance. Intradermal inoculation of culture propagated sheep pox

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virus is reported to protect against the disease in East Africa. Recently, a successful vaccine has been announced by South African workers. 3/ 15/ 34b/

(5) Rinderpest -- Rinderpest, an acute virus disease, has long been the most serious epizootic among cattle in Africa. In recent years, most countries, including the Congo under Belgian authority, prevented wholesale ravages by wide use of an effective vaccine. The Congo and Ruanda-Urundi, under current unsettled conditions and the almost complete breakdown of veterinary services, are vulnerable to huge losses from this disease unless steps are taken to contain outbreaks that inevitably occur periodically in Africa, as a result of stock association with disease resistant wildlife reservoirs of the infective agent. 3/ 15/ 22/ 34a/

(6) Rabies -- There has been a recrudescence of animal rabies in the Congo and Ruanda-Urundi in recent years. Unless steps are taken to control stray animals and re-instate regulated canine immunization this disease will continue to be a serious public health threat. 3/ 15/ 23/ 34a/

(7) Cysticercosis -- Cysticercosis incidence in animals in the area is almost unbelievably high. Surveys in slaughter establishments have shown an incidence as high as 90 percent in cattle carcasses and 16 percent in swine carcasses. While the beef cysticercus does not pose as serious a threat to human health as that in pork, the degree of animal infection is a definite public health problem. It also vividly demonstrates the lack of any concept of personal hygiene on the part of the native population. 3/ 15/ 23/

(8) Tuberculosis -- Tuberculosis in cattle may be more widespread than heretofore expected. Recent surveys in abattoirs show one percent infection in cattle and 5 percent in swine. Tuberculin tests on several large ranches show a progressively

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increasing incidence.

(9) Anthrax -- Anthrax is a continuously severe problem. Although European ranches have regularly vaccinated against anthrax, native cattle raisers seldom bother to apply preventive measures. Proper disposal of anthrax carcasses is seldom carried out and natives may even attempt to market the meat and almost certainly the hides of dead animals. 3/ 15/ 34a/ 34b/

b. Other important diseases of animals -- Other important diseases of animals in the Congo and Ruanda-Urundi are foot-and-mouth disease, Newcastle disease, blackleg, cutaneous streptothricosis, anaplasmosis, brucellosis and leptospirosis. 3/7/8/15/34a/34b/

D. Medical organization and administration (veterinary)

1. Civilian

a. Administration

(1) National -- Until independence, in June 1960, the Belgians maintained a national veterinary service designed to support and supply the provincial services, the private veterinary employees of large ranches and the INEAC (Institut National pour l' Etude Agronomique du Congo Belge) veterinary phase of the ten-year plan. The national organization was composed of an administrative unit employing three veterinarians. It maintained two veterinary research and production laboratories, one at Leopoldville (4-18S - 15-18E) and the other at Elisabethville (11-40S - 27-28E). The laboratories were well staffed with competent veterinarians and technicians, and were able to produce or compound nearly all of the biologicals and pharmaceuticals required by the various field service veterinary personnel. In addition, these units, in collaboration with INEAC laboratories at Yangambi (0-46N - 24-28E) were able to

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train native veterinary technicians and attendants for laboratory and field services in the Congo and Ruanda-Urundi.

After the creation of the Republic of the Congo, most of the Belgian veterinarians left the country and a Congolese non-veterinarian was appointed as Director of Veterinary Services. One Belgian veterinarian was retained as an advisor. The few veterinarians who remained in the Congo were left pretty much without material, equipment or funds to operate. The laboratories have been virtually non-functional and vaccine and medical stocks are either nearly exhausted or deteriorated. 1/4/15/22/23/25/27/
31a/31b/

(2) Provincial -- Each of the six provinces of the Belgian Congo had a director of provincial services responsible for organizing and supplying the disease control programs in the field. They were also responsible for training field technicians. Most of the field veterinarians were private employees of large cattle ranches, but the provincial services had some personnel to organize disease control programs for native livestock owners. Both private and provincial veterinarians carried out state requirements in quarantine and food inspection at district and municipal level.

When the Belgian government withdrew from control, virtually all of the European veterinarians left the country. A few stayed on in an attempt to care for established herds. No Congolese veterinarians were available as replacements and a large share of the livestock population is now without veterinary attention. Three European veterinarians remained in Ruanda-Urundi and the Food and Agriculture Organization (FAO) of the United Nations sent in a few veterinarians to assist in critical disease conditions. 3/ 4/ 15/ 25/ 31a/ 31b/

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(3) Municipal -- Disease investigation and food control at district and municipal level were carried out by provincial or privately employed veterinarians paid from state or provincial funds. INEAC veterinarians provided service to several regional stations in the various provinces. 4/ 15/ 25/ 34a/ 34b/

(4) Port and airport -- Ports and airports receiving livestock or livestock products were serviced by the national office in respect to animal inspection, quarantine and health certification. This function is now performed through the office of the advisor to the Director of Veterinary Services. 4/ 15/ 25/ 34a/

(5) International -- Under Belgian authority veterinarians had actively participated in African regional programs for research and disease control. Currently, the Congo is dependent, and will for a long time be dependent, on international organizations for advice and operation of animal health and veterinary public health programs. Laboratories, not currently functioning, will require staff from international organizations or the employment of foreign national veterinary personnel.

In mid-1960, there were 108 veterinarians, mostly Belgians, working in the Congo, and 19 in Ruanda-Urundi. After independence, this number had dwindled to less than a dozen. 3/ 4/ 15/ 34a/

b. Legal controls

(1) Licensure -- Under Belgian control a veterinarian was required to be on the government approved list. Veterinarians of other nationalities were approved on examination of credentials. Since independence, no uniform system for veterinary accreditation has been established. 22/

(2) Quarantine -- Imported livestock products are regulated under Belgian

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authority by the Director of Veterinary Services. Theoretically, this directorate is still responsible for this function. Because of the serious rabies problem, the importation of dogs was discouraged by Belgian authorities, and until July 1960 at least a long quarantine period for incoming dogs was an effective deterrent. Attempts to control movement of livestock from surrounding countries to prevent epizootics were never very successful. 15/ 22/ 23/ 27/ 34a/

(3) Inspection -- The Office of the Director-General of Medical Services under Belgian rule imposed regulations for inspection of food of animal origin, and the directorate of veterinary services carried out inspection within the areas of European habitation. Designated food of animal origin for certain markets was required to carry a stamp of official inspection. It is likely that, in recent times, the requirements related to food sanitation are, at best, superficial. 15/ 22/ 23/ 25/ 27/

c. Professional veterinary organizations -- The Belgian veterinarians in the Congo are all members of the Belgian Order of Veterinary Surgeons. No professional organization exists in the Congo. 22/

d. Veterinary research -- During the decade 1950-1960, veterinary research became a rapidly growing activity. Belgian veterinarians, cooperating with and supported by such organizations as the Inter-African Bureau of Animal Health (IBAH), the Permanent Interafrican Tsetse and Trypanosomiasis Bureau (BPITT), have participated in a considerable part of the basic research related to studies of the tsetse fly and trypanosomiasis. The FAO and other organizations have aided the veterinary service in the Congo in development of applied research related to the important animal disease in the Congo and Ruanda-Urundi. 3/ 15/ 17/ 22/ 23/ 24/ 25/ 27/ 34b/

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f. Emergency veterinary services -- Under present conditions, any requirement for emergency veterinary services will be dependent on provisions made by the United Nations. 3ha/

2. Military -- No military veterinary medical services exist in the Congo or Ruanda-Urundi. Before July 1960, military police were quite normally employed in assisting veterinary authorities in carrying out routine immunization procedures or restricted livestock movement orders. 22/ 25/ 34b/

E. Medical manpower -- A general trend towards increased medical personnel, beginning in 1948, was sharply reversed with the advent of independence. In 1948, the overall public health personnel working in the Congo numbered 3,865. This was increased until in January 1959, 8,493 were reported. Figure shows the medical and paramedical personnel over a 3-year period.

Government physicians numbered 380 and those employed otherwise (missions, private companies, etc.) 323, for a total of 703 in 1959. Of the total 8,493 medical and paramedical personnel, 5,663 were African. The remainder, 2830, mostly Belgians, with missions, private companies and philanthropic organizations, making up the rest of the component.

After July 1960, a general exodus of Belgian and other foreign nationals occurred, which included medical missionaries. Subsequent reports from various sources show wide discrepancies in estimating the number of medical and paramedical personnel remaining in the country. It is safe to conclude, that the number of doctors, including 116 WHO physicians listed at the end of 1961 does not exceed 300. The numbers of paramedical personnel are similarly reduced. There are no Congolese doctors and the

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number of active medical assistants is almost certainly reduced to a figure below that enumerated in 1959. The veterinary manpower is decimated and relatively impotent because of lack of funds and continuing political turmoil. About 70 physicians were engaged in Ruanda-Urundi in 1957-1958, but that number has been sharply reduced since 1960. Of 19 veterinarians in 1960, only two or three remain.

Information on the distribution of medical personnel is not currently available, but it is doubtful if many personnel are permanent in areas outside the major cities. The number of missionary people in outlying areas has fluctuated with the occurrences of unrest over the past two years, and most authorities believe the native personnel who may be left at hospitals, dispensaries or treatment centers, are severely handicapped by lack of supplies and experience.

The optimum physician-to-population ratio occurred in 1959, when it reached approximately 1:19,000, which compared favorably with that of other West African countries. The current situation places the Congo in a much less favorable medical care position and, since the current presence of physicians is extremely fluid and many of the WHO medical personnel are on relatively short-term assignment, a ratio calculation is not significant.

A progressive training program for medical personnel at all levels was an important feature of the Belgian ten-year plan. However, advances in the less sophisticated phases, where it was not necessary to send people abroad, was much more rapid. Nearly every qualified observer of the medical situation in the Congo has made the point clear that, the general low level of basic education has produced few indigenous personnel capable of undertaking medical education in the near future.

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Medical and paramedical training was provided in the Belgian Congo by the government and by missions or philanthropic organizations. The scope of training had increased gradually from 1950 to 1960 as increased numbers of Congolese became qualified. The Lovanium Congo University Center in Leopoldville added a medical school in 1954. Special schools of tropical medicine were established to provide post-graduate training in tropical medicine for Belgian qualified nurses and midwives. In 1956, the University of the Belgian Congo and Ruanda-Urundi at Elisabethville established a medical school. By 1959, there had been established 134 other schools for training African public health personnel. Figure gives some detail concerning these schools.

A number of fellowships abroad for various types of medical and paramedical science have been granted to Congolese personnel. The INEAC in Yangambi and the veterinary laboratories in Leopoldville and Elisabethville have trained a number of veterinary assistants and laboratory technicians. The INEAC program was geared particularly to providing field personnel to carry out animal disease preventive work.

The Directorate of Veterinary Services in Ruanda-Urundi was responsible for developing veterinary services from a virtual non-existent state in 1953 to a point where 19 veterinary officers, participating in a disease control and training program, trained over 100 livestock and laboratory technical assistants. 1/4/13/15/22/25/27/30/34a/
34b/41/46/

F. Veterinary facilities -- Three major veterinary laboratory centers have been established in the Congo and one in Ruanda-Urundi for research. The Elisabethville Veterinary Laboratory (Laboratoire Veterinaire d' Elisabethville), the Laboratory for Veterinary Instruction in the Belgian Congo (Laboratoires et de l'Enseignement

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Veterinaires du Congo Belge), now the Leopoldville Veterinary Laboratory, and the Laboratories of the Zootechnical Division of the National Institute for Agronomic Studies in the Belgian Congo (INEAC) at Yangambi, are the primary units in the Congo. These laboratories have produced practically all of the biologicals used in the Congo and carried out most of the necessary investigations for field work. Each has been responsible for a number of sub-stations in various parts of the country. In Ruanda-Urundi the main veterinary laboratory is the Veterinary Research Laboratory at Astrida (2-36S - 29-44E). The work of sub-stations is directed from this installation. INEAC also set up a Zootechnical Center at Rubona (1-58S - 29-38E).

The larger foreign private livestock ranches had set up animal care facilities on their own properties prior to independence. 1/ 11/ 15/ 23/ 27/ 34a/ 34b/

G. Veterinary supplies and materials -- At the time of independence the government laboratories in Leopoldville and Elisabethville and the INEAC laboratories at Yangambi were producing nearly all of the biologicals and compounding most of the veterinary medicaments used in the Congo. A few specially required products were obtained elsewhere, chiefly from Belgium. In June 1960, the Leopoldville and Elisabethville Laboratories had stockpiled biological requirements for normal application to last through the period covering an expiration date for their viability. According to reports of veterinary authorities visiting or communicating with veterinary advisors to the Government of the Congo, many of the products were neither effectively used nor properly handled. Furthermore, production of further supplies remained at a standstill and it is unlikely that Congolese technicians will be capable of carrying on production operations without outside guidance and financial support. 1/4/15/22/27/34a/34b/

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H. Reference data -- A number of charts and tables to be submitted with the contribution.

I. Comments on principal sources -- For the Belgian Congo and Ruanda-Urundi, prior to independence, June 1960, there are a number of comprehensive studies of the health problems and resources. Although statistical figures on diseases, treatments, etc., for humans or animals do not represent a major share of the population, they are sufficient to provide a reasonably good evaluation of disease studies and medical activity over the ten-year period prior to independence. Medical and veterinary reports subsequent to independence are numerous, often sketchy and more often contradictory. However, they do enable investigators to conclude that deterioration of the medical and veterinary activity in the past two years has been rapid and serious. 50X1

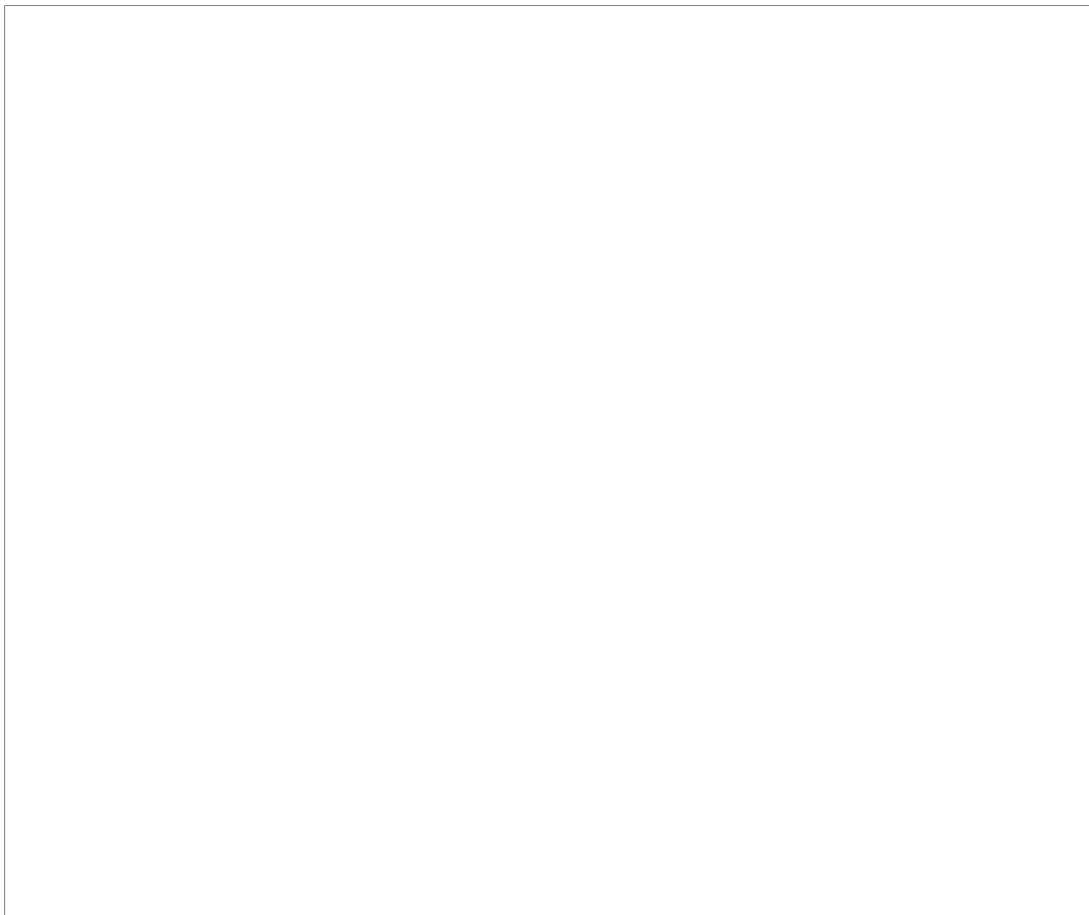


Figure 1: Medical and paramedical personnel in the Belgian Congo, January 1, 1957, 1958 and 1959.

| Types of personnel | 1957 | | | 1958 | | | 1959 | | |
|--|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Govt. | Other | Total | Govt. | Other | Total | Govt. | Other | Total |
| EUROPEAN PERSONNEL: | | | | | | | | | |
| Physicians | 340 | 303 | 643 | 374 | 312 | 686 | 380 | 323 | 703 |
| Pharmacists | 16 | 46 | 62 | 16 | 57 | 73 | 19 | 63 | 82 |
| Dentists | 9 | 28 | 37 | 10 | 30 | 40 | 8 | 35 | 43 |
| Veterinarians | 43 | 59 | 102 | 49 | 59 | 108 | 49 | 59 | 108 |
| Biologists | 13 | | 13 | 11 | | 11 | 11 | | 11 |
| Auxiliary medical and sanitary inspectors | 447 | 268 | 715 | 472 | 148 | 620 | 483 | 161 | 644 |
| Nurses (religious and non-religious) | 124 | 960 | 1,084 | 139 | 1,011 | 1,150 | 155 | 1,084 | 1,239 |
| Total | 992 | 1,664 | 2,656 | 1,071 | 1,617 | 2,688 | 1,105 | 1,725 | 2,830 |
| AFRICAN PERSONNEL: | | | | | | | | | |
| Medical assistants | | 104 | 104 | | 113 | 113 | | 128 | 128 |
| Male nurses (certified) | | 869 | 869 | | 892 | 892 | | 990 | 990 |
| Sanitary inspectors | | 88 | 88 | | 93 | 93 | | 118 | 118 |
| Nurse-midwives (trained) | | 15 | 15 | | 15 | 15 | | 16 | 16 |
| Assistant male nurses (certified) | | 3,256 | 3,256 | | 3,744 | 3,744 | | 3,927 | 3,927 |
| Asst. midwives (trained) | | 268 | 268 | | 375 | 375 | | 484 | 484 |
| Total | | 4,600 | 4,600 | | 5,232 | 5,232 | | 5,663 | 5,663 |
| Combined total | 992 | 6,264 | 7,256 | 1,071 | 6,849 | 7,920 | 1,105 | 7,388 | 8,493 |

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