

HEADQUARTERS PANAMA CANAL DEPARTMENT
Office of the Department Commander

MIMEOGRAPH
LETTER NO. 3
AG 710-3

Quarry Heights, Canal Zone,
19 January 1943.

Subject: Control of Malaria in the Panama Sector.

To : CGs, 6th AF, MF, CAC, SC, 6th AFSC;
Division Engineer, Panama Division;
COs, all "other units" of the Field Forces;
COs, all units of the Service Command;
COs, all posts, camps, stations and air bases;
DSO, DCO, DOO, this headquarters.

1. Malaria is a debilitating and disabling disease transmitted by the bite of an infected Anopheles mosquito. This disease is very common in the Panama Sector and throughout the tropics.

2. Malaria in the Panama Sector can be controlled and held to a minimum by the constant and thorough application of the following malaria control measures:

a. Anti-mosquito sanitation, including:

- (1) Elimination of the breeding areas of the Anopheles mosquito or the rendering of such areas unfavorable to the development of the Anopheles mosquito.
- (2) The general use of mosquito proofing in all buildings in which men habitually live or work.
- (3) The use of bed nets at camps and positions in unsanitated areas.
- (4) The use of head nets, gloves and leggins between the hours of 1800 and 0630.
- (5) The liberal use of authorized repellents.
- (6) The use of a Pyrocide-20 or equal spray, or the freon-pyrethrum bomb in all barracks, kitchens, mess halls, recreation halls and latrines.
- (7) The use of Pyrocide-20 or equal spray, or the freon-pyrethrum bomb to spray tents and bed nets used in tents.

b. The use of suppressive or prophylactic anti-malaria drugs.

c. Malaria discipline. This consists in the instruction and the exercise of the knowledge of the dangers of malaria, the methods of transmission, the methods of control and the coordinated application by all concerned by these measures.

3. Methods of application of anti-mosquito sanitation.

a. Elimination of mosquito breeding areas:

(1) Each unit or organization will, within the limit of its capabilities, initiate prompt and effective measures for the elimination of all potential mosquito breeding areas in the unit or organization area by filling ruts and depressions which hold water; by grading and improving the drainage of such areas; by simple ditching; by cleaning drains and ditches, removing sediment or other obstructions, and by repairing or regrading earth ditches wherever found necessary. All containers capable of holding water shall be removed and after flattening disposed of at the dump. Oil will be used in ant guards only or in areas where the unsatisfactory conditions cannot be corrected by filling, drainage, grading or ditching.

(2) Under the direction of the commanding officer, each post, camp, or station engineer will initiate prompt and effective measures for the elimination

of all potential mosquito breeding areas in the post, camp, or station area not assigned to units or organizations by filling ruts and depressions which hold water; by improving the grading or drainage of the areas; by ditching; by cleaning drains, ditches, road ditches, road culverts, removing sediment and other obstructions and by repairing or regrading earth ditches wherever necessary.

(3) The Field Sanitary Force, the Panama Sector, under the direction of the Department Medical Inspector, will initiate prompt and effective measures for the elimination of all potential mosquito breeding areas present at military reservations outside of or contiguous to the post, camp, or station areas in which mosquito control is carried on by the post, camp, or station commander; will install and maintain sectional surface or sub-surface tile drains wherever required at posts, camps and stations for the permanent elimination of mosquito breeding areas; will install and maintain all ditches in tidal flats or swamps; will conduct mosquito surveys; make collections of and identify mosquitoes and larvae found at posts, camps and stations and in areas adjacent to military installations; will conduct such studies of the flight, breeding habits, day hibernation and other habits of the Anopheles and/or other disease transmitting mosquitoes as may be deemed necessary; will conduct studies on the value of mosquito repellents and anti-mosquito sprays; will assist in the collection of blood specimens for the determination of infected individuals and carriers; will maintain distribution points for anti-larva oil and other larvacides; will maintain such plants for the manufacture of pre-cast drainage tile as may be required and will make and maintain maps showing breeding areas or potential breeding areas and all drainage installations at posts, camps or stations, the Panama Sector.

(4) The Department Medical Inspector, under the direction of the Surgeon, will make recommendations relative to control measures in connection with environmental factors of mosquitoes necessary for the protection of health. The execution of work on real property required to effectuate such control measures will be in accordance with these recommendations.

b. Inspection and upkeep of the mosquito proofing of barracks, kitchens, mess halls, recreation halls, latrines and other buildings regularly occupied by military personnel.

(1) The commanding officer of each company or detachment will assign an enlisted man, preferably a man with manual dexterity and mechanical ability, as mosquito proofing maintenance orderly in addition to his other duties. It will be the duty of this enlisted man to inspect daily the screening, side walls, eaves and floor of each building occupied by the company or detachment for holes or tears in the screening and holes or cracks in the side walls, eaves or floor through which mosquitoes might enter. This orderly will also determine whether all doors close tightly. If holes or tears in the screening and holes or cracks in the side walls, eaves or floor are found in any building, immediate repairs will be made by this orderly within the limit of his capabilities. If the holes or tears in screening, or holes or cracks, in side walls, eaves or flooring are too large to be repaired by the orderly, he will notify the company commander or the first sergeant who will notify the post, camp or station utilities of the number of the building and the nature of the repairs required.

(2) The post, camp or station utilities will expedite the necessary repairs to all buildings which are reported in order to keep all buildings occupied by military personnel mosquito proof at all times.

c. The use of bed nets (mosquito bars).

(1) Bed nets [mosquito bars) will be used at camps, stations and positions in unsanitated areas. Bed nets made of "buttercloth", "cheese cloth", "tobacco cloth" or similar material, impermeable to circulating air, should not be used, as nets of these materials are too closely woven to permit proper ventilation.

d. The use of head nets, gloves and leggins between the hours of 1800 and 0630. In unsanitated areas head nets, gloves and leggins should be worn by all military personnel who are required to be outside of screened buildings between the hours of 1800 and 0630, provided the use of these articles will in no way interfere with the performance of the military duty, mission or activity.

e. The use of authorized mosquito repellents. Liberal use will be made of the authorized mosquito repellents, i.e., Indalone and 612. The repellent should be applied to the exposed surfaces of the body.

f. The use of spray containing pyrethrum.

(1) Pyrethrum is a substance which when sprayed into the air in finely divided droplets is lethal to mosquitoes.

(2) Pyrethrum is available in concentrated extracts such as Pyrocide-20. It is also available in the form of a newly developed freon-pyrethrum bomb.

(a) All barracks, tents, kitchens, mess halls, recreation halls, theaters and latrines will be sprayed with either a 1 to 19 solution of concentrated pyrethrum in kerosene or by the use of freon-pyrethrum in bombs as follows:

1. Sanitized Areas.

(aa) Barracks, tents, kitchens, mess halls and latrines will be sprayed each morning between 0500 and 0530 and each evening between 1800 and 1900.

(bb) Theaters and recreation halls will be sprayed daily at 0600 and 1800 or prior to the start of the first theater performance each evening.

2. Unsanitized Areas.

(aa) Barracks, kitchens, mess halls, latrines and occupied tents will be sprayed each morning between 0500 and 0530 and each evening between 1800 and 1900.

(bb) Occupied tents will be sprayed each evening at 1800. Each mosquito bar, after being opened for use, will be sprayed between the hours of 2000 and 2300.

(cc) Recreation rooms or halls and theatres will be sprayed each day at 0800 and prior to the first theatre performance each evening.

(dd) Huts at road blocks, sentry huts, huts used by beach patrols, anti-tank gun emplacements and pill boxes when occupied at night will be treated at 1800, 2300 and 0400. The uniforms of the men occupying such installations will be lightly sprayed with a 1 to 19 solution of concentrated pyrethrum in kerosene every two (2) hours, or by using the freon-pyrethrum bomb.

g. The use of suppressive or prophylactic anti-malaria drugs.

(1) Suppressive or prophylactic drugs when required will be taken in accordance with paragraph 3, Circular Letter No. 135, Office of the Surgeon General, dated October 21, 1942, subject: "The Treatment and Clinical Prophylaxis of Malaria".

(2) Directives setting forth the period of the year and the areas in the Panama Sector in which the use of suppressive or prophylactic drugs is required will be published from time to time by this headquarters.

h. The exercise of anti-malaria sanitation at all construction projects.

(1) All construction projects will be planned so that the man made mosquito breeding areas incident to construction will be kept to a minimum.

(2) All construction projects will include plans for final and definitive anti-malaria sanitation, the cost of which will be included in the project and which will be given the same priority and will be carried forward on the basis as the main project.

(3) All casual water at construction projects will be eliminated at once by grading and ditching. If this is not feasible, the casual water will be treated by oiling or dusting every five days.

(4) The Department Medical Inspector will be informed relative to all new construction projects and his recommendations relative to anti-malaria sanitation will be followed.

i. Malaria discipline.

(1) This is the most important factor in the control of malaria. Only when each member of the command is thoroughly indoctrinated in the basic principles of the transmission of malaria, the disability caused by the disease and the methods of control, can coordinated application of the necessary control measures be successfully applied.

(2) Instructions to new personnel arriving in the Department.

(a) General. As soon as practicable after the arrival of new personnel in this Department, such personnel will be instructed regarding the prevention of malaria and will be given specific information as follows:

1. Malaria is very common in the tropics and especially in the Panama Sector. It occurs throughout the year. The high rate of infection and the very great amount of time lost by the military personnel in this Sector has been largely caused by the failure to take the necessary precautions to prevent this disease. The infection rates for primary malaria are higher at positions which are close to native settlements and are also higher at posts, camps and stations which have large numbers of native laborers housed at the post, camp, or station. For example, malaria was practically non-existent on Taboga Island until a camp of native laborers from highly infected areas was established there.

2. The usual symptoms of the onset of this disease are chills, fever, headache, muscular aching, prostration and sweats. Recovery is usual if prompt treatment is instituted, but the disease may be serious and long continued.

3. The disease is carried from person to person by certain mosquitoes belonging to the genus Anopheles which usually bite only between dusk and daylight but if disturbed may bite at any time. Since an untrained person cannot tell which mosquitoes are dangerous, all of them should be religiously avoided.

(b) Sanitized and unsanitized areas. Malaria can be controlled by the strict observance of the following preventive measures which will be observed within the sanitized and unsanitized areas by all military personnel from dusk to dawn:

1. In garrison, loitering or sitting in unscreened buildings or outdoors between the hours of 1800 and 0630 is prohibited.

2. Fishing from the banks of the Canal, the Miraflores, Madden or Gatun Lakes, the Gatun Spillway, the shores of Limon or Panama Bays, the Chagres River, the Coco Solo River or other streams or inlets between the hours of 1800 and 0630 is prohibited.

3. Swimming except in the established swimming pools at military posts or in the Canal Zone between the hours of 1800 and 0630 is prohibited.

4. All barracks, kitchens, mess halls, recreation rooms or halls, theatres, latrines and occupied tents will be regularly sprayed with anti-mosquito spray, using either a 1 to 19 solution of concentrated pyrethrum in kerosene or freon-pyrethrum bombs as follows:

(aa) Barracks, kitchens, mess halls, latrines and occupied tents will be sprayed each morning between 0500 and 0530 and each evening between 1800 and 1900.

(bb) Recreation rooms or halls and theatres will be sprayed each evening at 1800.

5. All doors will open outward and will be so adjusted so as to close tightly when not in use. Holes and tears in screening, cracks, knot holes or other openings in the walls, floors, eaves, roofs, door frames or window frames will be immediately repaired.

6. All fire buckets containing water will be emptied once each month, thoroughly cleaned, refilled and 4 c.c. (one teaspoonful) of crude creosote added in order to prevent mosquito breeding.

7. At each monthly physical inspection the post or unit surgeon or his commissioned representative will give instructions to each group being inspected relative to the prevention of malaria.

8. Responsible officers will give constant attention to the elimination of all possible breeding spots for mosquitoes in areas assigned to and contiguous to their command. In this respect each hole or depression in the ground in which water may accumulate will be filled, graded or drained and all drains and ditches will be cleaned and freed from obstructions. Casual water which cannot be eliminated by filling, grading or ditching will be sprayed with oil or dusted with lavacide every fourth day.

(c) Unsanitized areas.

1. The following additional preventive measures will be observed by all military personnel on duty at or visiting unsanitized areas in the Canal Zone, the Republic of Panama or elsewhere in the Panama Sector where malaria is endemic:

(aa) Suppressive or prophylactic anti-malaria drugs will be taken as prescribed in paragraph 3 g (1) and (2) supra.

(bb) Protective clothing will be worn from 1800 to 0630 while outside of screened barracks, screened buildings or screened tents.

(cc) Loitering or sitting outdoors, loitering along trails or roads, or sitting in parked vehicles along trails or roads without protective clothing, head nets and gloves is prohibited.

(dd) Bed nets (mosquito bars) will be used at all times.

(ee) Whenever personnel are engaged on military duties where gloves and head nets are not worn, liberal use of repellent solutions, i.e., Indalone or 612 will be made.

(ff) The clothing of all personnel on guard duty or who are engaged in military duties outside of screened buildings will be lightly sprayed every two hours with a 1-19 solution of concentrated pyrethrum in kerosene or by using the freon-pyrethrum bomb.

j. Inspections and Reports.

(1) Post, camp, station, unit or organization surgeons or their commissioned assistants will make frequent inspections of their respective areas with reference to anti-malaria sanitation and will make recommendations to their respective commanding officers relative to sanitary defects and measures to be used to correct defects.

(2) Each post, camp, station, unit or organization surgeon will include a statement relative to measures used in the control of malaria in the monthly sanitary report under paragraph (2), Environmental Sanitation.

(3) The Department Medical Inspector or his commissioned assistants will make such inspections of posts, camps, stations and positions in this area as may be required to coordinate the activities relative to anti-malaria sanitation and to keep himself informed relative to conditions which may effect the incidence of malaria.

By command of Lieutenant General BRETT:


G. S. ARMES,

Colonel, Adjutant General's Department,
Adjutant General.

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