Malarial fevers with reference to some types on the West Coast of Africa.
I certify that this thesis has been composed entirely by myself.

W.H. Mechanic M.B., C.M.

St. Mary's Hospital, London.

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Malarial Fever With Reference to
Some Types on the West Coasts of Africa.

The importance of a thorough grasp
of the clinical aspects of this disease
and of its not infrequently far-reaching
after-effects there is no need to
lay stress. In a disease which has
been known from the earliest times and
which is so widely recognised must
necessarily be of general interest to
every practitioner. For indeed it will be
able to say opportunities have not been
afforded them of studying it in some
one or other of its aspects. It may
truly be said that the real impor-
tance of any disease, a group of dis-
eases, is best judged of from the
relative frequency with which they are
met with, taken together with their
influence both immediate and remote
on the well-being of the individual.
I would submit that the effects
of malarial plagues are of the great-
est importance to those who have
to reside in foreign countries, be sent to those residing there for shorter periods. It has been stated, that so forcibly advantage can be taken of a patient in the miserable condition of a man, subject to periodic ague, and to a man of some consideration before placing himself within the influence of a malarious atmosphere. To return to the same the following may be quoted, when we consider that in many regions of the globe two-thirds of the mortality is caused by the force of these sequelae, we can understand why all that relates to malaria is important to the statesman, the doctor, the sanitary and physician. The late Dr. Parker has well said, when a climate is called "unhealthy," it is simply meant that it is malarious. This being especially true of tropical climates. (C. R. Linné's Dictionary of Medicine, Vol. 15, p. 36, Parker.) Again, there is probably no part of the world so fertile in it.
which greater or smaller areas of
country may not be found where
malaria is endemic, and where it
prevails every year to a great or
less extent. (C. R. cyclopaedia of the
Practice of Medicine. London. Vol. II.
pp. 559-560.) From the wide distribu-
tion of regions where this disease
is prevalent, together with its vast
influence on health noticeable
after long after removal from dis-
tricts where contracted, should
not be pronounced the as of more
than ordinary interest. Not only is
it found in distant lands but
also much nearer home for in England,
even formerly it was not by any
means rare. The prevalence of
malaria on the West Coast of
Africa and the pogonato evidence of
types found there are only too well
known. Along the western coast of
Africa (Cyclopaedia of the Practice of
'malaria' graces flourish to an extent
and with a malignity scarcely surpassed anywhere else. So too prevalent perhaps to less extent is it on the eastern coast of Africa - in the island of Madagascar and the clover islands of Mozambique and Mozambique. In southern India, the Ganges delta, and in the banks of the White Nile, and in Egypt is it present. In Algeria it is widely diffused, and noticed extending along the coast of the Mediterranean. In America may be mentioned its occurrence in Brazil and Peru. Its frequency in the states which bound the Gulf of Mexico - Gulf States of Texas, Mississippi, Alabama, and Louisiana. Very rare is it in some of the larger French islands also. In Asia, how often is it seen in India in the main districts of the Indus and Ganges which are annually overflowed by these streams - in many other parts. Very rare is it in Ceylon, or in Sumatra. Along
The southern and eastern districts of Europe, and the banks of the
Arabic seas, the north of Syria, and the shores of the Red Sea, the Persian Gulf, and
the Black Sea: the shores of these seas being made up of the
vast plains of Greece and Italy, the whole western side of
Europe, the whole western side of Italy, a great part of Spain and
Portugal, almost the whole western side of
the Black Sea. Especially those
is its in Italy, in the Provinces of
Asia, the Campagna of Rome and
the Pontine Marshes. Coming hence
home the chief seats of its occurrence
in England have been Romney Marsh.
in Kent, the estuary of the Thames in Kent or Essex, along the eastern coasts of England, the fens of Cambridge, Shire and Lincolnshire, and the sandy lands of East Riding in Yorkshire. Records of cases having occurred in London may be found. The disease is said to be unknown in the Sudan, with islands and the Samoan Islands, also in New Zealand and Tasmania, while in Australia only mild forms of it are found. It does not occur in Norway, Iceland, or Faroe Islands, and Portugal is free from it except on the monastery of some of its lakes. Nor does it exist in Scotland or Ireland. 


The clinical aspects of West African malarial fevers would appear to be essentially the same as those with hitherto elsewhere, perhaps somewhat modified by locale and complications, etc., as to exact type. In this form, the foli
lows, among other names have been applied to African fevers, such as the fever, Paludal, Roman, Bengal and jungle fever, Malacal, malarial, malarial, periodic, remittent, and intermittent fever, and ague. This last term is used by some writers as denoting the whole group of malarial fevers occurring, and by others as synonymous with the term intermittent. As now most usually employed the term malarial fever is undoubtedly best used to include all the types found, and the term ague or intermittent fever being restricted to the intermittent type, while the term remittent is applied to the truly remittent and more continued forms. The course of the temperature however in African fevers may often be found very irregular, one type tending to change into another, an intermittent type may be described as one where the morning temperature falls to normal, or perhaps below it, the evening temperature being two degrees
On more above it. A remittent fever may be said to be one where the temperature is constantly above 101, and this may fall two or more degrees in the morning but still not reaching normal. A continuous type of fever is one where the temperature although constantly above the normal has not a very marked difference between the morning and evening temperatures, perhaps half a degree to a degree and a half. A numerous variety of forms of intermittent types of fever have been described as, quotidian, tertian, quartan, double tertian, etc. The characteristics of these different forms of intermittent fevers are so well set forth in all the text books on the subject (e.g. Principles and Practice of Medicine, Vol. 1, MacGee & Ay. Smith Theory & Practice of Medicine, Trench Practice of Medicine, Taylor, etc.) that it is unnecessary to dwell on them. So too are the stages in
an attack of malaria follows in the typical forms, viz. the premonitory signs, the cold stage, the hot stage, the sweating stage with lasting interruptions or remissions. So is in the intermittent type of this fever, that the stages are perhaps most typically demonstrable. The premonitory symptoms may be well defined as weariness, malaise, and headache, with elevation of chilliness. Tendency to dull headache and feeling of nausea or inclination to vomit, aching of limbs and in the back. The temperature is normal, but when this begins to rise, the patient feels distinctly cold, and the cold stage has then begun. The pains in back and limbs are complained of much. The temperature has risen to 103° or 104°, in some cases higher. Shivering or shivers are marked. The skin has a shaggy appearance. The head ache is intense. The patient is generally very sensitive to noises which
The tongue is found to be dry and hot. The patient becomes less active, the pulse becomes weaker, and the skin becomes warm. The patient becomes flushed and as the temperature increases, the patient's pulse rises. The temperature remains high or even increases. The skin is dry, burning, headache ensues, and the patient becomes uncomfortable. Looking, drinking, or eating is desired for. The pulse and respiration are quick. The patient is at times more or less delirious. The vomiting may become severe and nothing is kept down, vomitus matters being blowy in colour. This hot stage is more prolonged in some cases than others, but gives way to the sweating stage. The sooner this takes place the more favorable it is for the case. Though, condition is just noticed on the forehead, cheeks, etc.
loved, by general perspiration. The temperature falls and the patient has much relief. The headache diminishes and vomiting ceases and intense thirst passes off. Medicine and some little nourishment can now be permitted. The pulse in perspiration falls. The urine is often scanty and deep colored. During the first part of intermission the patient feels almost well, but feeling of weakness remains. During the stages of sweating or intermission the patient is often able to fall asleep or keep something to bear is this. This may be a remission of the fever with reproduction of the same set of symptoms. This may come on earlier with severity of symptoms masked in some cases and assume more the character of the remittent variety. In other cases return of fever may be less severe or more favorable. Relief will then be no remission, an exceptionally is this so.
The intermittent variety of this fever is
most usually met with in the
North Coast of Africa. In this
the course of the parasymptom
rest closely that of the intermit-
tent variety but the stages may
be, so to say, marked or ab-
sent, or on the other hand be more
present, some of them intensified.

The premonitory stage may be pro-
longed, or the cold stage may
otherwise, again, the premonitory stage
may not be present, and the
patient as it were suddenly take
the ill. The end of the para-
symptom in this fever is shown
by a remission, then being to
period of true apyrexia as in
the intermittent form. How the
cold stage is usually altered to
dorm paroxysms into the hot stages.

In some instances, in occasion-
ally it is done. No cold stage
however may occur at all sometimes.
The cold stage is very common. It is followed, within an hour, by the following one. The period of duration of the hot stage is usually prolonged. There is always marked headache with dry often distressing vomiting and retching. The troubled matter is bilious in character, and neither medicine nor nourishment can be retained. The tongue is dry and much thirst is complained of. Paroxysms are complained of in the back or limbs, over the kidney, the spleen, and the liver, also, both infrequently. In very bad cases convulsions may force on the path, the mouth becomes parched, delirium becomes pronounced, and a dry, phlegmatic state ensue with drowsiness and coma. Jaundice is frequently present to a slight extent. If this become dry marked it is an unfavourable symptom. The course has to be tranquilled.
Keeping in mind the occurrence of the symptoms typical of fever, the treatment at an early stage is the more favourable is the case likely to be as a rule. Following the sweating, the temperature falls into the remission may be only small in degree. The more decided the remission and the longer its duration undoubtedly have the more favourable is the prognosis. The general symptoms and distress have now much abated, with relief to the patient. In my experience, the remissions of the pyrexia have constantly diminished in severity, not only as regards the height of the temperature but also as to the general symptoms as headache, vomiting, as the treatment is exhibited. The remissions may be said to occur invariably in the morning and are usually quoted as in an average, the duration of remissions from three weeks to two months.
in my experience has been to
freeze and dig deep. Here
are cases in which however in
spite of treatment the pulse tends
to persist after a considerable ho-
gue time, as a rule a patient
will feel much easier in the morn-
ing and much worse at night. To
reference to natural plagues seen in
the West coast of Africa I would
lay stress on the drowsy and dis-
tracting encephalalgia in most cases;
also the distressing vomiting and
retching, with the nausea and ack-
ning in the back and limbs dur-
ing the last stage of the illness
frequent tendency to delirium which
is found in the eleven types
of bed fever contracted in the
West coast. The remissions of this
fever during which there is a
good deal of relief to the patient,
not which are so important as to
the period when most benefit would
seem to result from administration of
gummi. The watching of the case for three consecutive in each individual, the use of Antipyretics in delirium with high temperature (thus relieving headache, distressing to the patient) and the use of antipyretics to soothe patients, generally, are to be kept in mind, relative to these cases. I would point out the occurrence of a truly remittent type or variety of fever, and a truly intermittent variety. Also, a form taking a more or less mixed type of pyrexia, at one time remittent, at another intermittent, or tending to be continuous in some patients. The course of pyrexia in African fevers is frequently irregular, perhaps modified by drugs, the condition of the patient, etc. Again, in others it will be found that the fever runs a continuous course, a low form of continuous fever, truly malignant in nature. The elevation of temperature may be only half to one degree or so above normal.
mal but tends persistently to remain so, the patient gradually sinks steadily losing ground in spite of all treatments. There are cases which cannot be removed too early to a healthy climate. A prostrated form may be maintained, the patient sinking with flagging pulse and heart action notwithstanding remedies, perhaps struck down as it were, after prolonged fatigue and exertion in the sun. A case in point was that of a Khmer or native carrier of the malarious march and fever. The fatigue in traversing and candle country on the coast. Various other forms have been described, especially of the pernicious tertian without type of fever. A common form where patients becomes unconscious with Stoporous breathing, in cases where manic or attacks have occurred with delirium. Cases in which patients and then succumb to death late
arrived preparation is imperceptible. Public cases with convulsions. Cases in which the conditions of cholera are produced. Cases with dysentery attacks &c. [Practise of Medicine, Taylor. Principles & Practise of Medicine, Pagge - Py-Smith. Theory & Practise of Medicine, Bristow.] Again there is a so-called haematuric form, commonly termed Blackwater fever from the appearance of the urine. This form of the fever is seen in the west coasts of Africa sometimes, especially in those who have become debilitated from former attacks of malarial fever. This is really a severe form of malarial fever usually of the remittent type in which the red blood cells break down in such numbers that the haemoglobin cannot all be absorbed and therefore a large part of it has to be re-excreted by the kidneys. This blood pigment also produces jaundice. In true Blackwater fever there is haemoglobinuria
and not haematemes. If haematemesis is present no doubt it may be regarded as the result of some seeping malarial. Such blackwater fever is a malarious remittent fever to which is added another malarious manifestation or. Hemoglobinism. is the term expressed by Dr. Eyres. M. Malanal Fever as suchuke as the Gold coast. C. M. Eyres. 1841.

This eerie is besides the symptoms of malarial fever a yellow tinging of the skin and the urine has a characteristic color like in putrid urine-like appearance. This appearance of the urine is due to the presence of hemoglobin, and the presence of albumen is also marked. There is very frequently in some cases green bilious vomiting, pain or aching over the kidneys probably due to congestion, and acute nephritis may be developed from the irritating effects of the passage of hemoglobin. Enlargement...
of the spleen is known to the physician. This condition is preceded by jaundice in many cases. The onset is seldom sudden and it is rare not to come on after the fever has lasted for two or three days. The cause of the disintegration of blood cells is of interest and would appear to be the plasmodium and lamellar inflammation of the kidney, with suppression of urine and increase of urine, have to be kept in mind. Also collapse resulting from the disintegration of large number of red cells. Those who are anemic and debilitated by malarial poisoning are likely to suffer from blackwater fever on exposure to causes predisposing to its appearance. There are six cells from cool draughts, exposure in heat of the sun, excess fatigue, neglect of treatment in former attacks of fever, or the use of quinine.
[r. Climate r. Fever of India] p. 96. Pi
first. In reference to neglect of
fungoid fluids, if not now checked, the
crimping parasites may become more
severe in the vicinity any remission.
Successful cases, alcoholic or otherwise. One
cause of special is to be the time of
suffering, from an attack of malarial
plague. The ordinary severe form
of malarial plague under treatment
as stated, runs a course of about six days. The opinion of
many is that it is not of life.

It must be continued the use of
the moments to continue the use of
drugs, especially quinine and ar

amine, for some days after the

fever leaves, as in this way it

would seem that the liability
to recurrent attacks is both di

minished. With respect as to whether

it is possible to escape the re

urrence of the quinine he continued

for several days. As p. 1725 of The

Paracelsus of Malarial Fever. Marshfield

and Maguire. New Sydenham Society, we find
This not finished occurrence, was not frequent although drug given for four or five days. In my experience, its seems to have proved very true, final to have given quinine in this way for a week at the days as according to each individual case. So too in the administration of Aconite in cases which were more chronic or prolonged. The actual height of the thermometric reading varied a good deal, like temperatures of from 104° to 105° Fahrenheit were not uncommon. Expecially in patients with febrile attacks of remittent fever. An interesting transient hyperpyrexia has been observed in some cases, undoubtedly malaria in origin. A case in point was recorded by myself in a man whose the thermometric reading was 110° F. The constipation, disturbance, which not long responds to what would be suspected with such pyrexia, but the temperature being taken again.
in the minutes 12 to 15 with an
other thermometer it was found to
be 102.4° F. The just thermometer
was used for other temperatures of
mouth and checked by a second
one to pounds to be correct. The
symptom naturally is present in one's
mind in such cases but in
this case that was being care-
fully investigated or excluded. So
similar case was again observed.
Whether can this be explained by
a peculiar instability of the heat
centres caused by the malarial
fever, and the insensibility account-
ing for the long periods of
mental disturbance. Or in reference
to such cases of hypothermia may
be noted cases reported by Dr.
Stephen Mackenzie in Medical
where temperatures as high as
113.8° F. were observed. Having
suffered from an attack of ma-
larial fever, it would seem that
a person is very liable to recurrence of the attack. Not only is this so, but on exposure to the
person with quaking comes acting one would seem to be more readily susceptible to its influence. Thus I have also ob-
served any protective effect when having once suffered from an at-
tack of fever. In my practice while on the West Coast of Africa
stated cases in which there were five, six or more attacks in the same person. Similar instances
have been noted by others. Five recurrences in one person (C. Statistical Re-
ports of the 'Health of the Navy', 1892. p. 70.) Five
recurrences (C. 'Health of the Navy', 1893. p. 67.) Five attacks (C. idem, 1893. p. 69.) With the
latter attacks one may notice less intense headaches, nausea or tendency
to vomiting, and perhaps a lower elevation of temperature during the
exacerbations than in quinsy attacks.
marked, where there has been a
tendency to malanial infection as
seconds true. It is in these pre-
current attacks that some of the
stages of the fever are wanting or
pass unnoticed, especially so where
an irregular course is run. The
first attacks of fevers are, in most as a
rule, if ever so, of an intermittent
type. Writing on this subject may be
hurled at p. 68. Heath of fevers, 1893, "fits"
attacks never occur in the form of ague.
Later, intermittent character becomes more
marked. (By Surgeon of War, Advantages.")
For a full account of all the
diseases caused by malaria, a care-
ful study will repay one of the
hitherto of Laveran, Théry, Gachet,
Taylor, Tagge, and Riggs. Smith, this
Town, and Marius Javor in Negrais.
Mannering, much has been
written as regards the Etiology
of malaria. He cannot do bet.
On the more study in detail, the
excellent works of Laveran (Paludisme,
A. Cavan, New Sydenham Society; and of
Machiavellus & Bignami. Two memoirs
graphs on malaria and the Parasites
of Malarial Vehicles, i. Machiavellus, and Bign
These, with their abundant plates of
the plasmodium malariae, are of the
very greatest assistance in acquiring
a clear and accurate knowledge
of this disease, and its etiology.
Numerous observers have, put forward
one form of reasoning or other, as
the cause of the disease. An
in about 1777 ad. supposed that
malaria was due to parasitic
animalcules which found their way
into the blood. Referring to the
findings of Hales on malarial diseases
may be mentioned, reference to this
disease by Protagoras: Deception of
Lunes; Archigenes, Aesop, the Arab
Virus; Eta Sinia, Valerius of Saranta,
Ambroso Bodiceus. Biondes Lornarius.
The introduction of Lucidus from
Pisa into Spain in the year 1620 when
more attention was given to the study of intermittent fevers, largely due to the drug introduced by R. Salter of Cambridge with more reliable results. So also when Hydrastine is employed, its administration for preserving the paroxysms by giving it immediately after the first attack. The classical book of Loit in which the true nature of paroxysms intermittent fevers is recognized, in treatment given. The work of Lanced valuable especially from an etiological point of view. The labours of Guerou Galatari and Wulff on the same lines as those of Smit L. Cyclopaedia of the Practice of Medicine, Vol. II, pps. 557-559. How two of later years are the investigations of Laveran in 1880, with his discovery of the malarial parasite or plasmodium malariae. The various stages of development of this being shown in the plates in his book. So also the recent investigations in this
respects of Nanchangara and tell us important, as well as those of
Mr. Vandyke Carter and others.

The examination of the blood for the pathologic changes should
be witnessed by all who may have opportunities for studying these
cases. The pale ambovids, like the brown bodies lying inside blood
capsules, containing dots or clus-
ters of black segments, and lying in bone from a mere speck
of perhaps that nearly of the
capsules, are fully described,
and need only be mentioned.

Nevertheless a very careful search
for these bodies will repay one for the trouble taken. A
very thin layer of their quickly
drying is necessary in order that
the red blood cells may be seen lying as it were flat, to note
edge-on or in protractor. In this way it is that the ambovids, little
todras inside the capsules are to be

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According to Manson-Farrar, the plasmodia are said to appear at the onset of the fever to be more numerous as the fever increases and to disappear with the fever. (c. Davis Dictionary of Medicine, Vol. II, p. 3.) After a time the plasmodia is described as dividing up by a process of segmentation into a number of spores which are each free and develop into amoeboid bodies which again undergo the same cycle of changes. The plasmodia are often found free in the plasma, probably as a different phase of existence, although generally found in the body of the red corpuscles. Various forms of other phases in their appearance are described. (Lance.) No definite results would appear to have been obtained in attempts to cultivate the plasmodium malarum.

As regards the conditions favouring the development of the malarial organisms, these commonly recognised...
are in undrained soils, a non-porous subsoil, a tropical, or sub-tropical climate with a heavy rain fall, decomposing vegetable matter, a possibility of animal matter, low lying ground, with rank vegetation, the periods of the year when swamps are drying up in this hot season after the rains, as also when rivers and inland lakes are falling, conditions such as prevail along the estuaries of rivers, the alternate wetting and drying, in the heat of the sun, of mud banks, both decomposing vegetable matter. The chief probably are stagnant waters, power, surface soils, a warm temperature and saturation of the soil to certain extent, these being necessary for the development of the plasmodium. The most severe forms of all occur in the tropics, and malarial diseases are said to be confined between 63° north latitude and 57° south latitude. (c) Practice of Medicine, Taylor, p. 73.)
In malaria, rape, but not only so for thirty species of damp bottom lands (v. Cyclopaedia of Medicine, p. 555, vol. II.), and apparently dry regions with stations of loose sand, on soil on the surface and a deeper floor of clay on impervious soil beneath favoring the development of malaria, water percolating through in being retained (v. idem, p. 567). It is well known that developments takes place of the disease in the summer months & disappears in the winter (v. idem, p. 568). The disease increases materially in the hot dry still months that have been preceded by moisture (v. idem, p. 572). Again malaria is stated to be developed not in the hot season of the year when the ground is entirely flooded with water but rather during the season at which larger parts of it are exposed to the air and become more or less dry (v. Principles & Practice of Medicine, vol. I. pp. 347-348). In this per...
latter the influence of the heat is acting on the soil and allowing emanations to escape from beneath the minute layer there is to be found. (P. 134.) By practice of medicine, Longman, Vol. 11. p. 567.)

The burning of rubbish soil will recognize, as a factor whereby malaria is spread. According to Maclean the disturbance of soil that has long been fallow is often followed, both in hot and temperate climates, by the evolu-
tion of malaria (P. Larivee Dictionary of Medicine, Vol. 11. p. 4.) In this perspective the soils from which organic emanations are largest, according to Phipps Practical Hygiene are: 1. Alluvial soils, old estuaries, deltas. 2. Clay soils are much less malanogenic. 3. Sands if there be an impermeable clay or sandy subsoil. 3. The lower parts of the chalk where there is a subsoil of gravel or clay. 4. Weathered granite or trap rocks if vegetable matter has been intermixed. Such soils abound both heels and hester. 5. Rich vegetable soils at the foot
of hills. The influence of wind has been recognised as a factor in spreading malaria. Malaria is said to be drifted a considerable distance from its source by winds (v. Cyclopedia of Medicine, Zemsec. Vol. 11. p. 571). But sometimes carries the aero-potion to considerable distances from its source even up slope of range of hills (v. Principles of Practice of Medicine, @agger, By-Smith. p. 319).

A instance, which has been the means of spreading, is to say, malaria is coal. In malarious districts where coal is stored exposed to wetting in heavy tropical rains and then to process of drying in sun's heat they are produced conditions fire.
my virgin soil to those to employ.

Further coal being very porous would readily absorb noxious emanations,

or by giving these up affects those

employed using it, turning its while

stating it has been found that

similar form has occurred on

toast ships after cooking at such

places, as China Town, where there

above conditions exist. Those affected

have been the engine-room staff or

stokers who have to do with the main

operations of the coal. The disease was

almost entirely confined to those who

did not land and to the engine-

room departments in particular, the

ship's company being only affected

in the persons of those who were

actually employed in handling the

ship at China Town, and the dis-

ease is attributed to the coal. Per-

haps the deeper layers would be

less highly saturated with the

malicious poison than the more super-

ficial ones of the coal. This is the opin-
Now of several medical officers (C. Heath of the Navy, Statistical report of 1870, p. 67.) When malarial fever appears on board ships returning from an unhealthy climate the causes may be, that the system has been charged with the malarial poison before embarkation, that the water used was drawn from a malarious locality, or the disease may be in the ship from decayed vegetable matter mingling with the bilge water, combined with defective sanitary conditions; lastly, may be added infection through the coal.

The manner of infection in the majority of cases, of malarial fever is by the air. In the instance here referred to, where a party of soldiers, all except one, were attacked by ague, three or four having taken the precaution of getting pure water on board a French transport, the rest having impure water supplied them (C. Principles and Practice of Medicine Vol. 1, Tagge & Pye-Smith, p. 257.)
The being so crowded, as to be poor, like other infectious mists, occurs
through improper or uncooked food. According to theory, the reception of the
poison is through the respiratory tracts,
as to foul drinking-water, double exists;
whether it is the direct or immediate cause,
or whether to its injuries, but note specific
ingredients, it has only served as an
occasion for the outbreak of the disease
in a person already affected, with malarial
(\textit{V. Cyclopaedia of the Practice
The poison of malaria is special
ly to be feared at night, and
for a short time after sunrise
when it is said to be most
active. It is well known that
activity growing vegetation is ad-
verse to the development of malaria,
the interposition of a belt of trees
between a marsh and an encamp-
mant is believed to be protective
from malaria. So too is a surface
of water as a lake. \textit{V. Principles and}
Practise of Medicine. Vol. I. Tagge, & Ryer-Smith. P. 361. It is said that in the old day of Australia, Eucalyptus globulus, is mentioned in this respectas being very efficacious. This point has to be taken into consideration in choosing ground for the site of a camp in a marshy region, preferring rising grounds and with a belt of trees or a stretch of water between the marsh and encampment. This may also be a direction of the pre-trailing winds be kept in mind, relative to camping, not in order that they should not blow directly from a marsh over the camp. Some races have been regarded as having an immunity from malaria, however being very against this idea is mentioned in Principles & Practice of Medicine, Tagge, Ryer-Smith. P. 351. The immunity of blacks is mentioned by Laveran, E.I. Paludisme: a Laveran. P. 102. New Sydn. Society.
Again reference to this as 'less healthy' or its being 'less resistence' is found at p. 135. Indeed, as my experience both native Khoreen cances and native troops of the Bhat India Regiment were found susceptible to malaria, especially as often fatigue and when predisposing causes came into play, while employed in expeditions on the Western coast of Africa. This may commonly suffered from the intense heat which forms one of the chief causes of the fever. According to Khoreen natives suffer largely, chiefly from the regular quarter's variy or malarial terna as much as on the gold coast. P. 22.

C. H. Elyas, J. D. So race or nationality enjoys immunity (C. Cyclopaedia of the Practice of Medicine. London, 1811. p. 573.) to the race appears to be insusceptible though negroes are much less healthy than white men (C. Practice of Medicine. London. P. 73.) It is well known that, material...
diseases tend to disappear before cultivation or agriculture and drainage of the soil. These measures are in
most instances a cure. The spreading of a thick layer of soil over the ground after draining it thoroughly,
promotes the evaporation of malaria, or else leaving the ground in villages to
oscillate in the ditches or in the inhabited places. Dr. Cyclopaedia of the
Practice of Medicine, London, vol. ii. p. 667. Principles of Practice of Medicine,
Tayler, Pye Smith, vol. i. p. 348.) It is
stated that in certain conditions of
soil, such as marshes, but also where
the soil is especially of stagnant, excessive
heating, or drying in the heat of
soil, together with high temper-
ate heat, heavy rainfall, or decomposing
vegetable matters, etc., is the
prevalence of malaria found. As
such conditions are modified, so
is the prevalence of
the disease both as to its fre-
gency and severity according to
locality, etc. Works of These condi-

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tions lands on the West Coast of Africa to a large extent with the great prevalence of malarial fevers there. This would thus appear to be an exception of the fever, or malarial effluvia, much more in force in some places than in others, determining the type or severity of an attack. The concentration of the poison determines the severity of the disease (v. Cyclopaedia of Practice of Medicine, London, vol. 11, p. 553).

Many are the causes which predispose to malarial fever. The exposure to the poison of malaria and its absorption into the system would seem to me to be the most important predisposing cause, while residing in a malarious district. Previous ill-health, or anything that may lower the resistance of the tissues generally to disease, will act in this way. Such as anemia, dyspepsia, previous attacks of fever, bad sanitary surroundings, & malnutrition.
conditions of life. I would class as among the causes tending to
exacerbate the disease under these circumstances the following: excessive fati-
gue or overwork, all causes of exposure to the heat of the sun's
rays during the heat of the day, exposure to wind and rain, sudden
changes of temperature. The occurrence of cases of fever has frequently been
observed on board ships. At sea or on land, something like a cool wind in passage,
or entering a cold room or belly of the
atmosphere. This too is seen in cases where men have been employed upon decks,
the temperature there high with saltly heat,
or returning to mouths of rivers where
cool sea breezes were felt with a consi-
derable fall in temperature. Again,
chills are a very patent cause
in bringing on attacks of the fever.
Chills at night, and cool draughts
in the bared abdomen, on the back,
feet and shins, on the side of the
heads on on the back of the neck, in front of the anterior axillary line. In the Festoons so exciting an attack of ague & remittent fever Exposure between smokes & lime trees - fatigue in the early morning, especially before dinner and before some meal is taken. A mannered malady so especial by to be preceded at night, and for a short time after dinner to sleep dis- tends, the poison probably being less exposed by the stagnant. musts near the surface of the ground still dispersed by mid days. Improper diet, and insufficiency of fuel is a cause which may act in predisposing to recurrence of the malady. Lectures. Some writers give this as from three to six weeks and as long seldom more than three months. The minimum is from 6 to 10 days. [Paladine - A. Carton p. 105 & - In 'Hygiene of Warm climates,' Davidson. p. 14.6] This is given as 7 to 21 days. In [Faggis Principles of Practice of Medicine] p. 339, vol. 1, 6 to 20 days is given. According to [Neal's] Cyclopedia of the Practice of Medicine.
hancement. Vol. II. p. 587. In malarial fever, it is said, to be from a few hours to many days, an instance of 145 days is mentioned, with the occurrence of intermittent fever. It may be deemed that an intermittent type of malarial fever may occur after an indefinite number of days of latency, but I am inclined to believe that most true remittent forms have an incubation, which varies from 1 to 20 days. Referring to 'Health of the Navy', 1892, p. 69, the Medical Officer of Surgeon Mr. H. S. Walker, after a large number of observations, gives the periods of incubation as from one to twenty days. These observations were made during and after punitive expeditions in 1892 on the West coasts of Africa, the Tinkang Lhuth, Gambia River, and the Sena Leone River, to the Great Mucuu River. Bluejackets and marines, comprising the expeditionary force, together with troops of the West India regiment,
were landed from H. M. ships off the Vintang Creek, &c. of those who pro-
ceeded up the Creek on 2nd Jan., 92.
and returned to Bathurst at the
mouth of the River on Jan. 20th. There
occurred two cases of fever firstly on the
18th Jan., one on 21st Jan. &c. After stay
at Haling Camp, Vintang Creek, &c. and
return again, the period from Jan. 20th
to Feb. 5th, three cases of fever were
admitted on Feb. 1st, one on 9th, 20th, 14th,
5th, 12th, one on 13th Feb., &c. &c. After the
expedition up the river Gaambe to Somi-
atake (April 17th to 30th A.D.), three cases of
fever were admitted on 10th May, &c. allowing
for the period of exposure to the malarial
poison in buildings may be taken
as above. The topography of these
becks consists of mangrove swamps,
varying in their widths from 500 yds.
to 20 to less than half that as one
proceeds up - soul fetid smelling tortag
is left exposed to semi-heats of low
109. The sultry heat oppressive with

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Inhaling odours. Twenty one days is
given as incubation period by Surgeon F.
Hartt "Adventures in these fever, employed
on the Ship and Landerie purses C. V.
Health of Navy, 1873, p. 685. Surgeons
Brownell (edited 1873, p. 691) gives the average
incubation 8 to 16 days. Mannering "Parasites of Malarial Fever" p. 39.
Incubation at 10 to 11 days.

An attack of fever occurs only after a
lengthened residence in malarious climate
it seems probable that its source not
from a single exposure to the poison.
Cases where for example sailors have
fallen ill upon the sea, takes on months
after leaving a port infected, with ma-
laria may it not be explained by that
it is the poison absorbed into the sys-
tem making itself manifest or some of
the acting causes coming into play,
Causing the poison to more than
combat-balance the natural antagonistic
tendency of the healthy body to disease.
If this cause not to been exhibited
would the illness not have been de-
veloped. It is it not reasonable to
suppose as of other poisons small amount
have no toxic effects so two of malaria may there not be a limit below which the toxic (to be day) effects of it cannot be produced, being antagonised by the natural tendency of normal structures to resist disease, and until this latter is counter-balanced by depression of health or a longer exposure to the effects of malarial poison, or perhaps this in system has further developed in the blood, fever is kept in abeyance. Would this too account for the different susceptibility of individuals to heat fever, as their erythrocytosis differs in being exposed to infection under the same circumstances. Maitz speaks of the latency of the poison which would seem to be on this (Cyclopedia of the Practice of Medicine. Luminous Vol. II. p. 577) which accounts for relapses or the circumstance that they are merely a new development or outbreak of the disease grown there have been simmering within the system and are now awakened to life. Possibly the poison has latent in the system wit
has been observed, that a person may be a short time in an ague district leave it without having an attack, and afterwards in a perfectly healthy climate develop the disease (Dr. Practice of Medicine, Taylor, p. 73). Again, as p. 374, Malarial Fever, The Practice of Medicine, Java, Rheufravi. Bremberg speaks of the spontaneous cure of malaria accords to factors which strengthen the organism in its struggle against the trouble that has broken in. The attacks of ague to which those who have resided in malarious districts are subject, the neuralgias not only facial but also of other nerves as the facial, pectoral, sphincter, etc., the alteration of temperature curves in other diseases, the peculiarly modified night's cough (W. G. Swirski), are some of the more remote manifestations of the effects of malaria. The communicability of these conditions to treatment by Limnic tends to prove an altered...
State of diseases caused by the malarial poison, modifying the state of departure from health.

Prophylaxis. As regards the administration of quinine from a prophylactic point of view there is much diversity of opinion. Dr. Davidsons' Hygiene and diseases of warm climates he finds quinine is not an absolute preventative of fever, but its use undoubtedly diminishes the liability to malarial infection. It should therefore be given as a prophylactic to persons who have to traverse or to reside for a short time in a malarious country. In Marchisio, Favas and Bignami's book on Parades of Malarial Fever (New York: American Society) p. 1009, we find it is employed with success in many malarious districts. In Pola this prophylactic treatment by quinine has introduced some years ago; I have heard from naval surgeons that it has done very good service. Similar results attends.
from English and Fuchs Davies. As regards treatments we have
considerable evidence. In Laveran's book on 'Pathology' p. 120 (Cairns
Pygmy, Society) we find: 'Fortunately we possess a remedy really and truly specific. Mauve's
affections in quinine. Quinine'. From the same at p. 127, 128, 129.
Numerous facts prove that inoculation and quinine which
were found in Paludism, can also prevent in
'American military doctors are almost
all favourable to this mode of treat-
ment', quoted from the medical and
surgical history of the War of the Re-
Hulse's text and Rugg's 'Principles and Prac-
tice of Medicine', vol. 1. p. 354 with
reference to quinine is much similar in
stance of a specific. It does occupy a unique
position in one respect, namely as being
the only medicine of which the efficacy
has never, in our time, been challenged
by anyone, however rash and meri-
mented'. Even as a preventative of
ague quinine has been found very ef-
fieacous for sailors exposed to malaria who take ashore for a day, for the
villages passing through, or for soldiers bivouacking in, a marshy district. As
regards permanent residents in an aquifer
region it is less desirable to place
them constantly under the influence
of quinine. Since the organism appears
to become subject to its action in
course of time, but at these seasons
at least when the disease is most
prevalent, they may take it. In the
report of the Indian Medical Congress
95., under the Prophylaxis of Parasitic
Diseases, may be quoted, note by Surgeon-
Major R. Duncan M.B.S. *He concluded that
arsenic had no prophylactic virtue as
against malaria, but that both Quinine
and Cinchona hydroxy were de
cidedly beneficial, diminishing the lia-
tability to pieces by more than one-
half. He urged that in all cam-
paigns involving a sojourn in a mal-
nious district prophylactic doses of
either of these drugs should be adopted. In the 'Health of the Navy,' Statistical report of 1892, at p. 69, it is quoted my opinion: 'benefits seem to accrue from
the use of quinine as a prophylactic in a highly malarious region.' The
results of observations with the Naval Brigade landed during operations on
the West Coast of Africa in expeditions up the Tembeng, Rufisque, and the River
Gambia. Also with men employed on
detached duty up the Great Nairies
river, Senegal. At about 6 grains
of sulphate of quinine was given to
the men for the first week while in
camp and afterward continued to those
especially exposed to fatigue and overheating
up to as after long marches, field
work, or battles to chill in the cool
water. After some fatiguing field
duty, the gravis of quinine was given
to those of the Naval Brigade who took
part during the day in these or returning
on board ships up the Creek. Also
six grains of quinine given to the men.
played on detached duty in a Slave
colony, or church, up the rivers, he
was also administered for a couple of
days to the sick prior to landing for
the expedition up the river Gambia at
Lonikinda. In Dr. Cruikshank’s Cyclopaedia
of The Practice of Medicine vol. ii.
ch. 557-558, he finds the prophylactic ac-
tion of quinine has of late received
considerable confirmation on the part
of various writers, and that says my
own observations leave no doubt as
to the efficacy of the daily pre-
ventive dose (c.f. idem p. 655) howev-
our. It is mentioned without failure to con-
firm the favourable influence of this
treatment. How I would men-
tion that there are Medical Officers
of note a little experience with re-
gard to West african fever who
assert the usefulness of quinine
in any way as a prophylactic. This
is not only so in the reference to
medical men practicing abroad, but
also is the opinion of many naval
Persons who have been stationed on the West Coasts of Africa. I quote the following from the statistical report of the 'Health of the Navy,' 1887, pp. 64-65. 'There appears to be an almost general consensus of opinion both as to the necessity of quinine as a prophylactic... The statement of five medical officers may be thus quoted... It seems that quinine, in their experience, is utterly useless in preventing the occurrence of fever; that patients in the Nile areas, including principally medical men of long experience, have no faith in its prophylactic powers, and moreover believe that if used consistently as a preventative it loses its efficacy when required in the treat. ment of the disease: although manifestly unsound in condemning it as a true prophylactic, there is a difference of opinion as to whether it does or does not, in pestilent fever, afford in mitigating the severity of the attack when used does occur. This is further...
Mentioned, ibid., 1891. pp. 68-69. Also ibid., 1892. p. 67. and again that this drug exerts no favourable influence as a preventative of fever, ibid., 1892. p. 67. Can this diversity of opinion be explained! Is there anything in the life-phases of the malarial parasite and the effects of the action of quinine on these that can to a small extent hint to explain it? Now turning to the work on Malaria and the Parasites of Malarial Fever by Haffkine, Tenera, Rosemary, Mannsberg. The interesting facts of the effects of quinine on the different phases of existence of the malarial parasite are well set forth, p. 163-173. The more powerful effect on some of the forms or stages of life of the parasite, and its powerlessness to affect its in other stages. In certain stages the parasite being much more resistant to quinine than in others. It is in this distinctive action of quinine that the specific activity of the remedy lies. p. 167. It would seem that quinine has no effect.
cath effects on those parasitic forms which keep up the infection in a latent condition: In this the current-chapel-phase in the life of the amebae, the latter of quinine even when liberally employed had no appreciable influence.

p. 166. "The maximum and most pro-
but action of the remedy is besti
ve that phase of the parasitic ex-
troflagellate stage which is subsequent
to the completion of the spore formation.

p. 169. "Quinine acts on the amebae
of malaria in those phases of its life which are occupied in matu-
riation and development; when however, the
transformative of haemoglobin into black
pigment is arrested, and in consequence
the mitotic activity ceases and the re-
productive phase begins, then against this latter process quinine is of no avail; the resistance of the adult forms
which in spite of the action of
the remedy complete the phase of fes-
dration or sporulation, explains the power
lessness of the drug in so many cases.
of fatal malignancy. The fever of the adult form takes place whatever be the quantity of quinine employed, or however it be administered. P. 169-170. The action of quinine can be defined both more precisely than it has yet been possible to do, with almost any other remedy or in any internal disease; it has now become possible to control exactly the result of our therapeutic measures, by examining the blood at short intervals during the administration of quinine, and by deducing therefrom the most favourable conditions for their success. P. 250.

The action of quinine on the parasites of malarial fevers having been so definitely shown, should we not conclude that a sufficiency of this drug in the blood would have a deterrent, preventative or prophylactic effect. At least, as far as those forms are concerned, in the life-phase of the Anopheles malarial, which are to be mastered by quinine, its sufficiency of
quinine is thus required to be in the circulation at the time when it is expected the organism will develop - a deficiency of quinine to do. Study the crop. (R. Malarial Fever, as rich both on the Gold Coast. C. H. Tyler, p. 448.)
In the conditions where the exciting cause may come into play as often heavy work or exposure to weather and chills, where weariness is complained of, on the prodromal symptoms as headache, nausea and malaise, quinine given will often be beneficial in warding off an attack of fever. How far drugs administered in this way are of real value seems uncertain. The difficulty of raising, who accurate observa-tions under circumstances of dis-comfort, arduous work and in a climate immanuel to one's well-being has to be kept in consideration and is perhaps best appreciated by those only who may have endeavoured to work under such conditions. marches over sandy

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marches through. Thence, a limit is put on the march of necessity. Broken rest and bad food are less tolerable and conducive to discomfort. As regards the period when quinine should be administered, the best times are during the premonitory stage, and after the paroxysm before the next paroxysm develops. It may however be given at any time, as laid down by Maclean, even without waiting for fever. 

He says practitioners who relax in their efforts to stop the feverization, who pause in the use of quinine while they apply preventive measures for this in their symptoms will have little success in the more forms of clinical symptoms. 

[Maclean quoted by Elyot. T. Maclean's Fever as rub with on the gold wards. C.R. Elyot. P. 49-50)]

How soon that these fevers are in the vast majority of cases dangerous, and moreover, that the drug is not without a useful effect at whatever time it is employed, it is clear that recourse to
its weight, not to be put off until some hours after a paroxysm begins; it will be well to administer it as soon as possible, i. e. repeat the dose from 1 to 6 hours, no matter what may be the particular points in the course of the fever at which the paroxysm is commenced. (v. The Practice of Malarial Fever, Brandts. 1853.)

Ruminations. p. 172. J. Golgi expresses the opinion with regard to quinine that the most rational mode of treatment is to employ the remedy some hours before the paroxysm begins, so that its maximum action may be exerted on the young forms resulting from division while they are still in the blood-plasma, for this is the period of their life in which the influence of the drug has the greatest effect. (v. idem. p. 171). Quinine is best administered a few hours before the attack in the greatest effect. (v. idem. p. 173). The forms of the parasite persist for a shorter or longer period in the blood, and usually in the course of the attack; the phase of the plasmodia frequently persists in the blood.
from one to two weeks during the per-

iod of remission from fever, subsequent-
to a series of paroxysms. (C. edrn.
p. 166.) They note three conditions
explain the apparently varying results
in the administration of quinine in
malarial fevers. Quinine is said to
alter the blood-structures and make the organ
of the haemoglobin 'contract more closely
with the colouring matter, whereby it does
not allow it to pass so readily into
other substances (but unaffected the haem-
globin as a conductor of oxygen). Thus
the action of the remedy not only direct itself
to the parasite but also alters the red
blood corpuscles as to render its life fit
as support for the anemia to live in. (C.
edrn. p. 170.) This being so would not
the drug given as a prophylactic,
circulating in the blood, render the media
in which the parasite thrives antag-
onistic to its reception?

In reference to other prophylactic drugs
Arsenic and Opium may be men-
tioned. Instances of the empirical effects
of Remic have been described. It is however much more benefical administered parent as a remedy in the more persistent forms of malarial fevers. As improving an anaemic condition it is useful in improving health and, thus rendering an individual less susceptible to fever. Remic acting as a prophylactic does so in preventing relapses of the Chronic in fever, not in warding off the primary attack. (A. Hygiene and Diseases of warm Climates, Davidson, p. 205.) Remic has been hailed by many as a prophylactic to malaria, and it is undoubtedly of much service. For the real benefical in its when the patient is suffering from nausea, headache, restlessness or vomiting.

Now with reference to treatments I would put on record the very benefical effects which I have found from the use of Antipyrine. In many cases where the temperature was high the patient distressed with headache
and sickness, with tendency to delirium has this drug been given with good results. 15 grains at
intervals three times a day or four times a day. Very serviceable is it also during the exacerbations. Very satisfactory was its found in reducing the
fever, lessening the headache, causing perspiration and in soothing the patients generally. This
drug seems to me preferable to antisyphilis. During the exacerbations and the remissions quinine
is to be exhibited. In my practice I give 15 grs. of sulphate of quinine three or four times a day.
Seemed the most satisfactory dose. Thirty grains at a time is recommended at points by some. As a
prelude the administration of some cathartic at the onset of the fever is almost essential. Colonel has
been employed for this memorandum, a cord strong salines seems to me as beneficial as anything else. The
bouls tend to constipation. The use of hydrochloric acid, with
strychnine, was found beneficial in
contracting the tendency to torpidity
of the intestines, also being a cho
logogue and the acid soothing to a thirsty patient. As a rule the
administration of quinine for a week
or ten days after the fever was com-
petent and the quinine three or twice
in the day. Where the fever was
more of continued type, quinine was
beneficial. Sometimes this was con-
trasted with alternate doses of quinine.

An iron tonic is necessary in many
cases after an attack of malarial
fever. During the mild stage the
usual remedies are employed—lemon
drinks, blankets, hot bottles. When
hot beef tea is good. In the hot
stage, appeasing cool drinks with
sucking ice give relief. To prevent
lotion to head occasionally may
be necessary. Rapid sweating of body
where this stage is prolonged. Drench-
plastic over Stomach for vomiting hall.

Sometimes relieve this general atten-
tion to relief of symptoms while ant
opyretics or drugs as indicated are
exhibited. Chill has to be avoided.

from damp clothes or the sweating
stage. Medicines and nourishment
food are to be given during the
intermissions and the remissions. In
Blackwater fever the early adminis-
tration of a good purgative is
necessary. The treatment described
is the same as that of a worse
form of malarial fever attention
has to be given to keeping up
patient's strength by nourishment
stimulants as indicated, with more
general relief of symptoms, counting.

Among the sequelae of mala-
Rial poisoning are to be men-
unmalarial calumia the swollen
limbs the weakness the debility and enerv-
ating loss of energy or incapacita-
for labor the inability for ex-
hausted effort either physical or

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mental. The cold clammy condition of the skin, the clamminess most
well seen in the palms of the hand.
The tendency to dyspnea or respiration.
Sometimes a feeling of giddiness, defective memory on loss of memory.
Instability in loss of temper. Anemia,
are all conditions which characterize this.
Again, the cause
ague or neuralgia, neuralgic affec-
tions of other nerves as nuchal
nervi, x. Ague rash or enlarged
neck of the spleen, boils and
carcinoma are not uncommon. Many
other irregularities are described. (Dr. Hy-
clepaedia of the Practice of Medicine.
Tunrison vol. 11. p. Anaesthesia along,
the course of nerves (p. 600), Hepes
(p. 636), Hepatits, and atrophy (p. 641).
Diffuse hepatitis leading to enlarged
liver, amyloidal degeneration of the
livers and also of the liver, her.
monhagic diathesis, Sweary liver.
culosis, nervous affections, paroxes,
psychical disturbances, insanity, with the creation of periodicity, chronic mental disease (c. idem. pp. 647-650).
In all cases of tendency to sea
sick headache, there is need of
removing or removals to a healthy climate,
Lastly, in reference to precautionary
measures or making melonious re
spons a good deal may be done.
Avoidance of sleeping, ashore, and
perhaps returning on board ship be
fore nightfall, avoidance of expon
sure to heat of sun or to pain
and wetting, exposure to night
dew and chills, night marches
or work in early morning, before
some meals, excessive eating of
animal food, or drinking.
Avoid
habits, constipation. Attention to
drinking water, in particular cleaning
in. Attention to sanitary surround
ings or those. Dwelling houses con
structed on suitable sites away from
swamps, etc. Personal hygiene is of
importance. The antagonistic effects
on the growth of bastard in a district of cultivation and drainage of the soil has to be kept in mind. After fatigue and heavy work a dose of quafou may go a long way to hard work off an attack of fever. Much as has been written on this subject there yet remains much for investigation relative to these fevers. So with regard to many other diseases, and may we not turn our eyes to the words of the late Laureate:— little flowers in the tainted well...

but could I understand what you are, fruits and all and all in all, I should know what God and man is...