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AN

INAUGURAL DISSERTATION

ON

Malaria.

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BY

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To

C. K. Winston. M. D.

Whose ability and learning, no less than his character, as an accomplished gentleman, have inspired the profoundest admiration of

The Author.

Malaria

Of all the noxious agents which infest the at-
-mosphere of our globe there is none more
deserving of the careful study of the practi-
-tioner of Medicine than that to which the term
Malaria is at present by common consent
restricted. Although its actions and of course
its evolutions also are confined within pretty
well defined geographical limits; those
boundaries include perhaps portions of every
extensive tract of the earth surface capa
-ble of supporting a prosperous and
civalized people.

By the pestifer-ous influence of this subtil
poison many of the fairest portions
of Gods heritage are given up to the

dominion of the prowling wild beasts; and even in some places it is said to be so deadly that even the beasts themselves are forced at certain season of the year to forsake their otherwise favorite haunts and flee into the neighboring mountains for safety That at those season even the birds as if by instinct desert their nests and bowers to pour their melody "upon the bosom of the palpitating air" of more congenial climes. Not only does it demand at our hands a diligent investigation of its nature, habits, and effects, on account of its wide spread prevalence, but because of the prodigious amount of human suffering and mortality to which it gives rise. In localities where it prevails to any considerable extent there is scarcely a single case of disease that does not acknowledge its agency either in its aetiology or symp-

=Tomatology, and most generally in both,
Entering into the system it seems to vitiate
the whole organism, and when continued for-
a length of time creates a sort of Malarial
diathesis by which other diseases are modified
and complicated. It not only creates a
formidable catalogue of nominal diseases such as
ague, dysentery, headache, tic=doloureux,
and neuralgia of other parts of the body;
derangement of the liver and splen. but
its continued influence vitiates and degrades
all the physical moral and intellectual
qualities of its unfortunate victims.
I cannot refrain from transcribing the follow
=ing vivid and appalling picture of its
effects from Dr Macculloch's excellent book.
"There is" says he "in these pernicious countries
nothing more striking to a cursory traveller
than the appearance of age which occurs at

a very early period of life. Even the children are frequently wrinkled: and in France in perhaps all the worst districts, a young woman almost even before twenty has the aspect of fifty; while in men the age of forty is equivalent to sixty; in healthier countries, both in appearance and vigour: the very few who live to fifty appear to have arrived at the protracted term of fourscore. Of personal beauty in females there appears to be but little trace at any time: but whatever may have existed, is rarely ever prolonged beyond seventeen. And the expression of countenance keeps pace with all else, being that of unhappiness stupidity and apathy; an habitual melancholy which nothing can arouse, an insensibility to almost to every thing that operates of the feelings of mankind in general. A slow and languid

speech, a similar languor in the walk and in all the actions; indicates equally the condition of the mind, and of the body in these wretched countries.

"The apathy which was just noticed as expressed in the physiognomy, is a character which influences the whole conduct of these degraded and unfortunate beings, often proceeding to such a degree, that they are scarcely elevated above the beasts in point of feeling. Seeking solitude, shunning society, and amusement alike, without affections without interest, in any thing, they make no exertion to better their condition;— not even to avoid the source of danger that surrounds them, or to take the most common precautions that are pointed out: & there while attached to the soil (from habitual indolence rather than regard) they will not be convinced of its

nature or dangers; — fatalists in practice and even in belief —, and refusing to believe or admit that there is any other lot in life than that which is their own. If such be a true account of the effect of Malaria on the human constitution, and especially when we remember how many myriad of human beings are subjected to its baneful influence in a greater or less degree, it is hardly possible to over-estimate its importance as a subject of investigation by the practical physician. The soul sickens when we read of the terrible ravages of War,

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when his iron car
Was yoked in wrath and thundered from afar;
we shudder when we see reflected from the mirror of History, gaunt and hollow-eyed Famine, stalking across the earth and nations withering before his ghastly gaze: we

we quail at the frightful terror of the scene
When the blessed seals that bind the Pestilence
are broke
And crowded cities wail the grant stroke,
but this silent and ever-active foe to human life and human happiness is continually at his work of slaughter and has slain more ten to one than the sword Famine and Pestilence together.
The term Malaria, litterally signifies "bad air" and as we have already intimated is at present used to designate the peculiar poison of which we know nothing except from its effects upon the economy. It has hitherto eluded the most delicate and diligent researches of the chemist, and still moves on a mysterious instrument of disease and death. But notwithstanding it bid defiance to the cognizance of our senses: its

effects upon the system are well known. and although there are some controversy as to the pre=cise condition necessary to its evolution, its "habits, and habitats," are by no means involved in obscurity. It is known to require a certain degree of heat and moisture for its produc=tion;— to possess a greater specific gravity than atmospheric air, or at least to tend to the earths surface,— to be capable of being absorbed or neutralized by bodies of water; arrested by growing and luxuri=ant vegitation; and driven about by currents of air. These are well estab=lished deductions arrived at by numerous observers by a careful study of its effect up=on the human economy to gather with the conditions which are supposed to give rise to it.

Lancisi an Italian physician

published a book in 1695 to which we are indebted for most all we know of it; — for all that has been written since amount to nothing more than observations similar to his own and confirming the general doctrines he promulgated in regard to it. He maintained that the poison was evolved during the humid decay of vegetable matter; and his opinions has been received unquestioned until a comparatively recent date. It remained for Dr. Surgerson a surgeon in the English army to attack and in the opinion of many to demolish this venerable dogma. While we are ready to acknowledge that our faith in the vegitable origen of Malaria has been somewhat shaken, by the masterly logic of the able and learned Prof. of Theory and Practice in the University of Nashville we are not altogether convinced of its fallacy. The difficulties

in the way of renouncing the faith of Fathers; we will briefly state; - Trusting to the well known magnanimity of the Professor, of the Theory, and Practice, into whose hand this production will most probably fall, to pardon our temerity in presuming to call in question the views of one so eminently qualified to form correct opinions on any subject he might attempt to investigate. First then we think it has not been demonstrated that no vegetable matter exist in those places where it is asserted to be absent, and which never-the less abound with Malaria.

It will be found by reference to Dr Watson lecture on this subject; that most all of the places alluded to by him are subject to overflows during wet seasons, and is it not too much to suppose that the water falling in the form of rain over large

districts of country amid the gorges, and on the top of mountains, formed Torrents that gathered in their headlong course a large amount of vegetable Matter, to be deposited in the valleys and plains where the waters widen out and become almost stationary mingled with the silt of these plains, the vegetable matter remains to be subjected to the action of the Solar rays and the moisture that it is continually evaporating from the "perfectly portable" water below.
In all due deference to those who hold the contrary opinions we contend that the vegetable theory requires no better condition for the production of Malarial poison than is here present.
Again. Are we certain that the fevers which are said to have prevailed in the British army in those places were really

Malarial fevers We think this doubtful, first from the fact that British writers generally consider yellow fever a variety of Malarial fever. Says Dr Gurgerson A often has=pened to a well seasoned soldier coming down from Mount's Hill and mounting the night guard in perfect health to be seized with furious delerium, while standing sentry and to expire within less than thirty hours after being carried up to his barrack's with a yellow skin, and having black vomit. Dr Watson says "in the level plain Malaria caused continued fever re=sembling and I believe identical with yellow fever". Again he says "in low and hot pla=ces or situations it may give rise to an affec=tion not distinguished in its symptoms from yellow fever." Is there any advocate of the new doctrine on this side of the Atlantic

prepared to admit yellow fever into the class of Malarial deseases? We presume not, and yet the description given of the fevers that prevailed in the situations described as being destitute of vegetable matter are such as to leave us in doubt as to whether they were really cases of Malarial or yellow fever.

Furthermore, We contend that the conditions required by the advocates of the new theory are not sufficient to produce a poison of any kind, much less one so potent as Malaria. If we have not misinterpreted Prof. Bowling, he maintains that the action of the Solar-rays upon a surface whatever may be its nature, with water however scarce it may be just beneat it is sufficient to produce this deliterious agent.

This at any rate seems to be the notion of one very able champion of the new hypothesis.

We refer to Dr Watson of London to whose Lectures we have so often alluded. He says "for producing malaria it appears to be requisite that there sould be a surface capable of absorbing moisture, and that this surface should be flooded and soaked with water and then dried. It is clear from this proposition that Dr Watson attached no importance to the character of the water; — nor to the nature of the surface provided it was capable of absorbing moisture. If then the nature of the surface be indifferent it can furnish not part of the poison, and it must be the product of the Solar Rays upon the water. What is that product simply watery vapour which is known not to be capable of producing any form of idiopathic fever. Prof Bowling refers to the notorious fact that the belting of trees in the

Valley of the Mississippi often produces an abun-
-dance of the various types of Malarial fever-,
and explains it in a way which precludes the
possibility of his attaching any importance
to the nature of the surface provided the
moisture can be eliminated or evaporated
through it. We feel justified in making
this assertion from the fact that the
~~ground~~ surface of the earth, in Walcheren,
and Rosendaal, &c as described by himself
possesses nothing in common except the character-
of porousness with the surface of the dry-
-ing Trees; and yet forsooth according to
Dr. Bowling these latter are as potent in the
production of Malaria as are the sandy plains
Estramadura, or the parched bed of the
Gaudianna. We have have thus candidly
stated what are to us insurmountable difficulties.
When they are removed we will cheerfully

recant our old heresy if it be such and meek-
=ly submit to be baptized into the new
creed. The nature of this noxious agent
is a matter of controversy among Medical
Philosophers, but so far as we are ac=
=quainted their speculations have done noth=
=ing to elucidate it and have furnished us
not suggestions of practical bearing, and
we shall therefore take no further notice
of them. Although its essential nature
is entirely unknown to us its habits are
pretty well understood. And we will devote
the remainder of our space to a detailed
but very brief notice of them; leaving
the reader to make such practical deduc=
=tions as cannot fail to occur to every rea=
=soning and intelligent mind.

II It tends to low situations in consequence either
of its possessing a greater specific gravity

than the air; or of its affinity for the moisture of the earths surface. In consequence of the quality of Malaria it accumulates near the ground and particularly in low places; hence in Malarious situations it is dangerous to sleep in basement rooms or on the ground. There is more danger in the horizontal than the upright position. Soldiers acting as sentinels are not so often attacked as those who sleep on the ground. This perhaps is partly owing to the greater susceptibility of the system while relaxed by sleep.

III It is absorbed or neutralized by bodies of water. There are numerous instances on record to prove this proposition and it is well illustrated in English Naval History, but one example will be sufficient. The channel which seperates Walcheren from Beveland is but little over a mile wide, yet while

the British shipes lay at anchor in the channel, (although not in the middle of it;) on two seperate ~~occasions~~ occasions their officers and men escaped while the disease prevailed on either shore.

III It is capable of being driven about by wind. Lancisi relates a notable instance of this. Thirty Ladies and Gentlemen of Rome went on a sailing expedition up the Liber: while on their journey the wind suddenly shifted and blew over a marshy district which lay to the windward of them and twenty nine out of the thirty were immediately attacked with ague. It is sometimes thus driven up the sides of hills and by its gravity drops down on the opposite side to the place where it was generated. Dr Ferguson relates a remarkable instance of this but we have not space to transcribe it.

IV. It is arrested or absorbed by luxuriant and

growing vegetation; and does not this fact give additional support to the vegetable hypothesis may the poison not be something that contributes to the nutrition of vegetation; and is given out again during what the learned call eremacausis? Lancisi was well assured that trees afforded a protective power against the influence of Malaria and when a project for destroying a belt of trees that intervened between the City of Rome, and the Pontine marshes, was entertained he remonstrated with the Pope against it and maintained that it was this protective property of trees that first caused woods and groves to be held sacred. Dr Cartwright of New Orleans ascribes to the Jussieua grandiflora, a floating plant, of the southern latitudes of this country specific hygienic and health preserving properties "whereby it purifies all stagnant water in which it grows, that of the lakes and bayous in which

inhabited by it being as pure to the sight, taste, and smell, as if it had just fallen from the clouds. and believes its presence accounts for the remarkable exemption of the inhabitance of lower-Louisiana from Malarial diseases.

V The poison of Malaria appears to be more potent and concentrated during the night. It is probable that the heat of the day rarifies & dissipates it and at night it is condensed by the dew. Many facts might be adduced in proof of this property of Malaria. It has often been observed that when ships have anchored near Malarious coasts that the crew could visit the shore during the day with impunity, but if they remained all night they were almost certain to be attacked with fever. This intensity of the poison in not destroyed until the sun has exhaled the dew, and dissipated the mists and fogs that accumulated during the night, disease persons

persons living in malarious districts should avoid going out early in the morning as well as during the hours of darkness.

VII It is supposed that fire destroys it. It is to this cause that the exemption of cities are attributed. A knowledge of this fact would suggest the propriety of having a fire upon the hearths of those who breath a malarious Atmosphere especially during night.

In fact this practice is adopted by many intelligent persons, under the vague impression, that "it is healthy".

We are aware that we have not given a complete account of Malaria, even aside from its from its effects upon the system, and the mode of counteracting those effects.

We will conclude by stating in the language of the learned Dr. Watson, "that to the production of this deleterious agent

a certain degree of temperature seems necessary". It is very seldom traceable beyond the 36° of North Latitude — and it is supposed to require for its development a continuous temperature higher than 68° of Fahrenheits Thermometer.