AN INAUGURAL DISSERTATION,
on
The Malarial Type.
SUBMITTED TO THE
PRESIDENT, BOARD OF TRUSTEES, AND MEDICAL FACULTY
OF THE
University of Nashville,
FOR THE DEGREE OF
DOCTOR OF MEDICINE.

BY
Isam A. Wilson
OF
Elkins, Pennsylvania,

1857
CHARLES W. SMITH,
BOOKSELLER AND STATIONER,
NASHVILLE, TENN.
To
William R. Bowling, M.D.
Professor of Theory and Practice
In the
University of Nashville,
This Inaugural dissertation
Is respectfully inscribed,
By his
Grateful friend,
The Author.
The Malarial Type
or Simple Intermittent Fever.

Intermittent fever is a specific disease, requiring a specific medicine for its relief; it is characterized by febrile paroxysms recurring at stated intervals, and by absence of the fever between the paroxysms.

Before proceeding to give an account of the causes producing this disease and the treatment principally resorted to for its relief — I think it not out of
place, to give a short topographical sketch of the district in which we have had occasion to see this disease in the last few years in all of its varieties—thence aiding us to some extent in forming correct views in regard to its predisposing cause.

Topography—The river is a beautiful little stream, receiving its origin in the Cumberland mountains, running through a serpentine course principally south west, through a picturesque and densely populated country, and emptying its waters into the Tennessee river, at the head of the muske shoals in north Alabama. Its banks are generally low and densely shaded, with a thick growth of timber of various kinds; extending back into a level plain, varying in width from
six hundred yards to one and a quarter miles; the greater portion of this bottom land has been cleared and is now in a fine state of cultivation.

In travelling through these bottom lands, as they are termed, we frequently find marshes, ponds, and branches, that seasonally have descent enough to drain themselves at a low stage of water—further on we find these level lands terminating suddenly by high ridges.

The inhabitants of these ridges, flatter themselves that their localities are free from all miasmatic emanations, and all other supposed causes of disease, from the erroneous idea long entertained among the common people, that low grounds are unhealthful; therefore high lands must of necessity be healthful, which
proven not to be altogether the case during
the visitations of this disease; although
they did not suffer so materially as did
the inhabitants of the valley beneath them.
High localities, are not entirely exempt
from the causes which produce this
this disease, as was shown by its
frequent occurrence in such places—
but it did not occur in a form so
malignant, and yielded much more
to proper treatment.
The soil of these low lands, is deep and
very productive, consisting of sand and
alluvion, and is highly valued for its
powers in producing Corn, Cotton, Tobacco,
Wheat, Rye, Oats and Barley, which are the
chief products of the country.
That portion of these lands not in
cultivation is heavily timbered with
such growths, as are peculiar to rich lands, viz; Ash, Beech, Hickory, Maple, Black, Red and White Oak.

As previously stated, the banks of this river are generally low and very subject to overflow in the winter and especially in the spring; this has occurred sufficiently every year within my recollection and as the water recedes into its proper channel, it leaves all the basins which have been overflowed, filled with water with no outlet whatever, so that it must of necessity remain until it is absorbed by the earth.

Probably two or three months elapse before this takes place, when a wet surface is left exposed to the direct rays of the sun, which surface dries very rapidly, especially of a dry summer,
and forms a hard figured crust with water beneath it.

Cause—The causes of this disease are divided into predisposing and exciting—the exciting causes are debility, intemperance, previous disease, exposure to cold etc. The predisposing cause is malaria. Malaria is a specific poison, producing specific effects upon the human system. It consists of certain invisible effluvia or emanations from the surface of the earth.

It is utterly imperceptible to our senses, but we suppose it to exist in a gaseous form involved in the atmosphere arising from the earth's surface. Its existence is perceptible only by its obnoxious effects upon the system, which effects seem to produce certain
specific diseases, such as intermittent, remittent and congestive fevers, and some are disposed to attribute epidemic dysentery to this cause.

Malaria, I believe, has never been found further north than the fifty-sixth of latitude, and it is supposed a temperature above sixty degrees Fahrenheit is required for its production. Thus, we seldom have material diseases in temperate climates during the winter season, and the further south we proceed the more malignant do we find them. It is a curious fact that a remittent contracted in a warm climate will upon the removal of the patient to a colder one become an intermittent. Thus, we have them as the cold season of this climate comes on, degenerate
into intermittents, and finally disappear as winter approaches; therefore we would infer that he is emphatically a southern gentleman and of the first family of the predisposing causes of southern diseases.

Little or nothing seems to have been known of malaria until about sixteen hundred and ninety-five, when Lancisi, an Italian physician, put forth distinct views concerning the causes of malaria, which seem to be the prevailing theory up to this time. He would have us believe that it is utterly impossible to generate malaria without the decay of vegetable matter. As we believe this theory to be erroneous, and as it is essentially of great importance that correct views
upon this subject should be taken and disseminated by medical men, I will mention a few facts detailed by Dr. Ferguson, who was the first to dispute the point with our Italian friend together with those under our own limited observation.

In a paper on the nature and history of marsh poison, Dr. Ferguson remarks, "In August 1794, after a very hot and dry summer, the British army in Holland encamped at Rosendaal and Oosterhaut."

"The soil in both places was a level plain of sand, with perfectly dry surface, where no vegetation existed, or could exist, but stunted heath plants."

"It was universally percolated with..."
a few inches of the surface, with water which, so far from being putrid, was perfectly potable.

Here fever of the intermittent and remittent type appeared among the troops in great abundance. It is interesting to observe that the soil in Walcheren is precisely similar. Sir Gilbert Blane describes it as consisting of a fine white sand, known in the eastern counties of England by the name of silt, and about a third part clay. It was after a hot and dry summer, also, that the British army suffered in that island from the epidemic fever, to a degree which Mr. Ferguson speaks of as being almost unprecedented in the annals of warfare. Pools of water still remained here and there among the rocks, so pure
that the soldiers were anxious to bivouac near them for the sake of using the water."

"Several of the men were seized with violent remitting fever before they could move from the bivouac the next morning."

"Tell them (says Mr. Ferguson) it had always been believed amongst us that vegetable putrefaction (the humic decay of vegetable matter) was essential to the production of pestiferous miasmas, but on the instant of the halt-dried ravine before us, from the stone bed of which (as soil never could lie for the torrent) the very existence of vegetation was impossible; it proved as pestiferous as the bed of a fever."

"After the battle of Talavera, the army retreated along the course of the Guadiana river, into the plains of Estremadura."
The country was so arid and dry for want of rain, that the sand and itself, and all the smaller streams, had in fact ceased to be streams, and were no more than lines of detached pools in the courses that had formerly been rivers.

The troops there suffered from remittent fevers of such destructive malignity, that the enemy and all Europe believed that the British host was extirpated.

The river Tagus is at Lisbon, about two miles broad, and it separates a healthy from a very unhealthy region. On the one side is a bare hilly country; the foundation of the rock, and the beds of the river, being rock; with fire and open water courses among.
the hills. This is the healthy side.

"But the Alentejo land, on the other side, though as dry, superficially, being perfectly flat and sandy, is most pestiferous."

Moreover, in and near Lisbon there are numerous gardens, where they keep water, during the three months absolute drought of the summer season, in stone reservoirs. These reservoirs, containing water in the most concentrated state of foulness and putridity, are placed close to the houses and sleeping rooms, the inhabitants literally live and breathe in this atmosphere.

"Yet no one ever heard or dreamt of fever being generated amongst them from such a source; though the most
ignorant native is well aware that
he only to crop the rice, and sleep on
the sandy shores of the Alentjo, where
a particle of water at that season had
not been seen for months, and when
water, being absorbed into the sand
as soon as it fell, was never known
to be putrid, he would run the grea
test risk of being seized with re
tent fever.

Many facts precisely similar to the above,
could be brought forward to show that
the decomposition of vegetable matter
is not essentially necessary for the
production of malarial; but we think
that the above will be sufficient to
prove clearly to an unprejudiced observer
that malaria has been produced with-
out any decomposition of vegetable
matters, therefore it cannot be argued that it is one of the essential elements of malaria.

We have been taught that the chief points known with regard to the source of malaria are, that it arises from the operations of the sun's heat on marshy grounds which have a clay foundation, or on the banks of tidal rivers, or in other words, heat and moisture with some intervening substance are alone essential to the production of malaria, and that vegetable decomposition has nothing to do with it, although it may occur at the same time and place. This theory is sustained by our own limited observation.

Thus, in the country we have described,
We have heat, water below the surface of the soil, resting on a firm clay foundation, which holds the water as would a basin, while the sandy soil is the intervening substance. Here we have malarial when vegetation is luxuriant, and as soon as the fall rains and first commences it disappears, and vegetable decay goes on rapidly.

Symptoms—Intermittent fever consist of three stages, first the cold stage. This begins with chills and constriction of the whole body; the nails are blue, the skin is rough (cutis anserina), and there are violent shiverings and chattering of the teeth, pain in the back, head ache, quick small pulse, a sense of oppression in the pericardial region,
and sometimes vomiting.
After these have lasted sometime, the second or hot stage comes on, beginning with flushes of heat, which gradually increase, until the skin is hot and dry. The face is flushed, and the temple, third with full and frequent pulse.
This stage may continue from three to six hours; then the third or sweating stage supervenes, usually commencing about the head and face, increasing until it becomes profuse over the whole body.

After this stage passes off, the patient feels well, but weak, until the next paroxysm which generally comes on in this climate the third day.

Sometimes, the paroxysm will recur on the next day, sometimes not until
The fourth day, and, sometimes again, it does not return until the seventh or fifteenth day, when the paroxysm recurs on the next day at it is called quotidian, when on the third, tertian and when it recurs on the fourth, quartan form.

Prognosis—Our prognosis in this disease should always be favorable—when properly treated we can prevent a return of the paroxysm.

Treatment—According to the usual practice little or nothing is required to be done during the cold stage, we generally put the patient to bed, give him as much covering as he wishes, place hot bricks to his feet and back if he desire it, but we do not think they will do any good.

In the second or hot stage, we would
give him forty or sixty drops lanadam to arrest this stage and bring on the third
we have run this remedy used frequently and usually attended with the happiest effects.

Generally it put the patient to sleep, and in a few minutes perspiration commences and becomes profuse, and in an hour or two the patient will awake considerably revived or you may combine quinine with the tincture of opium six grains quinine to forty drops tinct. opium.

Then in about two hours we would give six grains quinine and repeat it four or five times as may be deemed prudent.

Generally this will prevent the return of the paroxysm whether it be
of the quotidian, tertian, or quartan variety.

About the seventh day, as the disease is liable to return at this time, repeat the quinine in six grains doses every three or four hours until eighteen or twenty-four grains are taken, and continue every seventh day for three or four periods.

This treatment we think will be sufficient in any case of simple intermittent fever.

In concluding this paper, we have to remark, that it is conceded by all intelligent practitioners of medicine, that in the malignant form of malarial fevers, of which simple intermittent fever is the type, cold water applied externally will produce reaction.
in the cold or congestive stage, by increasing the inherent irritability of the muscular fibre and causing the system to respond to our stimulant remedies.

Therefore it has occurred to us that this remedy is equally applicable in the cold stage of the simplest form. Surely if cold ablutions will cause reaction in the more malignant it certainly will in this the simplest form. It might be argued that in this form of malarial fever it would be unnecessary to use any remedy to cut short the cold stage, as it generally terminates in a few hours without treatment.

But as the more malignant forms generally proceed from the simplest and as in most instances we can-
not tell when a patient is seized with a chill, whether it will be common or congestive, we think it would be advisable to cut short the cold stage as soon as possible, since we can effect it so easily without any danger to the patient, and by doing may prevent the malignant form of this disease altogether.