AN INAUGURAL DISSERTATION,
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BY
Asa W. Griggs
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CHARLES W. SMITH,
BOOKSELLER AND STATIONER,
NASHVILLE, TENN.
That Autumnal Fever is the legitimate product of vegetable decomposition, has been the generally received opinion of the medical profession, from the days of the Italian physician Sancisi, up to this time. It is thought that during the decay of most vegetable substances, a peculiar poison, the physical and chemical qualities of which have never been, nor in all probability, will ever be detected, is generated, and that this material, whatever it is, is the certain, and evident cause of the existence of Autumnal Fever. We must acknowledge that this theory is supported by very high authority, and at first sight appears reasonable; but in these later days when science is shedding her beautiful effulgence in our midst, we are more not content with "prima facie" evidence of such radically important facts, which surely demand of us to be based on the most firmfound of philosophic research. Now if the cause which
does produce this disease, be the result of the putrefaction of vegetable substances, why do not the effluvia, which emanate from decaying stacks of cotton seed and hay, exert at least some deleterious effect on the human organism? having passed two thirds of our life in malarious localities, we have never known this to be the case. you will find in many parts of the south and west, that farmers are careful to have considerable quantities of spoiled straw, decayed vegetable matter from about the fences, straw, leaves, and animal excrement collected in pens built for the purpose, which when the process of decomposition may have taken place, they are accustomed to convey off and spread upon their fields, in order to fertilize their soils. now, if this pestiferous poison is absolutely generated either by the decay of vegetable or animal matter, why are not sufficient quantities of it engendered
in these pens of manure, to produce the fever. I have personally assisted in its removal, and have never felt any evil consequences. Further, if it does originate certainly from the decay of the products of vegetation; any process which at all favors the luxuriance of vegetable growth, evidently must proportionately increase the cause; as a greater amount of material will be in this way afforded. But the contrary is the fact, for every one knows that cultivation is destructive to the cause. Again, if vegetable decomposition is unquestionably the actual cause of this fever, why does not the fever prevail most fearfully, when the greatest quantities of vegetables are undergoing decomposition? Yet we know that the fever most usually subsides, previous to the season of frost. From these data, we are led to the refutation of the old theory, which though long lived, must soon snap into oblivion.
The truth is, that fever is generated by the action of a specific poison, the production of which is quite independent of either vegetable or animal decomposition. The poison was originally called "Marsh Miasm," because it was the opinion that marshy grounds were essential to its existence. The term Malaria, is now preferred, and is so restricted in its signification, as to imply, Cause of Autumnal Fever. It produces no fever beyond 47° N. Lat. and is bounded east and west by extensive chains of mountains, and is known to increase as we approach the Equator in North America.

We have as good opportunities as any people in the world, to investigate its phenomena, and determine upon its cause. For it has been the scourge of our country for a great number of years. Very few people in the South, can boast of never having had an ague; and those few will prove to be the inhabitants of the older settled portions of the
Country. First impressions are difficult to eradicate. We are accustomed to believe a thing until we consider it a self-evident fact, more perfectly at rest in regard to it, though we have no right to any notion about it, having never made investigation ourselves. We have asserted that Malaria is not at all necessarily connected with the decay of vegetable or animal substances; and if we are unable to prove the fact, we will not urge its reception. We hold that if one case of autumnal fever was ever known to exist where there was no possible chance for it to have originated from the decomposition of vegetable or animal matter, that the single case, well established, should be most conclusive evidence to our minds, of the correctness of the assertion. Now the question is, did such a case ever happen? Undoubtedly, we find many inscribed on the records, of the eminently great doctor William Ferguson. Here
We learn that in the year, one thousand eight hundred and nine, "several regiments of the British Army" encamped in a hilly ravine, which had lately been a water course; fuddles of pure sweet water, Blood about in the excavated rocks; there was no vegetable growth there; for the soil was kept washed away by the rolling torrents; and we imagine that there were no animals there, as there was no vegetation for their subsistence. Yet several of the soldiers were attacked with violent remittents during the single night. Let us note that this was at the close of a very dry and hot season. From well authenticated statements like these, we are led in our consideration of the cause of Malaria, necessarily to the truth, that soil has no spirit in its production, except as a mechanical agent. The idea of some that soil is necessary to its evolution,
is, I suppose, predicated of the accident, that soils mostly impregnated with decayed vegetable
matter, generally belong to malarious localities.

But this is no reason why soil should have anything to do in its production. One thing is not
the cause of another, merely because it is found in its company; if this were so, Saturn would
be the cause of his satellites; yet the God of hosts
Spake into being.” Doctor W. Ferguson, states that
the soil at Walcheren, consists of one proportion
of white sand, and a half a proportion of clay;
and also that the soil of Rosendaal & Oosterhout
consists of those ingredients in the same proportions.
Now we know that soils like those can not produce
vegetation; still the records of the historian bear
testimony, that nearly all of the British army
was destroyed while it was stationed at these
several places; and that intermittent fever was
the instrument of destruction, which committed
Such fearful ravages in their ranks. Again this happened at the close of a very dry and hot season; moisture was circulating a little beneath the surface. Now from a careful examination of facts like these, we are wonderfully relieved of the burthen of our first impressions, and are led by imperceptible degrees to the knowledge of the truth in regard to the cause of Malaria. Only two of the original elements seem essential to generate this morbid and disastrous agent, about which there has been so much ill-grounded speculation. Heat and moisture. The moisture must be situate a little way beneath the surface, and sufficient heat must fall upon that surface; and where-ever a high enough degree of heat, and a great enough quantity of moisture can be found under these necessary conditions; Malaria will produce its specific effects upon the inhabitants of that locality.
It matters very little what may contain the moisture, so that we find it bearing its necessary relation to heat; where Malaria is produced we most commonly find it percolating beneath the surface of the earth, being restrained from sinking down, by a substratum of impervious clay, or frequently by foundation rocks, which act altogether as mechanical hindrances. Carroll county in State of Georgia, consists chiefly of red or gray lands, the former being most abundant in those parts of the county, which suffer most with malarial diseases. The lands about Villa Rica in the north-eastern portion of said county, are so very porous that after the most tremendous showers of rain, they dry up in a very few hours, so that the ploughman can resume his duties, this is certainly the healthiest spot in the State, when the year is reasonable.
Twenty years ago, it began to be settled up, in consequence of the discovery of the gold mines, a great number of pits were dug which have kept partly filled with water, a great part of the year ever since. Now so long as the water remains in these pits, we notice that no malaria manifests itself, but when heavy rains fell in the winter and spring, in a parching and dry summer, such as was last year, success! There is any amount of fever and dysentery, in the country. Brack is found not a great way beneath the top of the ground. Putnam et al, in the eastern part of the state, was twenty years ago undoubtedly amongst the sickliest portions of the world, it continued so for a number of years, it became quite free of malaria. The lands were fertile & the low grounds, are yet rich, producing luxuriant Cotton growth.
But for the most part, the lands have been badly used, and are now worn out. The citizens are no longer moving off to find health, for the County seems to have been purged of Malaria in most sections. Now this is accounted for by the "Old foggy" doctrine, in this way, that while the country was new, vegetation was more abundant and therefore fever was more rife, that fever has diminished the limits of its extension, in proportion to the age of the County. But we argue that when the land was fresh, that the depth from the top soil to the clay, was perhaps the most favorable distance, for the proper relation of heat and moisture in the production of Malaria: that fever has diminished in proportion to the disturbance of this relation, in consequence of the washing away of the soil, which necessarily diminished that depth. We sometimes have fever in countries, of very
deep soil; in this case it requires a very dry
that season; for if we increase the depth of
the soil, a more severe or continued drought, must
take place in order to raise the poison. The coun-
dry about water courses, it is true, is often
rich, and when it is overflowed, great quanti-
ties of decaying vegetable matter are left upon
the flats, exposed to the action of the Sun.
Now when there is a good enough resisting me-
edium beneath the Surface, and if this happen
during the hot season, and within the necessa-
ry latitude and longitude, we will have the
formation of Malaria, and would have had
it, any how, if no vegetable substance had
have been left on the surface. But if soil
be light & porous and have no resisting sub-
strata beneath, Malaria will not manifest
itself. It is said that no Autumnal Fever
is found in the Tyril woods. 'We ask Why?"
For I know that the most productive land we ever saw in our State, is "Ring Woods." The Prime
straw is very excellent manure, and is used, in this way a great deal by scientific farmers
of my acquaintance. Malaria is not often produced in these lands, because they are very general-
ly of a light porous character, and have not the ability to retain moisture properly
for its production: Or not because there is no vegetable matter to decay. Some argue that here
the decomposed matter also sinks as does the moisture.
Their own theory denies, that bodies after entire
decomposition, are further capable of producing
Malaria; and certainly complete decomposition
must precede the absorption of such substances,
by the earth. If Malaria must be evolved during
decomposition, if such substances are capable of
producing it. Most new countries are at first exempt from the dangers of Malaria, though
Their soils may present one expanse of decomposed, and decomposing leaves, grass, wild flowers, and other innumerable substances. But when the population increases, and they begin to kill the trees of the forest, which they do, by interrupting the circulation of their fluids, the destroyer comes, and desolates the land which but a short time before, was the haunt of health. The history of the early settlements in the west abundantly proves this fact. People who settled, and enjoyed for a while the blessings of health, soon began to go back to their old homes, which in their turn had become unhealthy. Prairies are carpeted with vegetation and are almost exempt from Malaria. Millponds when new, are productive of Malaria because the trees are deadened. Old ponds contain accumulations of vegetable matter, and are actually unhealthy.
The specific gravity of the poison under consideration, is much greater than that of common air; hence the reason, that it is confined to low grounds. Water has power to dissolve it, and therefore a rainy spell during the prevalence of Malarial fever, will check its progress. Malaria cannot often originate in cities, though many are situated on large streams which annually overflow, throwing out much vegetable matter, which undergoes decomposition. But the surface of the ground about cities is trodden and will not absorb moisture, or if it be absorbed the sun's heat is obstructed. The two can not be brought under the necessary conditions for the evolution of Malaria. Finally, Malaria is a specific poison and is only capable of producing specific diseases, which never degenerate into other diseases.