

MALARIA

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Malaria by James Henry Salisbury

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JAMES HENRY SALISBURY

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BY

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McNAUGHTON PRIZE ESSAY,

1882.

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ASSOCIATION.

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MALARIA.

ABSTRACT OF THE VIEWS OF THE PROFESSION IN PAST AND RECENT TIMES.

It has been observed from remote times that the exhalations from drying marshes and the desiccating beds of ponds, pools, and streams have a noxious influence.

These observations resulted early in vague notions as to the character of these emanations. Such notions were ill-defined down to the time of Sancisi, about two centuries back. He gave to the world a treatise — “De Noxiis Paludum Effluviis” — from which emanated the better defined views of the eighteenth century, which ascribed miasmatic emanations to vegetable decomposition.

During the present century, and especially for the last forty years, these views have been innovated upon by many who have carefully conducted chemical inquiries into the abnormal constituents of the mephitic atmospheres hovering over miasmatic localities.

The meagre and unsatisfactory results thus obtained have created many dissenters from the vegetable decomposition theory; and other hypotheses have been embraced, the most of which have been as intangible as the one rejected.

Some entertain the idea that decay generates a pre-

disposing poison, which, being inhaled, is sufficient of itself to excite disease, while cool nights and hot days may hasten the attack.

Others look upon marsh exhalations as only a cause that may enfeeble health, and thus enable the meteorological changes of the summer and first autumn months to more readily excite disease, which may also result in many instances without any such enfeebling influences.

Others refer all periodical diseases to mere meteorological changes, only regarding marshes as aids in the way of presenting evaporating surfaces by which the air is made colder and damper.

More recent authors, dissatisfied with these theories, have suggested a variety of explanations. The present well-received miasmatic marsh theory is well set forth and sustained by McCulloch.

Cragie, of Edinburgh, has, in his "Practice of Medicine," handled the subject in a more learned and lucid way, and presents both sides of the question. The objections presented by Cragie are: *The low temperature at which these disease-producing changes may take place*, the unaccountable production of them in places where there is no apparent vegetation and often no marsh, the exemption of certain places where all the seeming elements of decomposition occur, the effects of cultivation in eradicating the cause, and the sanitary variation of the same localities during different and similar years.

Professor Dunglison, in his work on hygiene, ably presents the fallacy of the received opinions on the subject of the causation of malarious diseases, of which, he holds, we are yet in total ignorance.

Dr. John Bell is also antagonistic to the entertained views, and refers all such morbid phenomena to the

modification of the sensible or appreciable conditions of the atmosphere.¹

Rammanzani, Daniels, and Gardner believe that malarias originate or consist of sulphurous emanations.

Hoffman, that malarious fevers arise from a lessened elasticity of the air.

Others, that they arise from the gases of decomposing compounds.

Ferguson believes that the only conditions necessary are soil and water.

Others attribute them to electrical and magnetic causes.

Dr. Mitchell believes they are produced by a living organic cause, and that that cause is cryptogamic.

The following list of cases, collected by Dr. Mitchell in his able little treatise on "The Cryptogamic Origin of Malarious and Epidemic Fevers," is interesting in this connection as evidence against the organic decomposition and meteorological theories, and as evidence in support of the true cause of intermittent fevers:—

"1. The canal in St. James' Park, London, was, at the time Dr. McCulloch wrote, notorious for the abundance of its aquatic plants, causing, even in autumn, an intolerable stench; yet he congratulates the inhabitants on their miraculous exemption from malarious fevers.

"2. The town of Kingston, in the Island of St. Vincent, is situated at the bottom of a semicircular bay, and at the foot of a mountain range, with high land on each side. The surrounding soil is thickly covered with decaying vegetable and animal matters. The Deputy Inspector of British Hospitals, Robert Armstrong, says: 'Here, then, we find all the elements necessary for the production of the vegeto-animal poison, — heat, moisture, decayed and decaying vegetable matter, with as

¹ *Medical and Physical Journal*, 1825 and 1826, pp. 274-316.

large a proportion of reptiles, insects, and other animal matters as is found in other tropical countries; yet, strange to say, the town of Kingston is one of the most healthy spots in the West Indies. I was informed by the staff surgeon to the forces, who had long resided there, that it was as healthy as the most favored spots in England.

“ 3. Bishop Heber states that the wood tracts of Ne-paul and Mulwa, having neither swamps nor perceptible moisture, become in summer and autumn so pestiferous as to cause their abandonment even by the birds and beasts.

“ 4. Fordyce tells us that in a certain part of Peru, where there is a total absence of water, and of course of ordinary vegetation, fevers and dysenteries render the country almost uninhabitable; and, according to Pringle, the dry, unproductive sandy plains of Brabant excite malarious fevers of great intensity.

“ 5. New South Wales extends from $10^{\circ} 5'$ to 38° south latitude, embracing a region similarly situated to that of America from the West Indies to the Chesapeake Bay. It is subject to a rainy season, and has bays, streams, estuaries, and extensive swamps. Around some of its towns there lies a deep, black, highly productive vegetable mould. It is liable to extraordinary inundations, which lay the country, as far as the eye can reach, under a sheet of muddy water. The temperature is quite as high as that of any other like latitude. The coast is covered with mangroves, and skirted by rocks, reefs, and islets. Among its products are mahogany, oranges, lemons, and guavas. The mosquito, with myriads of insects and reptiles, parrots, paroquets, and other tropical birds, announce a hot and productive climate, and lead us to look for a tainted air and a pestilential habitude; but, notwithstanding all these

threatening conditions, and the usual symbols of a sickly climate, New Holland is remarkable for its healthfulness. Pulmonary diseases, and, in the wet season, dysenteries, are observed, but the fevers incident to warm climates elsewhere are here of rare occurrence.

"6. Mr. Titian Peale, the zealous and successful naturalist who accompanied Captain Wilkes on the exploring expedition to the Southern Ocean, writes to Professor Duglison that he never saw a case of intermittent fever in either natives or strangers in the Polynesian islands, although the officers and men of the expedition lived and slept in the midst of marsh stench and mosquitoes, when the days were hot, and the huts open and exposed. Captain Wilkes describes these islands as fertile, moist, hot, but yet as remarkably salubrious.

"7. Captain Wilkes says Tongataboo is an organic island formed by coral; is rich, flat, and luxuriant, and oppressed by a temperature rising 98° , offering a mean, during the sojourn of the expedition, of 79.25° Fahrenheit. There was much rain, and, when clear, there were heavy dews.

"The writer supposes that these phenomena must create sickness, but he sees many old people, and admits that, although ashore at night, the people of the expedition were not sufferers. Mr. Peale also testified to the good health of the place.

"8. Ovolau (Fiji) is a volcanic island, the mean temperature of which for six weeks was 77.81° ; maximum, 96° ; minimum, 63° . Turnips, radishes, and mustard seeds appeared above ground in twenty-four hours, melons in three days, while marrowfat peas, fit for use, were produced in five weeks. On this island, volcanic as Sardinia, and hot as the Maremma, fevers, whether remittent or intermittent, were unknown.