WILSON (G. H.)

Epidemic Intermittent Fever;

ITS

ANNUAL PROGRESS

IN CONNECTICUT AND OTHER PARTS OF NEW ENGLAND.

BY

G. H. WILSON, M. D.,

MERIDEN,

MEMBER OF THE STATE BOARD OF HEALTH.

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HARTFORD, CONN.:
PRESS OF THE CASE, LOCKWOOD & BRAINARD COMPANY.
1883.

Great Barrington	79
Lee	78
Lenox	78
Lanesboro	79
North Adams	80
West Stockbridge	80

ISOCHRONAL LINES
SHOWING THE
ANNUAL PROGRESS BY TOWNS
OF
MALARIAL DISEASES,
BY
G. H. WILSON, M.D.
MERIDEN, CONN.

DRAINAGE MAP
OF
CONNECTICUT
BY
THEODORE G. ELLIS, C. E.
For the State Board of Health.

Scale of Miles.
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

80 3 Towns
81 20 "

Am. Photo-Litho. Co. N.Y.

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[From the Proceedings of the State Board of Health.]

EPIDEMIC INTERMITTENT FEVERS.

I desire to present a study of the movement of the present malarial epidemic in Connecticut and other parts of New England, illustrated by a map with isochronal lines, showing the extent and direction of its annual progress during the past twenty-three years.

The data upon which this article is based have been obtained from personal observations, and reports of medical men and others in nearly every town in the three States of Connecticut, Massachusetts, and Rhode Island, and are believed to be reliable. Some little variation in the particular year when the first cases of ague appeared in the respective localities was to be expected, owing to the comparative suddenness or insidiousness with which it changed the type of disease, as well as the degree of familiarity of the observer, with the forms he had to deal with.

In some instances, manifest errors in the returns have been corrected; but in nearly all other cases, including some doubtful ones, the lines of annual progress have been drawn upon the map as near to the reported date as was compatible with clearness of representation.

In a few instances the reported dates so far failed to correspond with those from adjoining towns, that they were inclosed in circles by themselves to indicate their exception from the general classification.

This fidelity to the sources of information interferes here and there with the symmetry of the diagramatic representation, but the alternative would be liable to sacrifice the truth.

To avoid confusion, a few lines have been dropped, or lost, in that of the year preceding, where the movement for several years was not lateral, but forward only.

With these exceptions, each annual line is drawn to include the towns in which malarial affections, chills and fever, had at that time appeared.

Having no means of showing intensity, or comparative prevalence, it may be remembered that the mode of invasion has been so uniform, in nearly all towns, and sections of towns, districts, and hamlets reporting, that we may assume for all, that the cases were few the first year, ten times as many the second year, and only became general on the third or fourth year.

It will be seen that the course, as shown by the successive waves, and later, by the concentric lines of its annual progress, indicates an advance in one definite direction, independent of any known or recognized influence, whether atmospheric, telluric, magnetic, or climatic, and through the most diverse conditions of surface, soil, humidity, and temperature, general and local.

We are unfortunately constrained by long usage to denominate the class of diseases under consideration malarial, and so in a sense endorse by word, what in the argument we must disown. Our inability to say what the cause of ague is, does not debar us, however, from proving what it is not. In fact, if the question can be cleared of the halo of error, which has hitherto surrounded it, the truth may more readily appear; and the object of this paper is to show, how little its conclusions agree with the favorite opinions of laymen and physicians, from Lancisi down, regarding the cause of ague, and its future in Connecticut.

In this epidemic we may be sure that ague is not produced by "heat, moisture, and decay," arising from ponds, reservoirs, swamps, or low grounds, overflowed by freshets, or exposed by evaporation; for new cases arise at any and all seasons of the year, and upon the highest land, as it has done in one-third of the towns in the State; nor by uncovering lately submerged lands, for in most towns no such lands exist. Not only does the disease not appear under the conditions appropriate to the paludal theory, but it does not confine itself to, or remain in, the alluvial tracts, even when established upon them.

Not from "disturbance of earth," by grading, ditching, or railroad building in the country, or by laying down sewers, or gas or water pipes in towns; for these operations have been going on for ages, while no ague came because of them, and it did appear at the same relative time in territory whose surface had or had not been disturbed.

Not from the "transportation of clay, manures, or other decaying and fermenting substances, from New Jersey and New York,"

or of sawdust in the river beds, floated down from the mills of the north; for in several towns so affected none of these things have been introduced to this day, and in others, the disease failed to appear at the time called for by the theory.

Not from "stagnant, or even foul water," no matter how offensive to smell or taste; for water with these qualities has always existed in many towns free from ague, and, on the other hand, many tracts of dry and sandy soil have been its favorite haunts.

Not from *bacillus malariæ* in the water, which would be carried *with* the current; while ague moves up stream, and *against* the current of every principal river in Connecticut.

It cannot be from germs carried by winds; for the direction for the year, in the State, and in New England generally, is north of west, and is very rarely, and for a short time only, in the direction of the ague movement.

Probably no error is so common among the people of towns, as that it may be caused by imperfect drainage, by the filth of houses. Doubtless bad conditions lower the vitality and decrease the resisting power of the system, and promote the liability to suffer from exposure to specific influence, but no amount of filth or degree of debility will produce one case of ague *de novo*.

Ague is specific, and can only be produced by its own cause. That ague is found in all these conditions is fortunate for the handy hypothesis of local influence, and the daily use of talkative laymen and lazy physicians; but *post hoc* is not *propter hoc*.

These alleged causes of ague might have been left to the defence of their inventors, and not have burdened this paper, but for the benefit of the contrast which the lessons and conclusions of the map present to the unsettled condition of thought on that subject.

In its invasion of this State the ague crossed, diagonally but decidedly, every one of our main rivers. Starting on the coast, west of the Housatonic, it crossed its valley the next year, but did not ascend it, more than about fifteen miles, in as many years. It next crossed the Naugatuck, within five miles of its mouth. The Quinnipiac, it first reached and crossed, in South Meriden, sixteen miles from East Haven; the Connecticut at Middletown, twenty-five miles from the Sound; and the tributaries of the Thames in Coventry, forty miles from the sea.

I would mention that in Rhode Island, also, it entered at

Westerly, and passed through the State to the northeast, leaving the southeast and northwest portions unaffected.

CLASSIFICATION.

The following table shows the towns affected by malarial diseases, grouped according to the years when the present epidemic first appeared:

1860. Southport.

1861. Fairfield, Milford, Orange.

1862. Darien, Bridgeport, Hamden Plains.

1863. Mt. Carmel, Centerville.

1864. Hamden, New Haven.

1865. The western border of North Haven and Wallingford, southeast corner of Cheshire, South Meriden.

1866. Woodbridge and East Haven.

1867. South Norwalk, Cheshire.

1868. Norwalk, Derby, North Haven.

1869. Wallingford, Meriden.

1870. New Canaan, Wilton, Middletown, Portland, Cromwell, Wethersfield.

1871. Stamford, Westport, Huntington, Southington, Berlin, New Britain, Newington, Middlefield, South Glastonbury.

1872. Weston, Seymour, Oxford, Birmingham, Hartford, East Hartford, Haddam, Durham, Rocky Hill.

1873. Easton, Trumbull, Naugatuck, West Hartford, Old Saybrook, Essex.

1874. Ridgefield, Burlington, Watertown, South Manchester, East Haddam.

1875. Greenwich, Beacon Falls, Roxbury, Woodbury, Torrington, Avon, South Windsor, East Windsor, Chatham, Chester, Westbrook.

1876. Southbury, West Oxford, Canton, East Granby, Warehouse Point, Manchester Center, Lyme, Saybrook, Guilford, Madison, Clinton, East Lyme.

1877. Monroe, Newtown, Brookfield, Bridgewater, New Fairfield, New Milford, Kent, Salisbury, Sheffield, Mass., Suffield, Ellington, Coventry, Columbia, Old Lyme, Glastonbury.

1878. Greenwich Town, Canaan, North Canaan, Norfolk, and Lenox, Mass., Hartland, Granby, Simsbury, Somers, Willington,

Lebanon, Waterford, Killingworth, and Agawam and Springfield, Mass.

1879. Cornwall, Bozrah, Montville, Great Barrington, Lanesboro, West Springfield, Chicopee, Northampton, Hadley, Hatfield, Brimfield, Dudley, Mass.

1880. Litchfield, Warren, Goshen, Winchester, Stafford, Tolland, Mansfield, Windham, Sprague, New London. In Massachusetts, Lee, West Stockbridge, North Adams, Southwick, Long Meadow. In Rhode Island, Westerly, South-East Providence, Barrington.

1881. Norwich, Thompson. In Massachusetts, Williamstown. In Rhode Island, fourteen towns.

The general direction taken by the main line of annual progress in this malarial invasion, will be seen, by reference to the dates on the map at the head of each successive wave, to be northeast by north, slightly curving to the left; and this course was pursued during fifteen years, or until 1875, when it had reached the town of Windsor on the Connecticut. After that time, the radiation, or lateral spread of the disease, became more decided, covering finally, nearly every town in this State, passing the line of Massachusetts, at Agawam, in 1878. In the next four years it had attacked all the towns in Western Massachusetts and a few scattered over the eastern part of that State, and, invaded Vermont and New Hampshire, as well as Rhode Island.

Or, to be more definite: The epidemic approached New England, through this State from the south, and first touched the shore, in two places, at about the same time, or within a year, the first being in the southern part of Fairfield and the second in Darien, from neither of which did it spread to any considerable extent, but gradually increased in intensity, as it usually has done, in the different towns, since that time.

The third point was in Milford in 1861, whence it extended over a great part of the State, reaching Orange the same year, and Hamden Plains in 1863, Mount Carmel in 1864, and New Haven later the same season.

In 1865 it passed the village of Quinnipiac, the eastern border of Cheshire, and the western part of North Haven and Wallingford, to South Meriden, where it crossed the Quinnipiac river. In 1866 it appeared at Morris Cove in East Haven, and at Wood-

bridge. During the next three years its advance was slow but steady, reaching Branford, the villages of North Haven, Wallingford, and the southwestern quarter of the city and town of Meriden in 1869; in 1870, the northwestern part of Meriden, and crossed the mountains to Middletown, Cromwell, Portland, and Wethersfield. In 1871 it passed to Berlin, New Britain, Southington, Newington, South Glastonbury, and Middlefield; in 1872, north to Hartford, East Hartford, Rocky Hill, and south to Haddam. In 1873 it advanced to West Hartford, on the north, Easton and Trumbull, on the west, and made a skip to Old Saybrook and Essex on the east, the towns between Branford and Essex not being affected until 1876–8. In 1875 it reached Windsor and spread laterally, involving many towns north and west. 1876 added a few towns to round out the concentric lines—Guilford, Madison, Clinton, Saybrook, Lyme, East Lyme, Canton, East Granby, and Warehouse Point. 1877 was remarkable for the number of towns attacked, although the progress was not much greater than before, but, extending eastwardly along the whole line from the seaboard to Massachusetts, it took in Old Lyme, Hebron, Columbia, Coventry, Ellington, and Suffield.

On the west, a similar wave included every town in the Housatonic valley, from Monroe to Sheffield.

1878 completed the width of the State, and added Agawam and Springfield, as well as the noted town of Lenox, Mass., and a tier of eastern towns, between Somers and Waterford.

In 1879–80 it made the usual advance in all directions except the west, which was already under its influence, finished the Litchfield region, and the journey to the State of Rhode Island, where three towns were first included in the reports. So also were all the towns in the four western counties of Massachusetts, and a few scattering ones farther east.

In 1881 it invaded anew the States of Vermont and New Hampshire, and more than half the towns in Rhode Island.

Among the important exceptions to the general movement, now described, was the outbreak in Danbury, Bethel, and part of New town, in 1865, twelve years before the main line reached them, and Sherman the previous year, 1876.

This region adjoins Westchester County, New York, where ague is perennial, and may have received its impulse from that direction. In fact, it seems very natural to include the whole

Housatonic valley above Trumbull, in a southwesterly wave from the neighboring State. Our information regarding the movement from that direction, though meager, strengthens the idea of a northeasterly movement similar to that in central Connecticut the same year, which reached from Old Lyme to Suffield.

There may be a question, also, whether the Litchfield region received its ague from the east or west. Colchester and Enfield may be included in the exceptions.

In reference to the source from which the ague reached us, it will be seen that its main line of progress, as has been said, is a slight curve northeast and southwest. Now by following it backward we naturally reach that part of Long Island where ague was rife from 1850–60, and continuing the course it carries us to New Jersey. The same rule would apply to the wave in western Connecticut.

In conclusion, it appears that New England is now suffering from an epidemic of intermittent, which has moved from the first, and is still moving, northeasterly, with an irregular front, continuous in time, but sometimes interrupted in manner.

It is not too much to suppose, that it came over from Long Island and New Jersey, and possibly further south, as well as from the same region over Westchester County; that its front extends from the Hudson on the west, to Buzzard's Bay on the east; that it has moved a hundred miles north and east, and still reaches out its favors to those belated northmen and down-easters, who have hitherto mocked us.

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