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TUBERCULOSIS IN THE HIGHLANDS OF
PENNSYLVANIA AND THE ADJACENT
COUNTIES OF NEW YORK.

BY

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If the profession were asked what district in the New England or Middle States showed the greatest immunity from pulmonary tuberculosis, the answer would probably be "The Adirondack Mountains." Without, however, disparaging that great health-resort, where such remarkable opportunities for pleasure and recuperation are afforded to the tens of thousands that flock there—a resort to which I am personally deeply attached—I would, nevertheless, call attention to a region much nearer the homes of many of us; in most respects more suitable for continuous residence, and apparently even more healthful than the Adirondack region itself.

The district referred to falls partly within the State of New York and partly within Pennsylvania. The seven counties along the southern border of New York are Chautauqua, Cattaraugus, Allegany, Steuben, Chemung, Tioga, and Broome. The neighboring region in northern Pennsylvania includes the counties of McKean, Potter, Forest,

¹ Read at the annual meeting of the American Climatological Association at Washington, D. C., June 1, 1894.

Clarion, Elk, Cameron, Union, and Sullivan, and at some distance to the eastward, Pike County. In all of this region, comprising over 12,000 square miles, nearly equally divided between New York and Pennsylvania (6545 miles in New York, 5557 in Pennsylvania), there is, according to the best available information, a population of over 1000 persons to each annual death from pulmonary tuberculosis. I confess I was somewhat surprised to discover that in New York State the southern tier of counties from Broome westward make the best returns.

Taking the reports of the State Board of Health for 1893, I find that in the maritime district, including New York, Westchester County, and Long Island, there are 400 persons living for every annual death from pulmonary tuberculosis; in the Hudson River district, 550. Next in order comes the Mohawk Valley; then the Lake Ontario and western region; next the central counties; then the Adirondack and northern district, in which there are from 854 to 985 persons living to one death from pulmonary tuberculosis; and finally and best of all, in New York the seven counties of the southern tier, with 1091 persons living to each death from pulmonary tuberculosis. The accompanying map shows this relative prevalence of pulmonary tuberculosis in the State of New York.

During each of the last four years the mortality from pulmonary tuberculosis in the southern tier of counties in New York, in comparison with the total deaths, is far below what obtains in other portions of the State. This is clearly illustrated by the annexed chart. It is evident that from whatever standpoint we look at the subject, the southern tier

IN EACH 1000 DEATHS FROM ALL CAUSES.

MARITIME DISTRICT.

Population, 3,200,950—per cent. city population, 87.17.

HUDSON VALLEY DISTRICT.

Population, 684,268—per cent. city population, 40.31.

ADIRONDACK AND NORTHERN DISTRICT.

Population, 386,680—per cent. city population, 7.50.

MOHAWK VALLEY DISTRICT.

Population, 376,116—per cent. city population, 30.93.

SOUTHERN TIER DISTRICT.

Population, 405,967—per cent. city population, 26.85.

EAST CENTRAL DISTRICT.

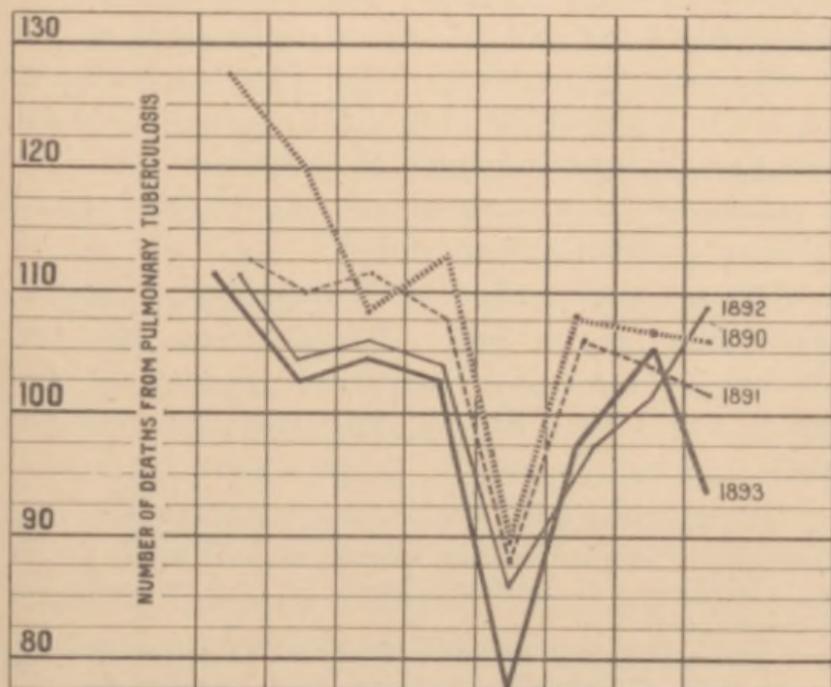
Population, 386,600—per cent. city population, 23.75.

WEST CENTRAL DISTRICT.

Population, 311,000—per cent. city population, 12.28.

LAKE ONTARIO AND WESTERN DISTRICT.

Population, 761,756—per cent. city population, 60.60.



of counties are the freest from pulmonary tuberculosis.

Among the characteristics of this region are the following :

Population. Sixty-two persons per square mile ; engaged chiefly in agriculture.

Soil. Highly productive. Geologic formation, limestone and sandstone.

Products. Hay, oats, potatoes, grapes, standing timber.

Temperature. The mean annual temperature in 1892 was 44.5° , or six and one-half degrees less than in New York City, and three and one-half degrees more than in the Adirondack region. The latest killing frost occurred on April 26th at Jamestown, and the first frost November 5th ; this was about the same as in New York, and gave an agricultural season twenty-four days longer than in the Adirondack region.¹

Rainfall. This varies from 37 to 47 inches annually in the southern tier. The amount is usually less than in other portions of the State.

Elevation. In the southern tier of counties the following elevations are noted :

Alfred Center, 1820 feet ; Angelica, 1340 feet ; Friendship, 1550 feet ; Binghamton, 860 feet ; Nineveh, 1032 feet ; Humphrey, 1500 feet ; Sherman, 1568 feet ; Elmira, 863 feet ; Savona, 1053 feet.

¹ The stations in the southern tier district reckoned were Jamestown, 47° ; Alfred Centre, 43° ; Angelica, 43° ; South Canisteo, 43° ; Addison, 45° ; Hammondsport, 43° ; Binghamton, 54° ; Humphrey, 50° .

In the Adirondack district the stations are Lyon Mountain, 39.2° ; Malone, 41° ; "Number Four," 40° ; and stations in Essex and St. Lawrence counties, 42° .

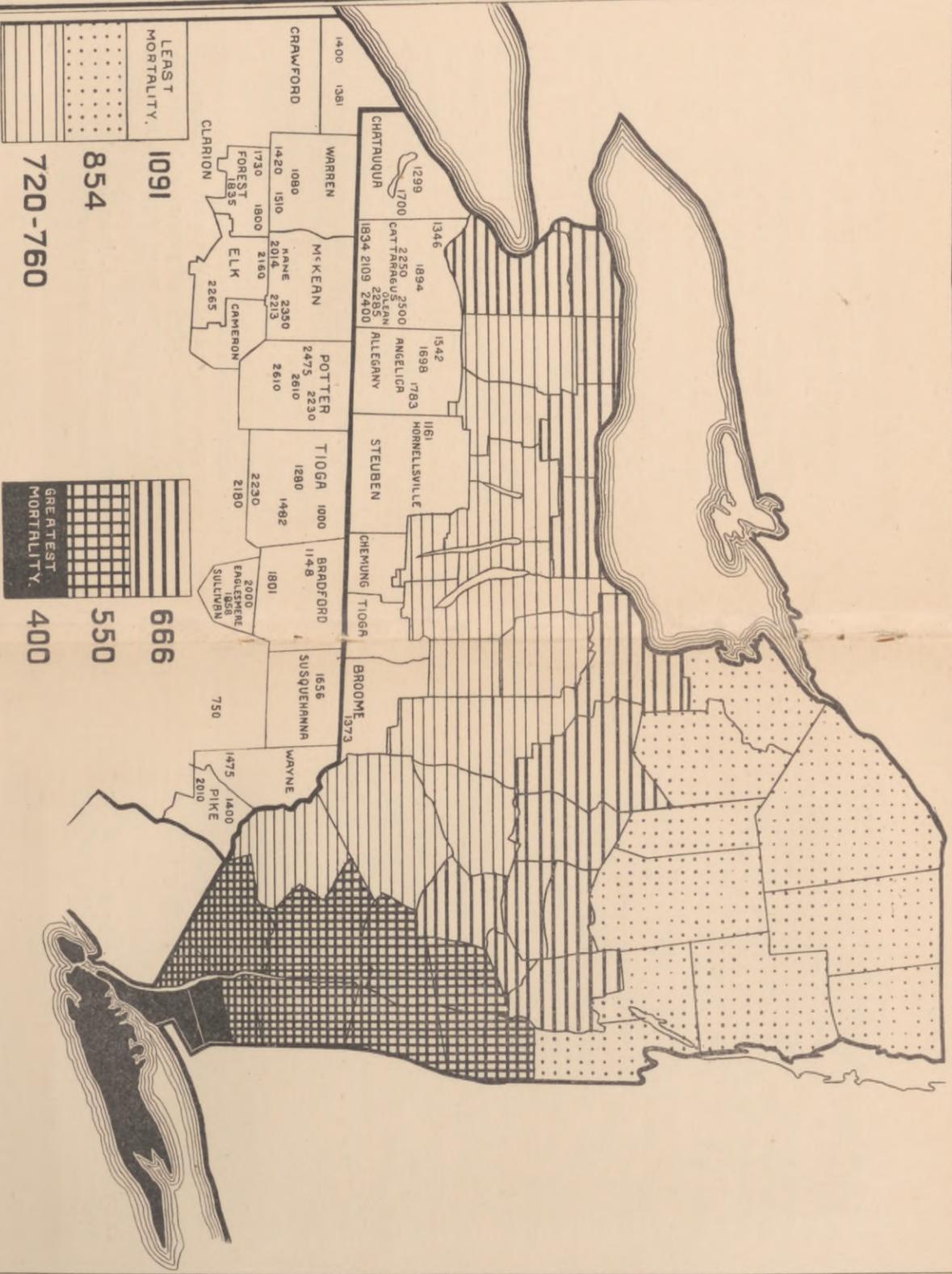
It will be noted that these elevations are somewhat below those of the stations in the adjacent district in Pennsylvania, to be considered later.

Position with reference to storm-tracks. The region considered is the farthest removed in New York State from the path of greatest frequency of storms. These are prone to pass down the valley of the St. Lawrence. This southern region is thus spared some of the cloud and rain accompanying the moving areas of lowest barometric pressure.

Accessibility and accommodations. All points in this region are reached by the New York, Lake Erie and Western Railroad, and desirable accommodations may be found about Chautauqua Lake and Jamestown.

No special claim has been made for this region with reference to the climatic treatment of pulmonary tuberculosis; but in Chautauqua, Cattaraugus, Allegany, and Steuben counties a new and uncontaminated field is opened for the treatment of tuberculous patients, with many opportunities for self-support not found elsewhere.

The Highlands of Pennsylvania adjacent to the New York border are of a somewhat different physical character. The country is wilder, the forests more extensive, the general elevation greater; it is a little cooler, a little drier, a little more primitive. Agriculture is not nearly so remunerative; the industries are more prominently lumbering and mining for coal, iron, and oil. Vast areas of hemlock, and here and there growths of pine cover the mountaintops, while there are many ridges timbered with beech, birch, and maple. The climate is superb during the months of May, June, July, August, and September; it is distinctly bracing, with the sun-



MAP SHOWING THE DISTRIBUTION OF PULMONARY TUBERCULOSIS IN THE STATE OF NEW YORK AND ADJACENT COUNTIES OF PENNSYLVANIA. The small numerals in the map indicate the altitude; the large figures below, the average number of persons living to each annual death from pulmonary tuberculosis.

shine of more southern latitudes. Cold weather usually sets in about November 1st, and continues in what is called a "solid winter" until the following April. For nearly four months there is usually good sleighing. A temperature of zero is not felt to the same degree as the freezing-point in most places where there is fog, where the air is less dry and bracing, and where the rainfall is greater and the soil more retentive of moisture. Pleurisy and pneumonia are uncommon, and epidemics of diphtheria and scarlet fever are said never to occur. A physician in McKean county writes me: "I have seen but three cases of true diphtheria during my fifteen years' residence here. I have never known a case of pulmonary tuberculosis to originate here, and the cases that come here are greatly benefited or entirely cured."

The broad and high table-land in northwestern Pennsylvania has great topographic advantages over the surrounding region, in that its surface is not so deeply cut by water-courses. The counties of McKean, Forest, Elk, and Clarion comprise the highest ground; the streams take their rise from this "Big Level," as it is called; they are still small and have not produced the deep gullies and narrow valleys which are a common feature throughout northern Pennsylvania.

In the outlying region the chief settlements are necessarily found along these water-courses, while the uninhabited mountain-tops, far above the foggy and fertile valleys, are rarely visited except by lumbermen.

In Sullivan County deep indentations penetrate its entire area; nevertheless, we find on one of the mountain-tops two beautiful lakes, about which are

clustered the summer homes of many who have discovered the great benefit to be derived from a residence in this attractive region.¹ The table-land of McKean, Forest, Elk, and Carbon counties is not so diversified, therefore the scenery is not so striking. On the other hand, the county has certain advantages. The timber is of more primitive growth and covers a greater extent; the air is drier and pulmonary tuberculosis is found to be less prevalent. McKean County carries off the palm in this respect. The last and only trustworthy data on this point were afforded in 1880, when it was found that 1330 persons were living to each death from pulmonary tuberculosis during the year. This was a much smaller mortality than obtains in the southern counties of New York (1091 living to each death from pulmonary tuberculosis), and less than one-fourth of that which is annually recorded in New York City and Philadelphia.

The great desideratum in the climatic treatment of pulmonary tuberculosis is a region unfrequented by tuberculous subjects; a country that affords, at moderate elevation, a stimulating climate; a dry and therefore a permeable soil; an evergreen forest; a clear sky, and ample opportunities for out-of-door life. The Highlands of Pennsylvania, and especially McKean County, provide all of these features. Kane, in the southwestern corner of McKean County, has already acquired some reputation as a desirable summer-resort. Personal testimony from patients who have gone there has been exceedingly gratifying, and I have no hesitation in recommending a residence in this locality for all

¹ Eagle's Mere and Highland Lake; elevation 2200 feet.

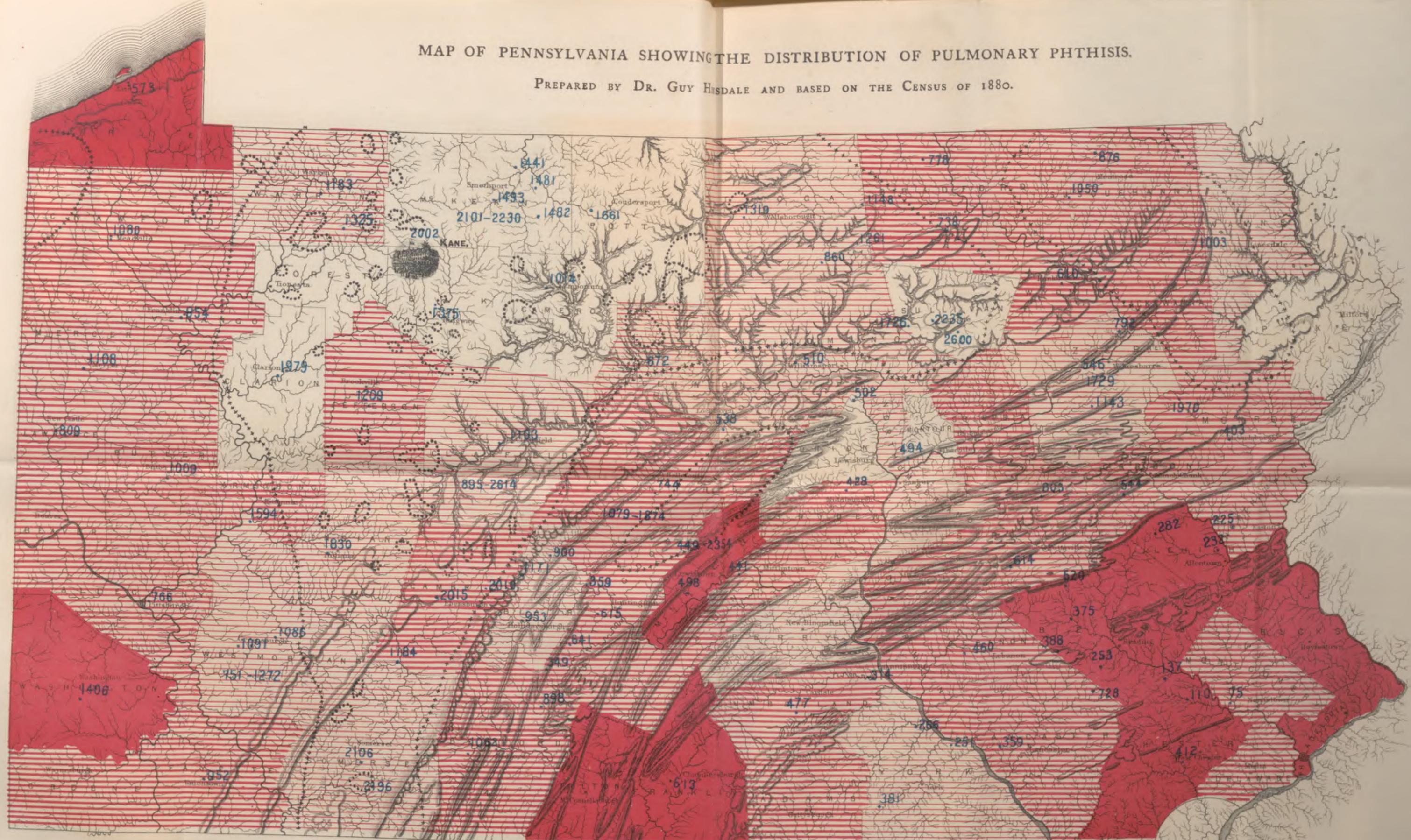
cases of pulmonary tuberculosis in at least the first and second stages.

In order to be utilized to the greatest advantage the patient should reach his destination in the late spring or early summer. He should become acclimated during the milder portion of the year, when the new surroundings make the most favorable impression upon his mind; when in his walks and drives, and in his intercourse with the resident population he is able to form those attachments to persons and things that go so far to incline him to stay beyond the period when most summer visitors are compelled to leave. The fine autumn days in northern Pennsylvania may be to him the most enjoyable and profitable season; the winter, with its abundant snow, unbroken by changes of temperature so common at the seaboard, will be well adapted, under intelligent supervision, for his open-air treatment.

There is no question in my mind that all the good that has been accomplished at the Adirondack Cottage Sanitarium might be repeated in Pennsylvania, and many lives be saved to the Commonwealth. A good hotel, easy walks and pleasant drives, and a convenient railroad constitute the present accommodations; but I hope that the time will come when either the State, in its generous provision for charitable institutions, or else private philanthropy, which seems never to tire of establishing new hospitals in cities, will turn a pitying eye on the tuberculous patient so that he may have the purest air under heaven, and the same skilful and sympathetic treatment that are so generously given to others.

MAP OF PENNSYLVANIA SHOWING THE DISTRIBUTION OF PULMONARY PHTHISIS.

PREPARED BY DR. GUY HISDALE AND BASED ON THE CENSUS OF 1880.



The base of this map is taken from a topographical map of Pennsylvania by Prof. J. P. LESLEY.

- Less than 500 persons living to 1 death from Phthisis.
- Between 500 and 750 persons living to 1 death from Phthisis.
- Between 750 and 1000 persons living to 1 death from Phthisis.
- Over 1000 persons living to 1 death from Phthisis.

++++ Areas of standing Hemlock.

..... Areas of standing Pine.

Figures in blue give elevation above tide.

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