The climate of the southern Appalachians / by Henry O. Marcy.

THE CLIMATE

OF THE

SOUTHERN APPALACHIANS.

BY

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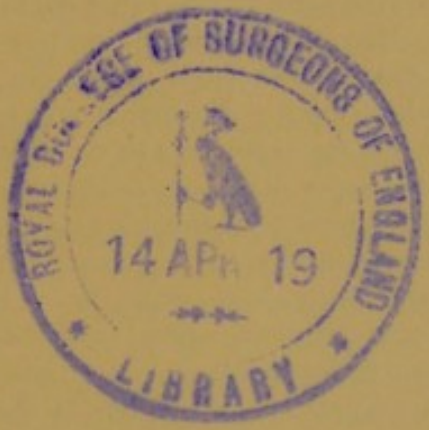

IN THE HEART OF THE ALLEGHANIES.—THE CLIMATE AND SANITARY QUALITIES OF WESTERN NORTH CAROLINA.

AU CŒUR DES ALLEGHANIES.—LE CLIMAT ET LES QUALITÉS SANITAIRES DE LA CAROLINE DU NORD OCCIDENTALE.

IM MITTELPUNKT DES ALLEGHANYGEBIRGES.—DAS KLIMA UND DIE SANITÄREN EIGENSCHAFTEN DES WESTLICHEN NORD-KAROLINAS.

BY HENRY O. MARCY, A.M., M.D., LL.D.,
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Some notice of the climatological factorage of the United States, as influenced by the great Appalachian chain of mountains, in their southerly extent, should be taken in this Section of the Congress. Geologically of the oldest formation, in their immense range, they extend from Canada on the north far down into Alabama.

Broken in the north into every diversity of pattern, they carry on their broad slopes, in their central portion, the great coal measures of Pennsylvania, separating Virginia from her western division, under the name of the Blue Ridge, and it is not until the border of North Carolina is reached that they assume their grander proportions. Here they separate into radiating lines, traversing the entire State, stretching down into South Carolina and Georgia, and are intimately connected by irregular cross ranges, so that the whole section, as viewed from some of the greater elevations, presents, as far as the eye can reach, in every direction, an extremely rough sea of billowy mountains, and within a limit of fifty miles there are twenty or more peaks that are over six thousand feet in altitude. This territory comprises about ten thousand square miles. The valleys, for the most part, have an elevation above the sea level of two thousand feet and upward.

The Blue Ridge on the east is the water-shed, although the Smoky Range on the west is of the greater altitude. Through this the streams have cut their way, often by extremely wild and picturesque gorges, sometimes traversed with great difficulty and even danger.

These mountain ranges present many features of scientific interest, chief of which is found in the composition of the granite. The decomposition of the rocks is most extraordinary, railroad cuts often extending fifty feet through the ledges, requiring only the use of the pick and shovel. The explanation is found in the fact that the feldspar is by far the largest factor of the granite; often it with the mica and quartz lie in separate layers, and to this peculiarity is due the exceptional purity and extent of the mica veins here found of greater size than elsewhere in the world. To the decomposed feldspar, setting free potash salts, is also due the marvelous tree growth which covers this entire territory, nine-tenths of which is yet the primeval forest. These forests consist chiefly of deciduous trees in great variety, oak and chestnut predominating. Under their broad arches, spreading out in leafy shade, eighty to one hundred feet above the traveler, one may ride on horseback almost anywhere, except along the streams, which are thickly hedged by an almost impenetrable jungle of kalmia and rhododendron, whose waxy leaves, in June and July, are almost hidden by the great bunches of pink and white bloom.

Pearly streams of the purest water make laughing music through every valley, and from the hillsides gush forth in endless number cool springs, often impregnated with iron, sulphur and other minerals. In a few places lithia springs are reported and claimed to possess much medicinal value.

The smaller streams abound in trout; the larger game is still found in the forest depths, holding attractions for the sportsman, while the seeming endless variety of plant growth furnishes interest to the botanist, and the lover of nature never tires of the kaleidoscopic pattern of landscape picture, on every hand, domed by the clear blue vault of heaven, which is itself often the panorama of cloud and storm rarely seen outside these mountains.

The great variety of forest and plant growth is found in the fact that these elevated ranges extend into a southern latitude. In climbing the sides of some great mountain, the different tree growth of two thousand miles in latitude may be met, until near the summit one wanders under the impenetrable shade of the balsams and firs peculiar to the great stretches north of Canada and to Northern Europe.

From the above description, ready inference will be made of a scant population, which is found, indeed, in a class of hardy mountaineers, simple and uncultivated in taste and habit, whose chief wealth lies in broad acreage of small monetary value, interspersed with little patches of corn and grain along the larger streams, and also in herds of cattle, sometimes of considerable size, which roam through the forest at will, and are often found grazing upon the highest tops of the mountains.

On account of the inaccessibility of this section until recently, it has been less known to the outside world than perhaps any other of equal size in the United States east of the Rocky Mountains. Before the late war, a few of the more wealthy planters upon the coast of the Carolinas and Georgia took refuge upon the easterly and southern slopes from the summer heat, and during the four years of conflict many families found safety here from the warlike incursions which sooner or later spread over nearly every other portion of the Confederacy.

When first known to the whites, this region was the central home of the Cherokee Indians, and in this tribe was found a civilization superior to any other of the races east of the Mississippi. When visited by William Bartram in 1772 (see his most interesting book published in London in 1778), he found them dwelling in houses made of logs, much as now seen occupied by the natives, and separated in families, living a peaceful life, cultivating their corn and beans in well kept fields. He repeatedly expressed his wonderment at the physical strength and beauty of the natives.

In these valleys may yet be seen in good preservation the great mounds of a prehistoric race, and following many a vein of mica has been traced the cuts and tunnels from whence were obtained the splendid specimens found in the tombs of these extinct races extending through the valleys of the Ohio and Mississippi.

Among the first of the railroad projects of the South, now more than forty years ago, was the plan to cross these mountain ranges, uniting the sea with the then early developing West. This was earnestly advocated, among others, by John C. Calhoun and Robert I. Hayne, then the two leading political economists of the South, the latter of whom died in Asheville, N. C., in the furtherance of this object. Owing to the disasters following the recent conflict and the engineering difficulties to be overcome, it is only very recently that this territory has been rendered by any means fairly accessible to travel. The invalid seeking health in this region, has also been met with the extraordinary disadvantage of not finding, even in moderate degree, the home comforts so essential to his welfare. However, the advantages offered to invalids, in considerable variety of disease, were so apparent that many have braved the discomforts attending such evils, and results have been attained of a character sufficiently marked to warrant the further study of the climatic conditions of this wide extent of country.

Asheville, the central metropolis of this region, has grown, within a short period, from a small village to a city of about nine thousand inhabitants. At first it was simply a summer resort for the residents of the low country south, and, until very recently, almost without winter visitors. Now a considerable percentage of the inhabitants consists of invalids from the North, many of whom have found such marked improvement that they have made it a place of permanent abode. Some of the residences are homes of wealth and comfort, and a number of excellent hotels offer good accommodation. The largest are the Swannanoa and the Battery Park. The latter, recently erected by Col. Coxe, of Philadelphia, is a model of excellence rarely surpassed anywhere. This was nearly as full last winter as during the more fashionable summer season. Dr. Battle, a resident of the hotel, who has had the opportunity of observing several hundred cases, assures me that he has rarely seen a patient whom he thought had made a mistake in selecting Asheville as a health resort. I saw several physicians who not only were enthusiastic in the belief that this section was one of great healthfulness, especially to be commended in pulmonary diseases, but said they themselves were compelled by disease to leave other localities, while here they were able to endure the fatigues of the active practice of their profession. One who four years ago had had frequent hæmoptysis and a supposed cavity was now nearly free from cough, had been actively at work, and certainly gave every appearance of recovery. From Dr. Watson we received a confirmatory report in his exceptionally large and varied experience. I have sent about fifty patients

to Asheville and vicinity within a few years, and, for the most part, with very satisfactory result.

The town has not been entirely free from diarrhœal diseases and typhoid, but great improvement has been made within two years in the introduction of pure water from a distance, and a system of good sewerage has been also inaugurated. The location is excellent, upon a plateau, with a beautiful outlook over an amphitheatre twenty miles in diameter, surrounded by mountains, yet clothed for the most part by forest.

Asheville is twenty-three hundred feet above the sea, and from its southern location possesses advantages in climate which, for mildness, is not unlike Southern France. From observations now made for a number of years, the mean average temperature of Asheville is: Spring 52.3°, summer 71.3°, autumn 55.3°, winter 37.2°, year 55.3° F. During a period of eight years the thermometer but twice rose above 88°, and only three times fell below zero.

I here append a carefully-kept record, tabulated by Mr. D. S. Watson, of Asheville, for the first four months of 1886. The cold wave of January will be remembered as having passed over the entire South, and was of a severity beyond that in the experience of "the oldest inhabitant."

I copy the following tables from a reprint of Dr. H. T. Gatchell:—

TABLE A.

Table of deaths from consumption in 10,000 of white population, excepting in Western North Carolina, where the estimate is for whites and blacks:—

Four counties in Western North Carolina	6.5
Three counties in South Carolina, with Aiken as central point	10.2
Minnesota	10.7
Four adjoining counties in Georgia, with Thomasville as central point	11.3
Peninsula of Florida	13.0
Mainland of Florida	18.0
Plains of Colorado (excluding Denver)	21.6
Maine	28.0
Los Angeles County, California	29.0
Massachusetts	29.0
New Orleans	30.0
District of Columbia	30.0
Charleston, South Carolina	31.4

TABLE B.

Table of deaths from pneumonia in 10,000 of white population, excepting in Western North Carolina, where the estimate is for whites and blacks:—

Western North Carolina	4.5
Los Angeles County, California	5.3
Four counties in Georgia, with Thomasville as central point	5.5
Florida	5.7
Minnesota	6.0
Michigan	8.0
Charleston, South Carolina	9.0
Maine	9.0
New Orleans	9.3
District of Columbia	10.0
Massachusetts	14.0
Plains of Colorado (excluding Denver)	17.0

The late Dr. H. T. Gatchell, of Asheville, was a careful student of the section of country adjacent to Asheville for many years, and his observations, first published nearly twenty years since, are of much value. His son, Dr. E. A. Gatchell, writes me his experiences are confirmatory of those of his father. The elder wrote: "In a series

of nine years the mercury did not rise above 90° F. any day in summer, the nights are always cool, permitting refreshing sleep. In winter it is seldom that a zero temperature is reached, while the air is comfortable, dry, clear and invigorating. . . .

"The following table gives the ratio of consumption in several sections of the country. The figures indicate the number of deaths from this disease in every thousand :—

New England (nearly)	250
Minnesota and California	150
Kentucky and Tennessee	100
Western North Carolina	30

To any who seek entrance to the mountain region from the east, Asheville will be the central point of interest and, if actuated by the restlessness of most of our countrymen, the first stopping place. There can be no doubt but many localities upon the easterly and southerly slopes of the Blue Ridge present great attractions for invalids. A number of my medical correspondents write that some of these localities are especially desirable because of the dryness of the atmosphere and freedom from fog, which, at certain seasons of the year, prevail to a considerable extent through the mountains.

Unfortunately, no records of temperature, sunshine, rainfall, etc., from other localities have come under notice. The same general features of the landscape and climate here prevail. Along some of the southerly slopes the "no-frost line" is clearly perceptible, and sanitaria, well selected at such localities, would offer certain marked advantages. It is greatly to be regretted that careful observations have not been made at some of these places as to the equability of heat, amount of sunshine, rainfall, etc., as well as to the absence of severe cold, a fact so abundantly substantiated that it cannot be doubted, although a little distance away frost and ice are of common occurrence.

On the Western North Carolina Railroad, at Morganton, is located the State Asylum for the Insane, selected because of the healthfulness and beauty of surroundings.

The Piedmont Springs, fifteen miles north of Morganton, have been a favorite resort for a generation, and a long, rambling hotel, venerable in service, offers attractions of quiet and rest. The springs are sulphur, not unlike the White Sulphur of Virginia, and a short distance away is a fine chalybeate spring, entirely free of sulphur. The surroundings are wildly mountainous, picturesque, of a rugged Swiss type.

A few miles south of Marion, at Glen Alpine, is a large hotel, long a favorite resort of the residents of the southeast. Here are said to be good springs of iron and sulphur. Lithia springs are reported at several places on the southeasterly slopes of the Blue Ridge, but little, however, is known of the medicinal value of the waters.

The railroad crossing the Blue Ridge is an engineering feat worthy of modern science, and compares favorably with the difficulties overcome in the famous Sœmmering Pass of Europe. To the north, in the range known as the Black, towers Mount Mitchell, the highest peak of the entire region, 6711 feet above the sea level. In a broken, undulating line runs the chain of the Blue Ridge to the Grandfather, fertile farms dotting its slopes here and there ; a region intersected by valley and mountain, picturesque, wild gorges, rippling streams, tumbling cascades, forests, deep jungles of rhododendron, with a mean annual temperature of 45° F., quite similar to that of Vermont. From this point, the Grandfather, diverges the Smoky Range, called by the Indians Unaka or White, which forms the boundary line of Tennessee. Its grandest representative is found at its very beginning, in the Roan, 6390 feet in height, and the beautiful peak called the "Yellow," a little less high than either, is the massive gate forever locked between these magnificent representative pillars of the splendid ranges of the Blue Ridge and Unaka mountains. Near the top of the Roan a large and comfortable hotel has been erected by General John P. Wilder as a sanitarium, open during four months of the year. It is the highest inhabitable spot east of the Rocky moun-

tains. The difficulties encountered in the ascent make the journey a severe one for the invalid, although the railroad from Johnson City to Cranberry passes at the base of the mountain. The station called Roan is the point of leaving the rail. There is in contemplation the speedy completion of an elevated railway to the top. The Signal Service station on the mountain has furnished interesting and important data for climatic study. The equability of the temperature has far exceeded expectation, and the electric phenomena are very interesting. It has long been claimed that the Roan offered an asylum to the victim of hay fever unequaled, but the irony of Fate has in it another illustration. Now that the recluse here can be surrounded by the comforts of modern life, the old enemy continues in attendance, for hay fever has been reported in the entire locality the last two years, including also the region about the Grandfather.

A new avenue has been opened through the mountains from the south to Asheville, via Hendersonville from Spartansburg. Ten miles south of Asheville, amid pleasant surroundings, is the Arden Park Hotel, situated halfway to Hendersonville; also a town with good hotels, and the entire section one of beauty and interest. A little south from here is Cæsar's Head, an abrupt "fault" in the mountain on the South Carolina border. Much is claimed for this locality on account of its dryness, but I know of no reports of actual observations. The landscape views are extremely varied and interesting. The elevation is about four thousand feet. The hotel is well kept and a popular resort in summer. The air is pure and bracing, and many attractions are found in the immediate vicinity to interest the invalid.

West is Cashier's Valley, a high table land about 3400 feet above the sea. It is of repute as a resort for consumptives. Still further west is the Highlands, a hamlet widely advertised as a health resort. It is reached with great difficulty, indeed to the confirmed invalid inaccessible, long distance from the rail on either side, over roads of the worst sort. Here the average rainfall has been found to be seventy inches annually, and, judging from the configuration of the abrupt mountain ranges bordering the lowlands lying south, it is presumable the rainfall of the entire region is excessive.

Down the French Broad river one easily reaches, by rail, the Hot Springs, which are becoming justly celebrated. The hotel accommodations are modern and excellent, while the baths are numerous and ample. The effect of the water appears not unlike the famous hot springs of Arkansas.

Westward from Asheville about thirty miles is the enterprising little town of Waynesville. In the Richland valley, one mile away, is situated the Hayward White Sulphur Springs. The proprietor, Major W. W. Stringfield, is justly popular and his new hotel has been well filled with guests. The elevation is over twenty-seven hundred feet. The valley is very lovely, and the view of the broad meadows and lofty mountain ranges as seen from the hotel is beautiful beyond description. The waters of the creek rush along with great rapidity over the whitest pebbles, and their gentle murmuring is sweet music to the troubled heart and weary brain. Much curative effect is claimed for the sulphur water, which wells up pure and cool into a marble basin at the edge of the valley. Westward from Waynesville the railroad climbs the Balsam range to a height, at the divide, of nearly thirty-five hundred feet. The dry, pure, bracing air has attracted hither invalids, who reported to me great benefit from a few weeks' residence, although the hotel is limited and designed only as a station for dining passengers. Beyond lie the beautiful broad valleys of the Tuckaseegee and Little Tennessee rivers, rapid streams of considerable size, only recently reached by rail; still further westward tower the splendid ranges of the Cowee, Nantehaleh and Valley River mountains, irregularly dividing the wide space of the base of the triangle made by the Blue Ridge and Smoky ranges. These are almost without exception clothed to the very top with the primeval forest, which yet covers nine-tenths of the entire territory. The

country beyond the iron ways is of yet greater interest to the invalid able to "rough it" somewhat. The roads are, of course, poor, the hotels intended as hostelries only, but the quaint, old-time manners and customs of a rude but always hospitable, honest people, are a never-failing source of interest, and often of profit, to the student of men as well as nature.

The valley of the Nantehaleh is of interest as a broad plateau between the ranges, watered by the loveliest of rivers. Its banks are thickly hedged with kalmia and rhododendrons which in June present a mass of bloom never seen outside these mountains. The delicate branches of the graceful birches gently sway in the breeze, the music of the laughing waters fills the air; all else is the unbroken silence of the primitive forest. Mr. L. R. Finch, who resides on a cattle ranch in the Nantehaleh valley, has sent me a daily record of the weather during the past summer. The rainfall has been large and the variations in temperature considerable. On the 13th of June there was a frost and a temperature record of 30° F. I found the two weeks which I spent here during August of the present year very agreeable, although a fire morning and evening was a comfort. Frost was reported about the 20th of the month.

The Valley River valley surpasses all the others in beauty and picturesqueness; broad and fertile, a landscape rarely equaled, set in a mountain frame of living green, of which the eye never tires. The small hotel is ever full, and when proper accommodations can be reached by rail it will become a popular resort.

Surrounded by a medium from which there is even momentarily no escape and which we must ever breathe, atmospheric impurities must be of the first consideration in the climatic elements. These are both chemical and atomic; while the relative amount of oxygen varies but little in a given weight of air taken from sea or mountain, its changes even in very slight amount are important. When deficient it is usually replaced by carbonic acid. The last is undoubtedly deleterious: nausea and headache are common in close rooms containing only one per centum of carbonic acid. These changes are also important as indices of an atmospheric contamination in a particulate way by the presence of foreign material, chiefly of a fermentative type. Since these are usually of the lowest origin of spore plant life, the general name of germ contamination has been given to it.

The value of recent investigations upon this subject, as a cause of disease, is one of the triumphs of modern science, and invests the study of climate with new interest.

Since these minute growths develop under conditions of the atmosphere usually marked by the lessening of the oxygen and increase of carbonic acid, such changes assume an importance greater than earlier supposed.

The organic material exhaled with the breath is molecular and is disseminated by atmospheric currents. The odor from the decomposition of these organic elements is generally perceptible when the carbonic acid reaches seven parts in ten thousand, and is strong when it amounts to ten parts. One of the chief causes of lung diseases in cities arises from the atmospheric contamination by myriads of microscopic cell growths.

One danger, by no means hypothetical, from the consumptive lies in the material expectorated. This very commonly dries where it is carelessly lodged, is pulverized and distributed as dust. In the inspiration of the atmosphere thus infected, the bacilli are lodged upon the mucous membrane of the air passages, and, if these are inflamed or broken, may find a suitable soil for generation. In this sense certainly consumption is a contagious or rather an infectious disease. Organic material in the air is ever to be looked upon as injurious. We can have no *chemical* test for discriminating between hurtful and harmless organic matter, since the poisonous infection is *vital*.

The mechanical admixture of water with the atmosphere in the form of vapor is a constantly varying factor, dependent upon a number of conditions, and although rarely

entirely absent is an element of itself comparatively unimportant; however, in combination with heat, albuminoids and the omnipresent microscopic cell plants, it renders possible changes of the highest importance.

Atmospheric moisture has a marked influence upon the skin and its glandular functions, as well as upon the respiratory tract. Its presence also lessens, in a considerable degree, the permeability of the atmosphere by the sun's rays, diminishing thereby the oxidizing power of sunlight.

Ozone, although we know far too little of it as yet, as an agent, from its admitted powers, is an important atmospheric factor in its bearing upon climate and health. It is an allotropic form of oxygen which has attained new properties of an intensely active character, supposed to have been produced chiefly by electricity.

Ozone owes its great value as a disinfecting agent to its exceedingly powerful oxidizing qualities. The compounds of ammonia, phosphorus and sulphur are acted upon with great rapidity, and the odors resulting from decomposition are removed instantly. It is probably destructive to all the minute vegetable organisms. Under the direction of a committee from the American Medical Association, a series of continuous studies in various sections of the country have been conducted for a number of years to determine if any relation exists between the development of acute epidemic diseases and changes of atmospheric character.

Ozone tests are being continually and carefully made. It exists in larger quantities in the atmosphere of mountains and forest country than elsewhere, and is increased most of all after severe thunder storms. To this, more than any other agent, is to be attributed the so-called "clearing effect upon the air" after a thunder shower, giving a delightful, exhilarating feeling in respiration never experienced after a long rain.

Temperature is an important climatic consideration. The remarkable results obtained from a winter residence at elevated localities in the Alps has demonstrated the possibility of great gain, although the cold is intense. Under such conditions, the atmosphere is nearly free from moisture and impurities, and the cold in the sunshine is seeming rather than real, since the diathermancy of the air is so great at considerable elevations that the sun's rays make it comfortable to remain out of doors when the ordinary thermometer registers a temperature of 20° or 30° F. The experience in our own country, of invalids at elevated regions of the North in winter, has been limited, and generally not favorable.

Patients have braved the winter in the Adirondacks, some with good results; but out-of-door exercise is limited, and the elevation of one thousand feet too little to make the rarefaction of the atmosphere important. This is also true in the White Hills of New Hampshire. A *warmer climate*, with *elevation*, is important, and one of the great climatic advantages of the elevated regions of Western North Carolina consists in the latitude, which is south of 36°, between 33° 53′ and 36° 33′. The winter temperature here is not unlike Southern France, while the elevation is from 2000 to 3000 feet. The invalid can comfortably be out of doors in winter here most of the pleasant days. One of the very best commendations of any climate is found in the largest number of hours and days suitable for exercise out of doors. This, of course, applies to rain and storm as well as cold.

The barometric changes occurring in the great aerial ocean in which we live are of the greatest interest. From their study, in large degree, has arisen the new science of "Probabilities" as to weather, which already governs so great a part of the civilized world in its movements. Air currents are created, with changes of temperature, moisture, etc., many hundreds of miles in length.

In elevated localities, broken by high mountains there is a more or less fixed cloud region, where the chilling of the moisture-laden atmosphere causes condensation; especially is this true during the summer months. During the day the surface of the lower

valleys is much heated, and the lower atmospheric stratum becomes rarefied and rises along the slopes, producing the breezes of the early part of the day. After sunset, the higher peaks and sides radiate the heat more rapidly than the base, and the cold, condensed air descends, causing often an evening wind. These air currents vary greatly with the configuration of the locality, and should be studied in relation to the selection of sanitaria.

The formation of clouds about the mountain tops is different. The warm, damp winds blow across the ranges, the air is suddenly cooled, and most of the moisture is precipitated in the form of mist, rain or snow. The air currents that cross the summits sink in various directions, condense and become warmer in descending, and, as a consequent, relatively drier. In a country intersected by diversified ranges this modification of the temperature of the air currents gives great variety to the cloud formation and rainfall. Often the wind blowing steadily in one direction will give abundant rain on the first range of mountains, while beyond it is clear and dry. These influences greatly modify the climate of the valleys, which is widely variable, according as they are sheltered from the winds and open to the sunlight. The extreme temperature between day and night is also more marked in the valley. Upon the side toward the sun, under the direct influence of its rays, the heat is increased by radiation during the day and diminished during the night. On the contrary, the differences in temperature between the heated and cold seasons is less marked in the valleys. Locations for residences in valleys should be selected that will furnish the greatest number of hours of sunshine.

When the atmospheric humidity is considerable, the morning and evening extremes of temperature in the valleys produce condensation of the moisture in the form of mist or fog, while the upper slopes may be entirely exempt from these.

An important climatic element of any country exists in the character of its surface. Its ability to absorb and retain moisture governs in large share its temperature, and the temperature of the soil in a marked degree governs the temperature of the air. They are usually alike. A loose, porous soil covered by a heavy tree growth furnishes the best surface for equalization of evaporation and uniformity of temperature. The earth's surface is charged with negative and the overlying atmosphere with positive electricity. The latter is much more marked in elevated regions broken in sharp mountain ranges. This produces in regions of considerable elevation, during the heated season, thunder storms of great intensity.

A mountain or elevated climate is advantageous to a variety of diseases influenced by a change of circulation. The lessening of the atmospheric pressure causes the diminution of the blood flow in the brain and central organs and increases it in the cutaneous surfaces. Imperfect nutrition, as exhibited in anæmia, indigestion, loss of appetite, etc., is greatly benefited by the pure, bracing air and exercise.

Neuralgia, nervous prostration, loss of sleep, headache, hypochondria, etc., lessen under the stimulus of a better nerve nutrition. The improved circulation and nutrition of the respiratory organs give relief in most cases of asthma dependent upon changes of the bronchial mucous membrane as well as upon innervation. Bronchial inflammations are usually benefited, and the increased respiratory function lessens the conditions favoring consumption, and often the disease itself in its incipiency is arrested.

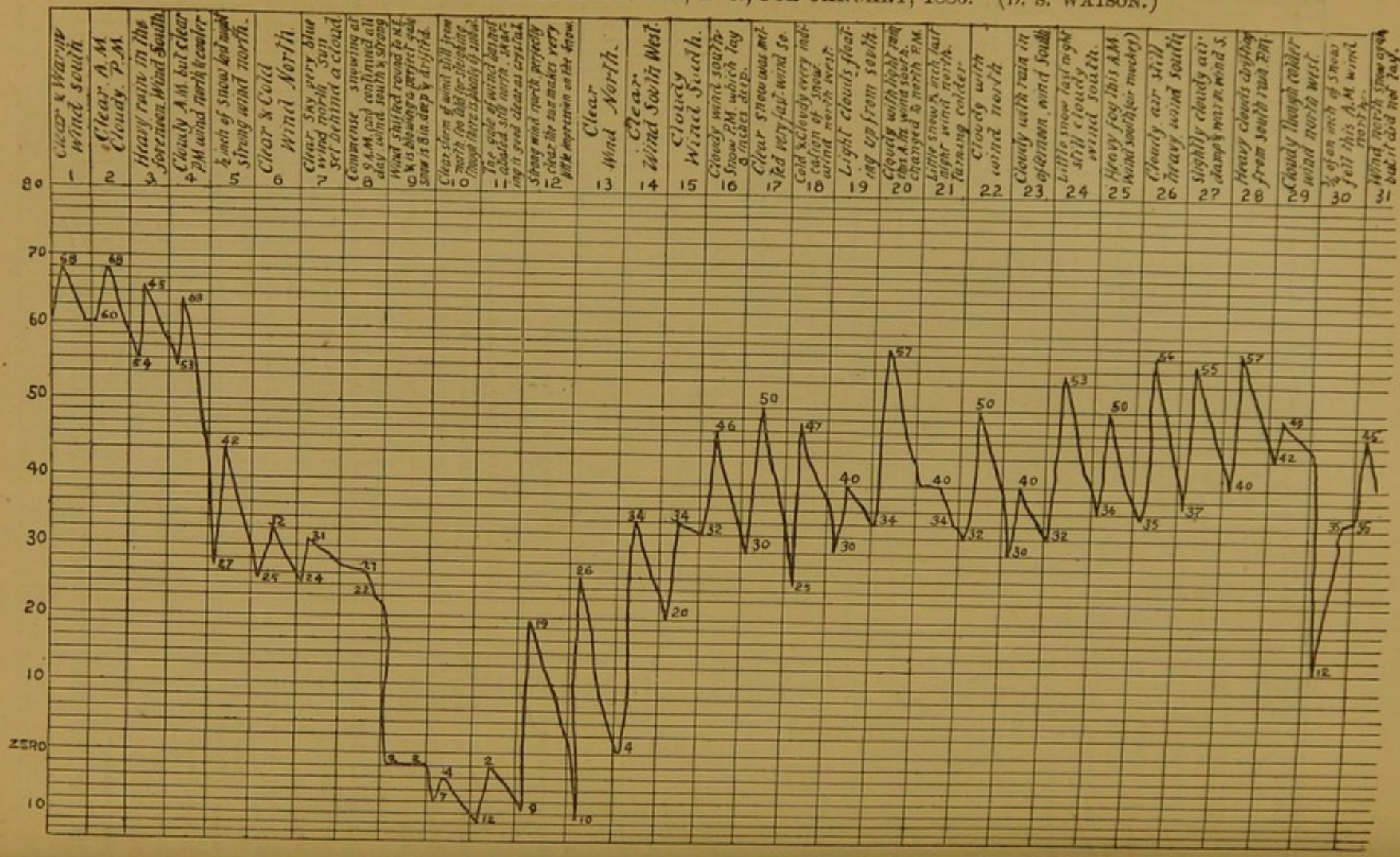
The invalid suffering from extreme weakness induced by any cause had better not attempt a residence in an elevated region unless by the advice of a competent physician, for, while an elevated climate is stimulating and has a powerful therapeutic action on most functions, it requires a certain integrity and resisting power, which the patient may not possess.

Organic diseases of the heart and great vessels are, almost without exception, made worse by the over-work demanded of the circulatory apparatus.

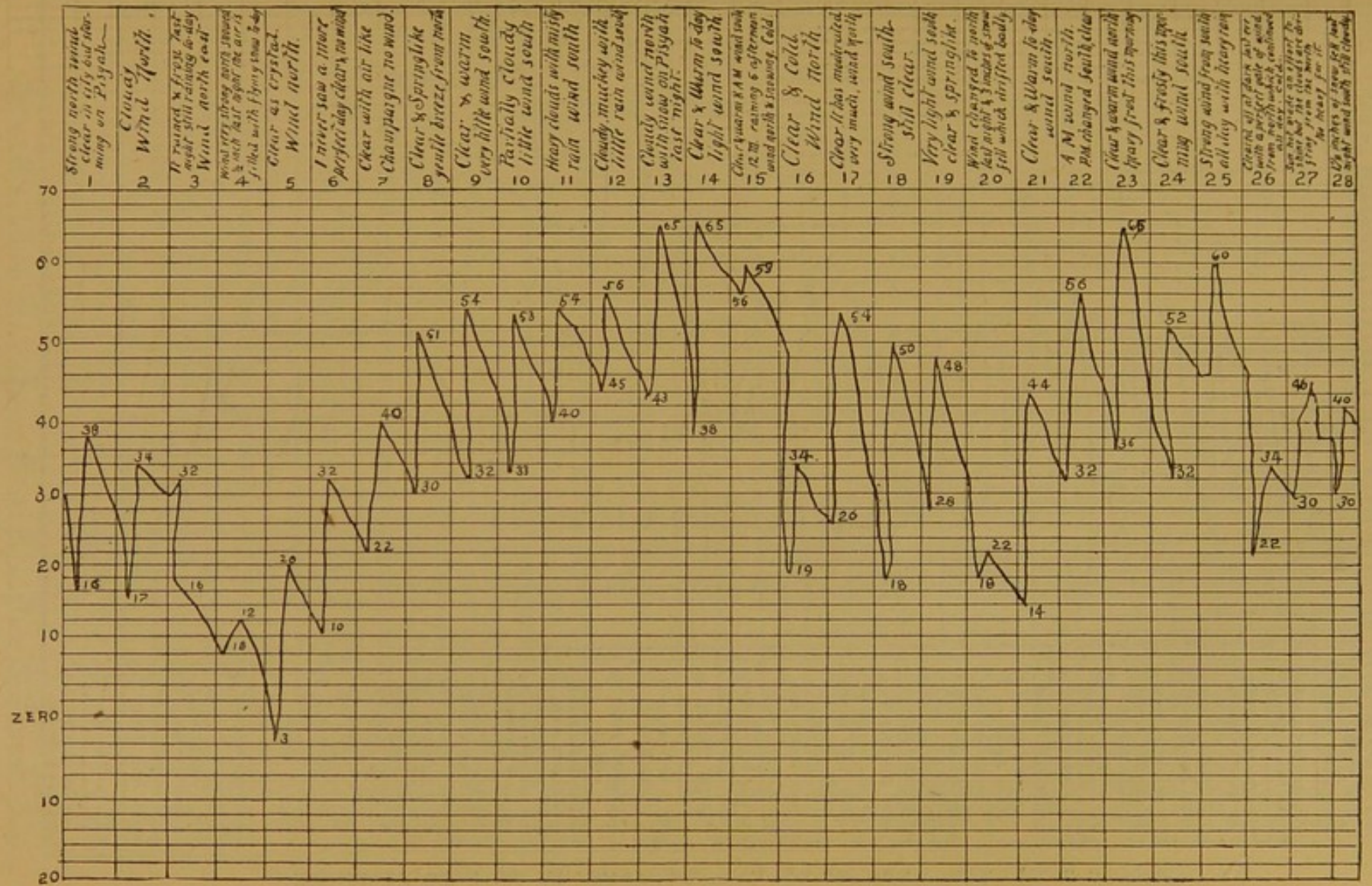
Perhaps the most important of all conditions to be considered is that of the mental state of the invalid when directed to any locality for the benefit of his health. They should not only be guarded against extremes of exposure, exercise, care as to diet, etc., but above all be given, as far as possible, a bright, hopeful, happy state of mind. All these prerequisites to improvement are so essential that the invalid does well to place himself under the care of a resident physician. Occupation to direct the attention from self should, as far as possible, be obtained. The sportsman finds recreative pleasure in the rod and gun, the botanist in the wide diversification of plant life, the geologist and mineralogist in the ever-interesting outcropping minerals about him. Indeed, Western North Carolina abounds in mineral wealth. Here are found the richest corundum mines of the world, rich ores of various kinds—gold, iron and copper—mica blocks, from six inches square to two feet, and marbles of most exquisite beauty, from pure white, pale flesh color to coal black, variegated by seams and stripes of every color. To one actuated by the need or pleasure, the rearing of flocks and herds, or the cultivation of the fertile fields, gives occupation and a healthful happiness.

"The bliss of a spirit is action," is the unwritten law of life, and he who seeks the renewal of its pulses must come under its universal requirement. To the invalid resting under condemnation from the violation of nature's laws, a wise selection of residence in the mountain regions of the great Appalachian chain holds out a hope often denied to the dweller in the cities of the plain. Everywhere mountains and streams, cliffs and valleys, gaps and glens, add charm to the scene and inspire delight in the lover of the beautiful and sublime, and while health is borne upon the breeze, beauty and grandeur fill the soul.

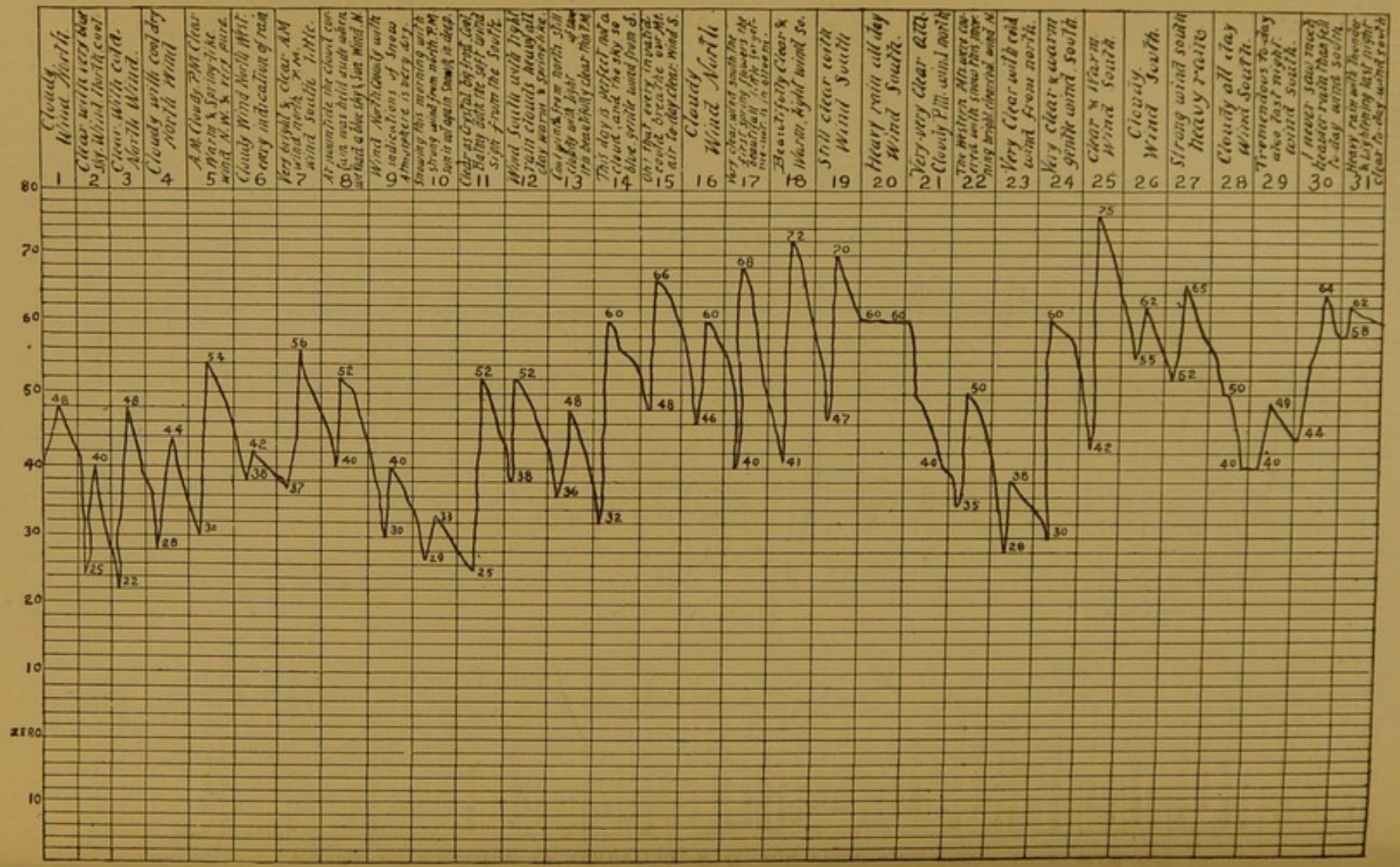
RECORD OF WEATHER AT ASHEVILLE, N. C., FOR JANUARY, 1886. (D. S. WATSON.)



RECORD OF WEATHER AT ASHEVILLE, N. C., FOR FEBRUARY, 1886. (D. S. WATSON.)



RECORD OF WEATHER AT ASHEVILLE, N. C., FOR MARCH, 1886. (D. S. WATSON.)



RECORD OF WEATHER AT ASHEVILLE, N. C., FOR APRIL, 1886. (D. S. WATSON.)