

with such a judicious amount of pressure as shall guard against this condition; nevertheless, he may be called on to treat it after it has occurred. If the hernial mass has begun to slough there can be no question; excision by ligature, elastic or otherwise, or by the knife, must be practised, and hemorrhage carefully watched for and checked. When the mass is small and appears healthy, gentle and continuous pressure, as by an elastic outside bandage, will usually coax back into the cranium that which belongs there. After complete reduction a lead or caoutchouc plate may be adapted to the shape of the part and applied externally as a part of the bandage technique.

An abscess may underlie the hernial mass; this is to be discovered and treated as above.

Adams has reported a case of irreducible hernia cerebri, in which he succeeded in covering the hernial mass with a flap of skin by a plastic operation, and Kusmin has reported another case, similar to it in many respects, excepting that he resorted to skin-grafting.

PURULENT MENINGITIS.—When compression symptoms supervene several days after injury, there is frequently good reason to suspect the presence of pus. This may be in the form of a circumscribed collection, *i. e.*, an abscess, which has already been spoken of, or it may mean purulent or suppurative meningitis. This accession of compression symptoms always, or nearly always, justifies the exploratory use of the trephine. Should it prove to mean compression from suppurative meningitis, there is no reason why the arachnoid cavity should not be washed out, but every reason why it should. In other words, it should be treated just as purulent peritonitis is now treated, that is, by washing out and draining the cavity. Recovery will not always follow this procedure, but it will in a fair proportion of cases, which are inevitably doomed if some such measure be not instituted.

IRRITATIVE LESIONS FOLLOWING HEAD INJURIES.—These are mostly to be grouped under two classes, *viz.*, convulsive (epileptic) and mental disturbances (mania, dementia, etc.). This hardly seems the appropriate place in which to discuss these at length, the pathological lesions being so varied, including depression of the skull, cystic formations, abscess, etc. Nevertheless there is each year a stronger tendency, on the part of advanced surgeons, to explore these cases when any external scar or depression may indicate rudely a point of attack. The element of risk is small, the prospect of at least alleviation sufficiently hopeful, in conjunction with the otherwise hopeless nature of the case, to justify the attempt, and besides, the degree of success attending these efforts is affording more and more encouragement. In cases of this general nature the exact condition is yet, in individual instances, too uncertain to permit of more than general operative directions. Those which have not already been given in this article can be found in their appropriate places elsewhere in these volumes. This paragraph has been made, therefore, suggestive rather than explicit.

WOUNDS OF THE HEAD DURING BIRTH.—With reference to injuries to the fetal head during artificial or natural delivery, it is necessary to add but little. Even large extravasations of blood are usually absorbed; in extreme cases, after waiting a few days, it might be well to incise, turn out the clot, and sew up the edges of the wound. Excoriations and bruises made by instruments need only conventional treatment. Fatal phlegmonous inflammation has been known to result from injury done by forceps; hence the advisability of antiseptic precautions and attention to detail. Symptoms and appearances arising from compression caused by the forceps will commonly subside as the head resumes its shape. Should positive fracture take place, it will probably run its course uninfluenced by therapeutic measures. No hesitation should be felt about surgical intervention in these cases, when otherwise indicated, simply because of the tender age of the infant or child. The prognosis must be based on the amount of injury. *Roswell Park.*

HEALING SPRINGS, ALA.—Healing Springs, Washington County, Alabama.

Post-Office.—Healing Springs. Numerous Cottages.
Access.—Buy ticket to Buckatunna, Miss., on the Mobile and Ohio Railroad, seventy miles north of Mobile; then take hack to springs, fourteen miles east. These springs were discovered in 1870, and have since attained considerable prominence as a health resort. The surface of the country about the springs is broken by high ridges and slopes, and covered by the long-leaved yellow pine. The soil is sandy, and the location has an elevation of about 400 feet above tide water. Like all resorts in this latitude, the winters are mild, the temperature seldom dropping below freezing point. The summers are not exceptionally hot, the mercury almost always sinking to 68° or 70° F. at night. During the recent summer the highest temperature observed was 92° F. The springs are eleven in number, but only four are much used. The "Creek" Spring boils up in the centre of a small stream and flows about eight gallons per minute. It is said to contain lithia, iron, and a trace of arsenic. "Mound" Spring, yielding thirteen and a half gallons per minute, issues from a small mound five or six feet higher than the ground around it. Iron, magnesia, lithia, and sulphur are said to be among its ingredients. "McCarty" Spring, supplying seven gallons per minute, is supposed to contain an acid of some kind and also iron. Its waters are used extensively for chronic diarrhoea. "Scholes" Spring contains iron and sulphur. Many varieties of skin affections, chronic renal diseases, and disorders of the bladder, alimentary tract, and liver are said to receive benefit from the waters of the Healing Springs. *James K. Crook.*

HEALING SPRINGS, VA.—See *Hot Springs, Va.*

HEALTH RESORTS.—A change of climate and environment is one of the most valuable means we possess for the treatment or prevention of disease, and this is also to a large extent true in the thorough use of such climate as exists wherever the patient happens to be,—the home climate. To obtain the maximum benefit from any climate, however, one must live in it, *i. e.*, out of doors; hence the beneficial results from an indifferent climate rigorously utilized may be, and perhaps most frequently are, better than those from a much superior climate only partly made use of. An illustration of this statement is found in the results obtained in those sanatoria for pulmonary tuberculosis which are situated in ordinary temperate climates like Falkenstein, or Rutland, Mass., such results being more favorable than those obtained in open resorts with more advantageous climatic conditions. The use of the health resort should be regarded as a therapeutic measure to be as carefully considered and watched as the administration of a drug. Many climates like many drugs are, and must be, empirically used. We can only try them and await the effect. Asthma is a striking example of this use. Why one climate avails and another not we cannot always say, and we can refer the effect only to individual idiosyncrasy, or to some subtle undiscoverable influence in the resort, or to the morbid state of the patient.

Ease and rapidity of accomplishment are always alluring factors in any undertaking. It is easier to take drugs and keep on in the same accustomed way of life than to make the sacrifice which a change of climate so often entails. Hence the inestimable value of climatic therapeutics remains so largely unappreciated and unused, even by the profession. And, further, there is the obstacle, often insurmountable, of the expense involved in a change of climate. Hygiene, dietetics, hydrotherapeutics, and climate are, and always will be, the principal agents in producing cure or amelioration in a large proportion of diseases, and drugs, after all, are only aids in better applying or restoring to their legitimate place these great natural bulwarks of health.

When a physician advises a change of climate he means that his patient should take up a temporary residence in some place known as a health resort and supposed to

possess climatic conditions more favorable for the disease of which his patient is suffering than the climate where he is. Intelligently to prescribe a health resort, then, one must consider: first, the classification of climates and their geographical distribution; second, the value of the various climatic factors and their influence upon the human organism; third, the adaptability of special climates to the treatment of special diseases; fourth, the qualifications other than those of a purely climatological character which should be possessed by a health resort. Various classifications of climate have been made by different authors. Weber's appears to be the simplest. He makes two general divisions: *marine* and *inland* climates.

Under the former Solly makes the subdivisions of ocean, island, and coast climates; and under the latter, of low, medium, and high climates. The ocean climate is obtained by means of sea voyages—such, for instance, as the one to San Francisco, via the Isthmus of Panama, or to the Mediterranean, or from England to the Cape of Good Hope or to Australia, or, best of all, when possible, a yachting trip which can be prolonged at pleasure.

The ocean climate is characterized by purity of atmosphere, moisture, and equability of temperature; the impregnation of the air with salt, iodine, and bromine may also be of value. Of course many of the weather characteristics depend upon the latitude in which the voyage is taken. Such a climate is a sedative to the nervous system and a stimulant to the appetite and digestion; it is a *sedative tonic*. A sea voyage is applicable to some forms of tuberculous disease, mental exhaustion from overwork, insomnia, various forms of scrofulous disease, anæmia, and chlorosis.

The climate of small islands sufficiently removed from the mainland is much like that of the ocean, modified more or less by currents and by the configuration of the coast. Bermuda, Block Island, the Isles of Shoals are good examples of island climate.

Coast climates resemble that of the ocean, modified by the land influence. Here we have the land as well as the sea breezes, causing less equability and less constant purity of air. A coast climate is also influenced by the configuration and character of the adjacent land. For example, the Alps influence the climate of the Riviera, giving rise to the cold winds which sweep down upon the coast; the desert influences the character of the climate upon the African coast; the inland desert the littoral of Australia. The Undercliff at Ventnor, by its shelter from land influences, is rendered a more purely marine climate.

Weber also divides marine climates into *humid marine* and *marine with moderate or slight humidity*. Moreover, for health-resort purposes, such climates as fall under the above subdivision, and at the same time are warm, are chiefly to be considered.

Of the humid marine warm climates, Madeira, the Canaries, the West Indies, the peninsula of Florida are examples. Such climates exercise a sedative effect upon the nervous system and mucous membranes, and are useful in chronic bronchitis with emphysema, bronchial catarrh, and pulmonary congestion in elderly people without cardiac complications. Of the warm marine climates with moderate or slight humidity, we have the Riviera, the coast resorts of southern California, southeastern Georgia, and Solly also includes Florida under this head. The effect and uses of such climates are practically the same as those of the previous class. All the seacoast resorts of the North may be classed under *cool* marine climates with moderate humidity.

Of the inland climates we have first the low ones, such as Egypt, Pau in France, Lakewood, the interior health resorts in the Southern States, the low plains of Arizona, portions of Texas, and the inland resorts of southern California, such as Riverside and Redlands.

Such climates are also susceptible of classification according to temperature and humidity. Their uses as health resorts are very varied; pulmonary tuberculosis, bronchitis, cardiac and renal disease, gout, rheumatism,

are some of the diseases likely to be benefited by a low, dry, warm inland climate.

Medium and high altitude climates can be considered together as the difference is only one of degree. Solly makes the distinction depend upon the amount of altitude; from 4,500 feet up he calls elevated climate. Not alone does the elevation influence the character of the climate, but the latitude, the proximity to the ocean and to mountain ranges, and the configuration of the surrounding country; thus Estes Park in Colorado is comparable with Davos in Switzerland, although the former is 1,000 or more feet higher than the latter. The general climatic characteristics of the mountain health resorts are: a rarefied atmosphere, aseptic air, increased diathermancy, dryness, abundant sunshine, and a comparatively low temperature. The chief peculiarity is the lessened barometric pressure, and upon this feature probably depends a large part of the value of such a climate in the treatment of pulmonary tuberculosis. The purity of the air of high altitudes has been compared to that of the ocean and of the desert.

High-altitude climates are found in all the four quarters of the globe: the Alps in Europe; the Andes in South America; the Himalayas in Asia; the Rocky Mountains in North America; the lofty plateaus of Mexico; and the high altitudes of Australia and South Africa. Davos, St. Moritz, Arosa, and Leysen are examples of high-altitude health resorts in Europe; while Les Avants, Goerbersdorf, St. Blasien, and many others in the Black Forest, Harz Mountains, and Alpine foothills are illustrations of mountain resorts of moderate elevation.

The elevated resorts of the Rocky Mountains, from 5,000 to 7,000 feet, have a dryer climate and more sunshine than those of Europe. The principal resorts are found in Colorado, New Mexico, Arizona, Utah, and Texas. Many which are climatically valuable are unavailable on account of the absence of suitable accommodations.

In Colorado we have Colorado Springs, Denver, Estes Park, Glenwood Springs, and others; in New Mexico, Santa Fé, Albuquerque, Las Cruces (3,800 feet) and Silver City; in Arizona, Prescott, Phoenix (1,100 feet), and Tucson (2,400 feet); in Utah, Salt Lake City; in Texas, El Paso. There are also many resorts of lesser elevation in the Adirondacks, Alleghenies, Appalachian and White Mountains, such as Saranac, Asheville, Bethlehem, Kane, and Mount Pocono. In Mexico we have the City of Mexico, Guadalajara, Aguá Calientes, Toluca, all over 5,000 feet high, and many others. In South America we have the region upon the Pacific slopes of the Andes, many years ago made known as favorable for phthisis by Dr. Archibald Smith. The elevation varies from 8,000 to 12,000 feet, and the chief climatic characteristics are: (1) Moderate warmth; (2) equability of temperature; (3) abundant sunshine; and (4) moderate dryness. There may be mentioned Jauja, Bogota, Quito, Arequipa, and Huancayo.

"Unfortunately," says Weber, "at none of the resorts is the accommodation good enough for invalids."

In India, Darjiling (8,200 feet), Simla, Landour, Naini Tal, and Murree are some of the best spoken-of stations. According to Weber, the testimony of Indian medical officers appears to be rather against the use of the Himalayas in the treatment of lung diseases "and apparently this is on account of the heavy rainfall." In South Africa, Kimberley, Bloemfontein, and Pretoria, all 4,000 feet high or over, are some of the places used as health resorts. "The accommodations for invalids," remarks Williams, "are not up to the European standard," but the climate, he says, has yielded excellent results in his hands.

In Australia, there is the highland region embracing the slopes of the Australian Alps, with an elevation of from 2,000 to 7,000 feet, but only Mount Macedon in Victoria (2,500 feet) and Mount Victoria, New South Wales (3,490 feet) offer satisfactory accommodations to invalids.

There is also the Darling Downs in Queensland (2,000 feet).

To consider now briefly the value of the various climatic factors and their influence upon the human organism:

Temperature.—Extremes of temperature, unless more or less neutralized by some modifying influence like the greater diathermancy of the air in altitudes or extreme dryness, are incompatible with a genuine health resort. That a normally well man can endure great extremes of heat or cold with impunity for a limited season we know, but for very many invalids a moderately warm or cool temperature is to be desired, with a moderate variability. Extreme or rapid changes of temperature are dangerous.

Humidity.—In the majority of health resorts a dry or moderately dry air is desirable. Moist air renders the cold more intense, and the heat more oppressive; moist heat debilitates, favors decomposition, retards evaporation from the skin and lungs. Moist cold increases the functional activity of the kidneys and predisposes to the catarrhal affections of the respiratory and genito-urinary tracts.

When judging of the dryness or moisture of the air of a resort, the relative humidity is generally taken as a guide, but it must always be considered in connection with the temperature; and, in order to make a fair comparison, some standard temperature should be taken. 55° F. is given by Wendt as the mean annual temperature of the United States, and this can be taken as the standard.

Assuming this standard, we can, according to Solly ("Medical Climatology," p. 34), make the generalization that 50 per cent. or less relative humidity is dry; 65 to 75 per cent. is medium; 75 to 85 per cent. is moist, and any above very moist. The dew-point and evaporation are also to be taken into account in considering the humidity.

Rainfall.—"It is generally assumed," says Weber (Allbutt's "System of Medicine," vol. i., p. 252), "that considerable rainfall is an injurious condition, but this is not always correct. Provided time enough be left for the invalid to take exercise and sit in the open air, rain is to some degree useful, as it has a purifying influence upon the atmosphere. The notion that *snow* is injurious is even more incorrect." This is especially true when it remains on the ground without melting for a long time, as at Davos, for example.

Whether or not a given amount of the rainfall is a disadvantage is also to be considered in connection with the character of the soil; if the latter is porous, quickly absorbing moisture, the amount of rainfall is of less importance than if the soil is clayey and holds the water.

Wind.—Winds vary in their effects according to the temperature, humidity, purity, and velocity of the air in motion. They often produce great and sudden changes which are always undesirable for an invalid. Cold, damp winds are never good, and cold or hot dry winds, like the Mistral of the Riviera or the Föhn of Switzerland, are too irritating or debilitating.

The direction of the wind is also an important factor in its influence upon the invalid, for from one direction it comes fresh and pure, blowing over forest expanses or from the hills, while from another it may come laden with dust and germs, exhausted of its ozone and deficient in oxygen. From another direction they "bring with them, so to speak, the climates of distant regions."

Beside their direct action upon the human organism, winds are great ventilators and purifiers of the atmosphere.

Light and Sunshine.—A large amount of sunlight is requisite for a good health resort; it cheers the mind, has a stimulant and tonic effect upon the nervous system, probably favors tissue metabolism, and destroys various bacteria, notably the tubercle bacillus. A cool, dry air and sunshine such as is met with in the high altitudes, is a combination of striking value for the tuberculous patient.

The influence of light and sunshine upon the naked body is probably far more potent for good than we real-

ize. The reader is referred to two interesting papers upon this subject by Dr. William Duffield Robinson in the Transactions of the American Climatological Association for the years 1898 and 1899.

In considering any health resort, then, the average number of clear, fair, and cloudy days is to be especially noted. Outdoor life is what is desired, and without a large amount of good weather this is seriously interfered with.

Atmospheric Pressure.—The physiological effects of a diminution in atmospheric density has been fully considered in the article upon "Altitudes, High," and the reader is referred to it for a discussion of this subject.

Electricity.—What effects atmospheric electricity produces upon the human organism is not sufficiently understood to enable one to make any definite statement regarding it. This much we know, that the presence of a large amount of electricity in the atmosphere, as in elevated regions, appears to enhance the favorable influence of a climate.

The configuration of the land often modifies the climate of a health resort, for better or for worse; a hill or mountain range may afford protection from high winds or those blowing from an injurious quarter; or if the resort is in a valley the daily amount of sunshine may be reduced, as at Davos. Moderate ascents are often of value for exercise, as Brehmer utilizes them at Görbersdorf for his consumptives, or as they are used in the Oertel "cure de terrain."

Vegetation is an important factor to consider in the selection of a health resort. The existence and character of the vegetation not infrequently modify materially some of the purely climatic factors. Forests render the climate more equable, lead to increased rainfall, and have a higher relative humidity. The fir, pine, spruce, and other evergreen trees are generally considered beneficial to a health resort on account of their balsamic exudations, their shade, and soothing effect. Lakewood, Summerville, and Aiken are illustrations of resorts among the pines; the Adirondacks, and many portions of the White Mountains, of resorts among the fir and spruce.

"The covering of the soil with vegetation," says Williams ("Aero-Therapeutics," 1894), "protects it from the sun's direct rays, and the temperature of plants exposed to the sun does not rise so high as the soil itself, because much of the heat is lost through the large evaporation which takes place from the leaves and stems, and which gives rise to air currents tending to reduce the temperature. The result is that the heat is more evenly distributed over the twenty-four hours, and is less intense in the hottest time of the day." A knowledge of plant life is desirable on account of its bearing upon hay fever.

The character of the soil of a health resort is an important fact to know; dryness of soil and subsoil is obviously of advantage. Dampness favors disease, especially phthisis. The condition of the soil influences the temperature and moisture of the lower zone of air by the quantity of moisture it absorbs, the rate at which evaporation takes place, its porousness, capacity for warmth, and rapidity with which the ground is heated or cooled.

The sandy soil of the desert, for example, has great power of accumulating heat, and equal power at night of radiating it and producing a great lowering of temperature; hence the great range of temperature during the twenty-four hours.

There are other essential qualifications than those of a purely climatic character which should be possessed by a health resort. For example, it is important for the invalid to know what facilities exist for comfortable living, without which the best of climatic conditions are likely to prove elusive. Pure drinking water, good sanitary arrangements and sewerage, proper accommodations as to ventilation and heating, food of proper quality and properly cooked, efficient attendants, and facilities for an outdoor life, especially if the open-air "Liege Kur" is to be taken, are all matters of the first importance for the success of the health-resort cure. There should exist an intelligent and active board of

health, the members of which should supervise not only the general sanitary condition of the resort, but the hotels, boarding-houses, or rented cottages where consumptives have resided; and they should see to it that after such residence renovation and disinfection are satisfactorily performed, as, for example, is done at Cannes (*vide* article on Cannes in the HANDBOOK). Facilities for out-of-door exercise, amusement, and mental occupation are important features of a health resort. Is there a library? Are there schools? What are the churches?

Ease of accessibility is often a strong point in favor of a resort; and equally important is it to know the method of reaching the place selected, the expense of the journey and of residence there. No resort should be chosen for a genuine invalid which does not contain one or more good physicians known either by reputation or personally to the physician who sends the patient away; and the latter should be referred to the local physician by a letter from the home physician, briefly stating the case. Honest statistics of cases treated at health resorts are perhaps the most valuable indications of the actual benefits to be expected from a residence at the resort for whatever disease its climate is supposed to be especially curative.

The establishment of good sanatoria under careful, expert medical supervision, especially for pulmonary tuberculosis, is greatly to be desired in such health regions as Colorado, New Mexico, the pine belt of the South and elsewhere. Some few already exist, such as Trudeau's at Saranac, the Loomis Sanatorium at Liberty, and others. For many invalids a well-conducted hotel or boarding-house, and a competent local practitioner in the neighborhood answer well.

A practice which is not unusual, but which is to be strongly deprecated, is for the home physician to attempt to retain the guidance of his patient while at the health resort. The local physician of necessity must be better acquainted with the local hygiene, the local risks, and all the local conditions, so important for the invalid to be made aware of in order to obtain the best results from the climate of the resort.

Regarding the adaptability of certain climates to the treatment of special diseases, only a few general indications will be given here, and the reader is referred to the articles upon the various health resorts in the HANDBOOK for a more detailed consideration of this portion of the subject.

For phthisis, for which a health resort is sought more frequently than for any other disease, the essential climatic conditions, as has been more than once before stated in this HANDBOOK, are pure air free from dust, protection from high winds, moderate dryness and equability, and a dry soil. Such a combination of conditions is not hard to find nor does one have to travel far to obtain it. With it, however, must be associated, as has so often been insisted upon, the most careful, continuous, medical supervision; hence the great value of sanatoria.

It must also ever be borne in mind that the stage of the disease, its activity, and the general condition of the patient are always to be carefully considered in deciding upon a resort, or if any change is advisable.

Assuming that the patient is in the incipient, curable stage, and that there are no other contra-indicating conditions, the writer would arrange the favorable climates in the following order of excellence: (a) High altitudes, like Colorado, New Mexico, the Alps; (b) low altitudes, like the Adirondacks, Asheville, the Southern pine belt, and southern California; (c) coast climates, represented by the Riviera resorts; (d) island climates, like Madeira and the Canaries; (e) ocean voyages. As to results, according to Solly ("Medical Climatology," p. 141), the high altitudes are the best, the sanatoria the next, and the lowland climates come third.

Bronchitis.—When expectoration is abundant, a dry, warm, inland climate like Thomasville, Augusta, Summerville, and Camden, S. C., southern California, in the winter; and the seaside or mountains in the summer. If the expectoration is scanty, a warm moist climate like Florida, Nassau, Algiers, Madeira, in winter; and New-

port, the Jersey coast, Nantucket, Cape Cod, etc., in the summer.

Pleurisy.—In the convalescent stage when recovery is delayed, or the lung does not expand—the higher altitudes, provided the condition of the heart permits. Likewise in retarded pneumonia, in individuals under thirty-five years of age, and when the heart is normal, and the lungs are not too seriously involved, Solly recommends the higher altitudes, under proper restrictions.

Asthma (Bronchial).—Although the climatic treatment of this complex disease is largely a matter of trial, yet the high-altitude resorts appear to give the best results, especially when the neurotic element seems to be the prominent factor in the case. If the bronchitis, the determining cause, seems to be the most important element, either a sedative or a stimulant climate is to be selected according to the character of the bronchitis. Or if the exciting cause appears to be the most important, especial consideration must be given to that in the selection of a resort.

Hay Fever (Nasal Asthma).—The Adirondacks, White, Catskill, and Allegheny Mountains, Mackinac Island, Georgian Bay, Cape Breton, the "North Woods," Beach Haven, Fire Island, and Halifax, Nova Scotia, are some of the many resorts which afford more or less immunity. An ocean voyage and travelling in Europe are also prophylactic.

Tuberculous Glands.—Seaside resorts, sea voyages, and high altitudes. The seaside preferably, with salt baths.

Rheumatism.—Warmth, dryness, equability, and sunshine are essential factors in the climatic treatment of rheumatism; such conditions are found in Texas, Arizona, the Southern Pine Belt, some portions of southern California, the inland Florida resorts, the desert of Egypt, and Algeria.

It is also to be remembered that the hydrotherapeutic treatment of this disease as exhibited at such resorts as Richfield Springs, the Virginia Hot Springs, the Arkansas Hot Springs, Aix-les-Bains, and others, is most efficacious.

Renal Disease.—A warm, equable, windless climate, such as is found in many low inland or coast resorts, examples of which are Arizona, Madeira, the Southern Pine Belt, Florida, southern California, etc. The West Indies are highly extolled by Burney Yeo.

Cardiac Affections.—Warmth, equability, sunshine, and in some cases moderate elevation. "With regard to the heart and great vessels," says Solly ("Hare's System of Practical Therapeutics"), "it may be stated as a generality that they are much more apt to be improved on the sea than on the mountains."

Chronic Diseases of the Genito-Urinary Organs.—Warm and moderately dry climates. Renal tuberculosis requires in general the same climate as pulmonary tuberculosis.

Nervous Maladies.—Each disease must receive its own especial consideration in regard to climate. Some, perhaps the most, require a mild, low climate; others a mildly stimulating one.

Neurasthenia.—Any climate which affords rest, a change of scene and diet, with life in the open air, such as a life in the woods, at sea, or on the plains, is likely to be beneficial. Solly is of the opinion that the larger proportion of cases of neurasthenia are most surely and quickly benefited by high climates, when no especial contra-indications exist. When any one symptom is predominant, a climate which is favorable to that is to be selected. If it is insomnia, for instance, the climate which best relieves that—sometimes high altitudes, sometimes the low resorts or the seashore—will prove most beneficial to the general condition.

Senility with its Accompanying Changes.—A warm, sunny, equable climate, where the individual can exist comfortably with the least expenditure of vital force; in winter Florida, southern California, the Riviera, many resorts in the Southern States. Whatever the resort selected it is of the first importance that good accommodations and food should be assured.

Convalescence from Acute Diseases—such as typhoid

fever, epidemic influenza, whooping-cough, diphtheria, etc. A warm, sunny climate, inland or seashore, where the patient can live out of doors, protected from wind, and can bathe in the sunshine. Atlantic City, Old Point Comfort, Lakewood, are examples.

Many other diseases and conditions are amenable to climatic treatment with more or less success, and in selecting a health resort for them the writer cannot do better than to repeat for the guidance of the practitioner the three principles enunciated in the previous edition of this HANDBOOK by the accomplished author of the articles upon health resorts: "1. A thoughtful, conscientious, and painstaking consideration of the precise pathological condition of the individual patient, and of his constitutional peculiarities. 2. A careful study of the effects produced upon the human organism, both in health and disease, by variations in each and all of the meteorological factors of climate. 3. The detailed study of these factors as they exist in the climate of each place which experience has proved to be, or analogy has led us to regard as likely to be, well suited for use as a health resort"; and, to this may be added the statement with which Solly wisely concludes his article upon "Climate" in "Hare's System of Practical Therapeutics": "In selecting a climate for an invalid let us above all remember to examine not only the suitable application of the climatic factors to the disease, but also into the peculiarities of the individual and his attendant circumstances."

A word in conclusion regarding home climates. It is true with climates as with other things, that familiarity often breeds contempt. In looking for a health resort we too often forget the possibilities of our own home climate. In the treatment of phthisis as well as other diseases we can, not infrequently, obtain surprising results by a painstaking utilization of the favorable climatic conditions existing in the patient's own locality.

A judicious arrangement of rooms and verandas so as to obtain the utmost possible sunshine and out-of-door life, ingenuity in providing shelter from the wind, ample ventilation, and an equal attention to the hygienic-dietetic régime which we would give in a health resort, with the same assiduous devotion to getting well, may produce as happy results as those obtained in many well-known health resorts.

Therefore the physician or his patient should not give up hope by any manner of means, if the conditions preclude a change of climate. "I can cure consumption in any climate," said Dettweiler. *Edward O. Otis.*

HEALTH, STATE BOARDS OF*.—The recognition of the necessity of general or central boards of health or sanitary organizations in each of the States may be said to date from the middle of the nineteenth century. A resolve of the Massachusetts Legislature of 1849 authorized the governor to appoint a commission whose duty it was to make a sanitary survey of the State and to report upon the same. This extremely thorough and comprehensive document presented a plan of organization for a general or state board of health, and although it was nearly twenty years before such a board was organized, the plan laid down in that report was very closely followed in the act of 1869 which authorized the establishment of a state board of health.

The first three state boards of health were organized in three widely separated States, Louisiana,† Massachusetts, and California, in the order named, and these were followed by the establishment of similar general boards in Virginia, Minnesota, and Michigan. The States and Territories which have thus far established state boards of health, with the dates of their organization, are given in the following list:

* Condensed from article in "Past and Present Condition of Public Hygiene and State Medicine in the United States," 1900.
† The Louisiana board created in 1855 could hardly be classed as a state board of health, though so named in its organic act, since it was created almost entirely for the purpose of maintaining a quarantine to protect the city of New Orleans.

Louisiana, 1855.	Iowa, March, 1880.
Massachusetts, June, 1869.	New York, May, 1880.
California, March, 1870.	Arkansas, March, 1881.
Virginia, February, 1872.	Indiana, March, 1881.
Minnesota, March, 1872.	West Virginia, March, 1881.
Michigan, 1873.	New Hampshire, August, 1881.
Maryland, April, 1874.	Missouri, March, 1883.
Alabama, January, 1875.	Kansas, March, 1885.
Georgia, June, 1875.	Pennsylvania, June, 1885.
Colorado, February, 1876.	Ohio, April, 1886.
Wisconsin, March, 1876.	Vermont, November, 1886.
Mississippi, February, 1877.	Florida, February, 1889.
New Jersey, March, 1877.	North Dakota, 1889.
Tennessee, March, 1877.	Nebraska, March, 1891.
Illinois, May, 1877.	Washington, March, 1891.
Connecticut, January, 1878.	Oklahoma, March, 1891.
Kentucky, March, 1878.	South Dakota, March, 1891.
Rhode Island, April, 1878.	Nevada, March, 1895.
South Carolina, December, 1878.	New Mexico, February, 1895.
Delaware, 1879.	Utah, February, 1898.
North Carolina, 1879.	

In general, it may be said that the work of state boards of health has not been largely of an executive character, but has been eminently didactic, and much good has been accomplished by the publication and distribution of tracts, circulars, and pamphlets, relating to the various departments of sanitary work, and by the holding of frequent conventions or assemblies for the free discussion of sanitary subjects.

As a general rule, state boards do not have authority over local boards in sanitary matters, but in some instances they are authorized to exercise co-ordinate power with local boards in preventing the spread of infectious diseases, either within the limits of municipalities or along the border of other States and countries.

The most important duty of sanitary authorities is the management and control of infectious diseases, and while the state boards of health are, from their essential composition, not so closely in touch with the people as municipal boards, yet they are capable of doing excellent service in educating the people in this important sanitary question. In those States which are the most densely settled, and are of comparatively small area, it has been possible for the general boards to perform a considerable amount of executive work, and to carry out the provisions of such laws as have given them authority to act for the protection of the public health.

In several of the States, notably those of the western part of the Union, the function of regulating the practice of medicine has been added to the more distinctive duties of public sanitation.

A valuable summary of the powers and duties of state boards of health as they existed in 1879 may be found in Dr. Billings' Introduction to the volumes on "Hygiene" published in New York by Dr. A. H. Buck. In this summary Dr. Billings says: "The state board of health should be the central supervising authority, having much the same relation to local boards that the local board has to the households. Its functions may be classed as follows: (1) To promote the organization of local and municipal boards; (2) to obtain medical and vital statistics; (3) to investigate the causes of undue sickness and mortality; (4) the removal of these causes, acting as far as possible through the local sanitary authorities; (5) the supervision of the hygiene of state institutions; (6) the supervision of quarantine."

ANNUAL PER CAPITA EXPENDITURE OF STATE BOARDS OF HEALTH IN THE YEAR 1898. (Population Estimated to 1898.)

Groups.	States and Territories.	Fraction of dollar.	Groups.	States and Territories.	Fraction of dollar.
Over 2 cents	Florida . . . . .	.0866	Less than 2 mills	West Virginia . . . . .	.0017
	Vermont . . . . .	.0301		Missouri . . . . .	.0016
	Massachusetts . . . . .	.0236		Kansas . . . . .	.0015
	Rhode Island . . . . .	.0167		Nevada . . . . .	.0015
1 cent to 2 cents	Texas . . . . .	.0144		Kentucky . . . . .	.0012
	Mississippi . . . . .	.0141		South Carolina . . . . .	.0012
	Maine . . . . .	.0112		North Carolina . . . . .	.0011
	New Hampshire . . . . .	.0106		Virginia . . . . .	.0011
	Minnesota . . . . .	.0105		Pennsylvania . . . . .	.0010

ANNUAL PER CAPITA EXPENDITURE OF STATE BOARDS OF HEALTH IN THE YEAR 1898.—Continued. (Population Estimated to 1898.)

Groups.	States and Territories.	Fraction of dollar.	Groups.	States and Territories.	Fraction of dollar.
5 mills to 1 cent	Utah . . . . .	.0098	Less than 2 mills	South Dakota . . . . .	.0010
	Connecticut . . . . .	.0062		Washington . . . . .	.0007
	New Jersey . . . . .	.0089		Nebraska . . . . .	.0001
	Delaware . . . . .	.0070		Arizona . . . . .	.0000
	New Mexico . . . . .	.0055		Georgia . . . . .	.0000
	New York . . . . .	.0052		Idaho . . . . .	.0000
	Maryland . . . . .	.0049	0	Montana . . . . .	.0000
	Colorado . . . . .	.0042		Oregon . . . . .	.0000
	North Dakota . . . . .	.0040		Wyoming . . . . .	.0000
	Ohio . . . . .	.0040			
	Louisiana . . . . .	.0040			
2 mills to 5 mills.	Arkansas . . . . .	.0036			
	Michigan . . . . .	.0035			
	Oklahoma . . . . .	.0032			
	Tennessee . . . . .	.0029			
	Wisconsin . . . . .	.0028			
	California . . . . .	.0027			
	Iowa . . . . .	.0023			
	Indiana . . . . .	.0021			
	Illinois . . . . .	.0021			
	Alabama . . . . .	.0020			

The preceding table presents the per capita expenditure of each state board of health in 1898, upon an estimated population for that year. The comparatively high expenditure of the Gulf States of Florida, Texas, and Mississippi was employed chiefly for the maintenance of quarantine in preventing the introduction of yellow fever from other States and countries. *Samuel W. Abbott.*

HEART.—The heart is a four-chambered hollow muscle, divisible functionally into two parts, each consisting of two chambers, an auricle and a ventricle. The right half of the heart comprises the right auricle which receives the venous blood from the body general through the venæ cavae, and the right ventricle which receives the blood from the auricle through the auriculo-ventricular

orifice, and sends it by the pulmonary artery to the lungs. From the lungs the aerated blood is received by the left auricle through the pulmonary veins, and by it transmitted to the left ventricle through the left auriculo-ven-

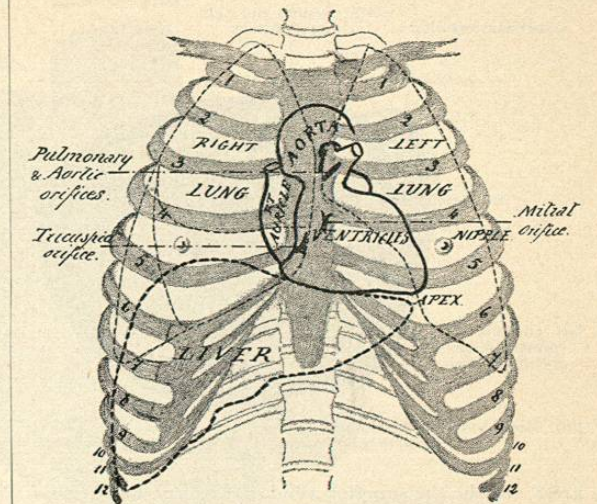


FIG. 2546.—Outline of Heart, Lungs, and Liver to Show their Relations to Each Other and to the Chest Wall. Heusman and Fisher's "Anatomical Outlines."

tricular orifice, the left ventricle in turn pumping the blood by way of the aorta back again to the body. This pump is supplied with appropriate valves to determine the direction of the blood stream (see *Circulation of the Blood*, Fig. 1328).

If the heart be removed from a cadaver that has been preserved by injection with a solution of formalin, which so hardens the tissues that they preserve after removal

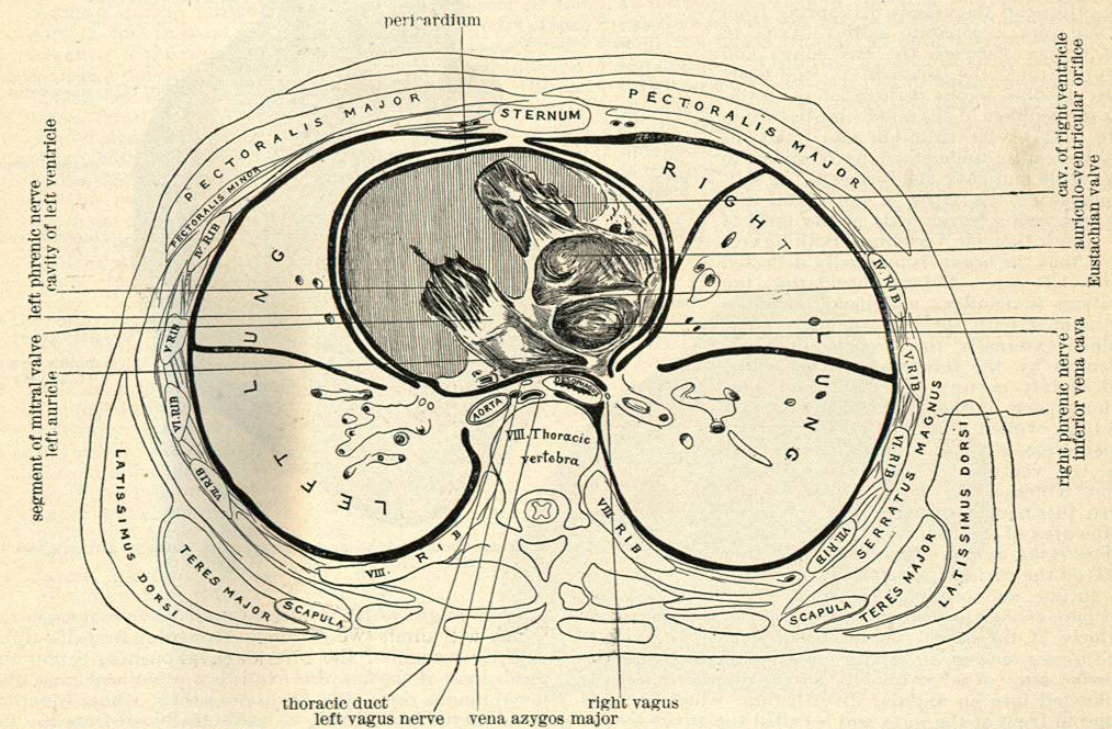


FIG. 2547.—Cross Section of Thorax at Level of Eighth Thoracic Vertebra. (Braune.)