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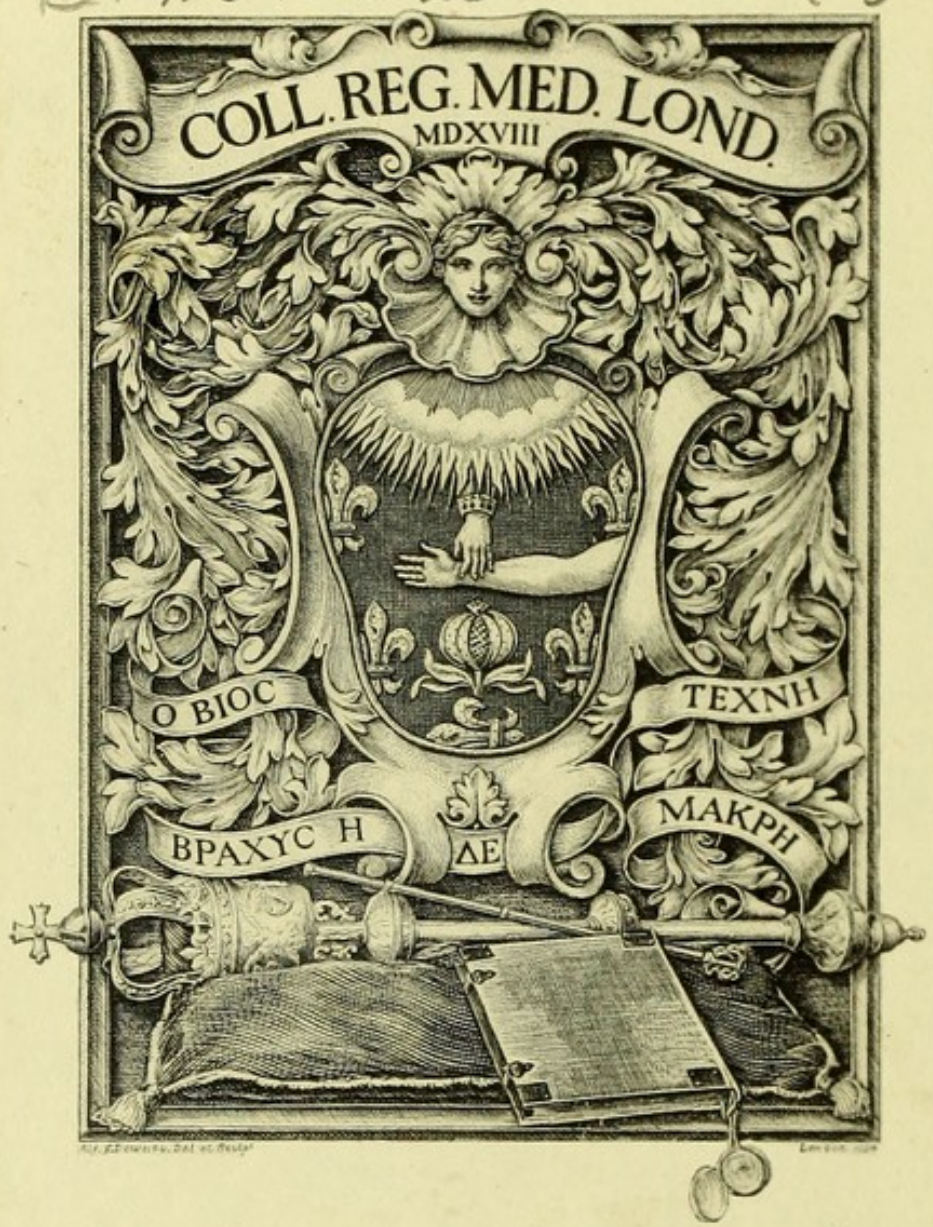

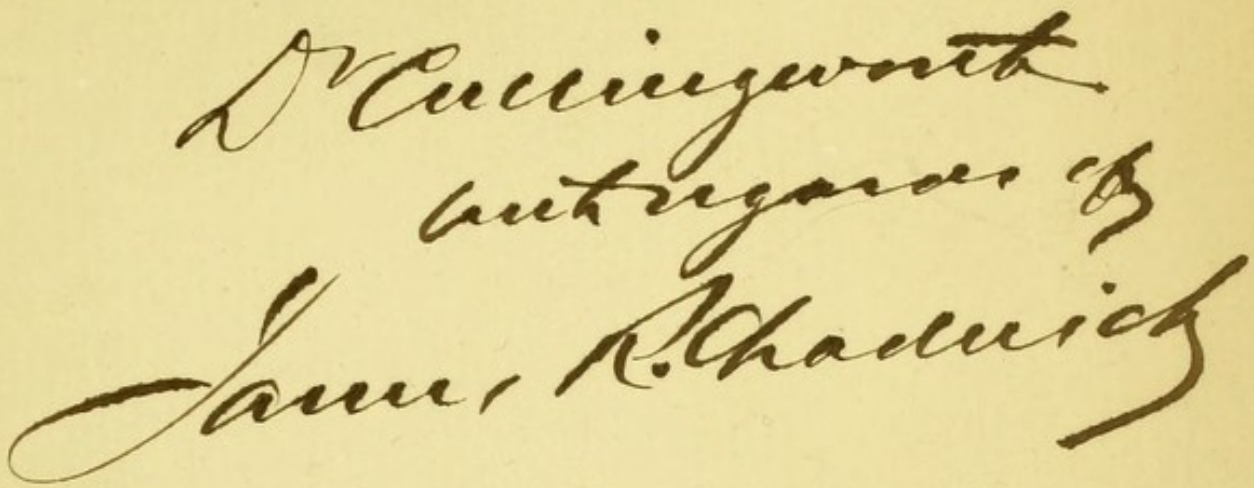

THE CLIMATE AND DISEASES OF AMERICA

BY

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SURGEON OF THE ANSPACH-BAYREUTH TROOPS IN AMERICA

TRANSLATED BY

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BOSTON
H. O. HOUGHTON AND COMPANY
NEW YORK: HURD AND HOUGHTON
Cambridge: The Riverside Press
1875

PREFACE.

THE pamphlet in which were printed the following letters, addressed to Professor Delius of Erlangen, was unearthed while I was ransacking an antiquarian bookstore in Munich, Bavaria. The letters have been considered of medico-historical interest, and as I cannot learn that they are to be found in any library on this side of the Atlantic, I venture to lay them before the profession. The pamphlet bears the date 1781, and was printed in Erlangen. The notes and introduction to the following translation are mine.

J. R. C.

INTRODUCTION.

Of all the princes reigning over the smaller German states during the eighteenth century, there were none whose sway was so arbitrary, and whose tyranny was so freely exercised, as those of the Margraves of Anspach and Bayreuth. The cruelty and lawlessness of these petty rulers cannot be better illustrated than by citing two incidents that occurred but a few years before the American Revolution. As Charles Frederick William, Margrave of Anspach (1723–1757), was one day walking with his mistress, she expressed the wish to see a chimney-sweep, who had just emerged upon the roof of the Bruckberg Castle, fall to the ground; whereupon his Highness, to gratify her, shot the man dead. To the widow, who came to crave his mercy, he made a gift of five florins. In Bayreuth the same state of affairs existed. The Margrave Frederick Christian (1763–1769) had contracted the disagreeable habit of venting his spleen by belaboring his subjects with a cane in broad daylight. High and low, noble and civilian, cabinet minister and officers, none were safe from this unmistakable proof of the sovereign's ill-temper. As this habit became daily harder to bear, a meeting was called to consider what action the nobility, and especially the military, should take with reference to this inclination of the margrave. "The high nobility and the very worthy corps of officers" came to the valiant determination that they would ask the court preacher to intercede with his serene Highness, and beg him to have a greater regard for a soldier's pride. At the same time it was moreover decided that a thrashing at the hands of their ruler should not be deemed derogatory to the honor of a subject, and that all the money received from him in condonation of such acts should be deposited in a common treasury.

From these two princes Charles Alexander inherited the principali-

ties of Anspach and Bayreuth, and, what was worse, the disposition, habits, and traditions of his ancestors. His territory embraced one hundred and forty square miles, and was peopled with four hundred thousand subjects. The American war found him so involved in debt, and the country so impoverished by taxation, that he hailed with joy the prospect of replenishing his empty coffers by the sale of troops to England. The advances of his agent in London, however, were for a long time repelled, owing to the bad reputation that his soldiers had earned in previous campaigns, and it was not until February 1, 1777, that a contract was signed, whereby England obtained the services of two regiments of infantry, one company of grenadiers, and a division of Jägers, in all, twelve hundred and eighty-five men.[1] The terms were thirty crowns a head in cash, and a yearly subsidy of forty-five thousand crowns. The only stipulation in the treaty relating to medical matters is Article XII., the same as that made with the Hessians, which reads as follows: "The sick of the Hessian troops shall remain under the care of the physicians, surgeons, and other persons appointed for that purpose under the orders of the general commanding the corps of that nation, and everything shall be allowed them that his majesty allows his own troops." [2]

The regiments started for Ochsenfurt on March 5, 1777, but had not proceeded many miles before they broke into open revolt. In a letter of Benjamin Franklin, written from Paris to a Mr. Winthrop in Boston, I find the following: "Les recrues du Prince d'Anspach se sont revoltées, elles ont refusé de marcher. Ce prince a donc été forcé de les desarmer et enchainer, et de les conduire lui-même de la sorte à la tête de ses gardes jusqu'au bord de la mer." [3] The troops sailed from Dortrecht in seventeen transports on March 30th, reached Portsmouth on April 1st, sailed thence five days later, and finally entered New York harbor on June 3d. Their first camp was on Staten Island, where they passed part of the summer. Some companies were present at the battles of Brandywine, Monmouth Court House, and at the capture of Forts Clinton and Montgomery. From July, 1777, to July, 1778,

[1] Der Soldatenhandel deutscher Fürsten nach Amerika. Friedrich Kapp. Berlin. 1874.

[2] New York Packet, June 6, 1776.

[3] Résumé de l'Histoire des Revolutions de l'Amérique Septentrionale. Par P. J. S. Dupuy. Paris. 1826. 2 vols.

they were in camp on a small island opposite Newport, whence they retreated on July 27th to Newport, owing to the arrival of the French fleet, and encamped on Windmill Hill. In October they received recruits from Germany, and on January 11, 1779, transports arrived bringing, among others, "the celebrated Dr. Schöpff from Anspach." [1]

The Anspach-Bayreuth troops were kept in and about New York until July, 1781, when they were sent to reinforce Cornwallis's army at Yorktown; "here dysentery and typhoid fever were rife, owing to the heat and to the scarcity and poor quality of the food." During the siege of Yorktown they occupied the left wing of the army, and lost fifty killed or wounded, and fifty by desertion. After the surrender of Cornwallis in October, 1781, they were confined in the prison at Winchester until the spring of 1783, when peace was proclaimed. Of the sixteen hundred and forty-four Anspach-Bayreuth troops who served in America, four hundred and sixty-one were lost.

Dr. Schöpff did not return to Europe with his fellow-countrymen, but devoted two years to travel, as a result of which he published at Erlangen, in 1788, "Reise durch einige der mittlern und südlichen Vereinigten Nord-Amerikanischen Staaten nach Ost-Florida und der Bahama-Inseln, unternommen in den Jahren 1783 und 1784 von Johann David Schöpff d. U. W. D. Hochfürstl. Brandenb. Onolzb. und Culmb. Hof und Militär-Medicus, Land-physikus des Mediz. Colleg. zu Beureuth, Rath, und der Gesellschaft naturforschender Freunde zu Berlin Mitglied."

[1] Die Deutschen Hülfstruppen im nordamerikanischen Befreiungskriege 1776 bis 1783. Max. von Eelking. Hannover. 1863.

I.

THE DISEASES OF AMERICA.

NEW YORK, *December*, 1780.

IT is natural that the inhabitants of so changeable a clime as this should be affected, in one way or another, by the peculiar climatic influences to which they are exposed. More or less weakness, effeminacy, incapacity, and kindred qualities characterize the nations that live either in a very hot or a very cold climate. Only mild and uniformly temperate regions form a people that become distinguished for ability, industry, and the strength requisite for great undertakings. I am too little acquainted with the native Americans to speak from my own knowledge; but Robertson is led by his observations to say, "The Americans are more remarkable for their quickness than strength; they resemble beasts of prey rather than beasts of burden. They not only are disinclined to hard labor, but also are incapable of it; and if they are by force aroused from their inherent indolence and compelled to work, they sink under enterprises which the inhabitants of the Old World would have completed with the greatest ease. The beardless face and the smooth skin of the American appears to indicate a want of strength which is caused by some vice in his frame. He lacks one of the external signs of manhood and strength."[1] Besides these natural causes, political and moral ones combine to bring about the result. The individuals of European descent here appear, as a rule, to have lost the muscular strength, the sturdy build, and the manly form of the nations from whom they have sprung. Lank, feeble, weak, without the bloom and hardy aspect of youthful health, the American is more like a rapid-growing weed than an oak, which attains to a durable strength by a

[1] By a misapplication which can hardly be regarded as other than willful, the writer makes the above quotation apply to the native American (whites), whereas a reference to the original shows that Robertson was describing the Indian aborigines.

slow growth. A single glance is all that is required to distinguish an American from a European, and if the latter has once withstood the hardships of the first change of climate, he may forever defy competition with the native American. I do not know how many old persons there may be in America, but the majority of those whom I have seen, that had attained the age of seventy or eighty years, have been either Europeans or of European parentage, from which source they had inherited their hardy constitutions. The American troops, although they fight in a climate to which from youth up they have been accustomed, invariably suffer from the inclemencies of the weather, the insalubrity of the swamps, and the fatigues of the campaigns, quite as much as, and even more than, the royal European troops. When our soldiers have been sickly, theirs have been doubly so, and disease has frequently been rife among them when our men have been enjoying the best of health. Even in and about New York, diseases often prevail among the inhabitants when our army hospitals are almost entirely empty. The cause of this so universally noticeable weakness seems to lie in the frequent changes of weather and the great extremes of heat and cold. Heat greatly relaxes and enfeebles their sinews, whereas cold renders them constantly hard and stiff, until finally they become powerless, like a spring that has often been bent to and fro. This is especially true of the so-called middle colonies. Virginia, although one of the most southern provinces, produces, nevertheless, a healthier and stouter race of men, as well as of horses, than the other colonies. The heat, to which this colony is exposed by its southern position, is considerably moderated by constant sea-breezes, numerous streams, and the propinquity of the mountains. Owing to its meridional situation, its winter also is milder and more uniform than in the north, so that the weather is more enjoyable throughout the whole year than in any of the other provinces. Greater strength and vivacity are consequently imparted to its entire animate creation.

Franklin, with an admirable and cunning craft that astonished all Europe, calculated the extremely rapid increase of population in the provinces; but, taking all the circumstances into account, it is doubtful whether even the present number of inhabitants would be maintained without the steady immigration from Europe. It is true that the

marriages are fruitful; of this we have remarkable instances among our troops.[1] I have been assured that a disproportionately larger number of children die here than in Europe, although, by the almost universal practice of inoculation of small-pox, countless multitudes are saved from a death to which the unconquerable prejudice of our fatherland still continues to offer sacrifice. As, however, no records of births and deaths are published, these statements are not trustworthy. Whether the climate exerts an influence upon the character of Americans, and if so to what extent, I am not prepared to state. On the whole, the people seem to have no decided general characteristics; such as they have are purely negative ones, determined by the country and nation from which they trace their descent. A promiscuous crowd of almost all nations of Europe, of Jews and negroes, of all creeds and sects, of people who have settled here for such diverse reasons, and often in order to escape legal penalties, here congregates and ingrafts upon the common country of their adoption the sentiments, manners, and habits of life which each individual has brought with him. Such a mixture will require a long fermentation before it will contain the spirit, the feelings, and the imprint of a united people. The present war does not yet justify the Americans in comparing themselves to those nations who have made their mark in history by their noble courage and exalted love of freedom. They cannot be compared with these either for their motives, their opinions, or their conduct. It seems as though all nationalities which have transplanted themselves hither had carefully discarded the one good side of their character in order to promote the equality of stations so dear to every American, because, as they probably knew, the black color admits of but few shades.[2]

[1] This is especially true of the Europeans here. The American women are not very prolific. They are amazed at the fourteenth pregnancy of the queen, and, when I tell them that I know mothers with eighteen and twenty-four living children, those who accept the story at all cannot help betraying envy in the expression of their countenances. (Schöpff.)

[2] That these disparaging remarks were reciprocated by our countrymen may be seen by citations from the daily journals of that period. The Boston Gazette of November 2, 1778, has a letter from Rhode Island dated October 18th, which states that on "the day of the battle, the Anspach troops robbed every house in their way, and plundered families of beds and every rag of clothing." From Rivington's Gazette of May 17, 1783, I take the following: "The Hessians are a kind, peaceable people, inveterately fond of smoking and pea-coffee; their offenses are chiefly of the sly kind, such as stealing at night." Of their heartlessness

Allow me, before closing, to append a few brief remarks about the diseases common to these regions, irrespective of those arising from the manners and exigencies of the life and occupations. There is quite a number of diseases dependent upon other more universal causes. No summer passes without many of the inhabitants being suddenly stricken down during the hottest days by what appears to be apoplexy; this is especially common after violent exercise, but occurs not infrequently when the individual has remained quietly in his house. Instances are plenty of laboring men, who have been exposed to the heat of the day, falling dead after an imprudent cold drink; such a sad event is not of rare occurrence in the streets. The battle near Monmouth,[1] on June 28, 1778, was remarkable from one circumstance which has not its parallel in the history of the New World; without receiving a wound, fifty-nine men fell on our side solely from the extraordinary heat and fatigue of the day; and many on the side of the rebels succumbed to the same causes, in spite of their men being more accustomed to the climate. A few days later, a battalion of Hessian grenadiers marched on a hot afternoon only a few miles out of the city; when midway on the route, a young officer and a man from the ranks fell dead. Soon after our arrival in America, Seitz's company of grenadiers lost two men during a forced march in Jersey.[2] A hundred similar instances might be adduced. I have never had an opportunity of witnessing a

we have many proofs; one quotation is peculiarly appropriate in this connection. "October 24, 1777. This hospital (at Albany ?) is now crowded with officers and soldiers from the field of battle; those belonging to the British and Hessian troops are accommodated in the same hospital with our own men, and receive equal care and attention. The foreigners are under the care and management of their own surgeons. I have been present at some of their capital operations, and remarked that the English surgeons performed with skill and dexterity; but the Germans, with few exceptions, do no credit to their profession; some of them are the most uncouth and clumsy operators I ever witnessed, and appear to be destitute of all sympathy and tenderness towards the suffering patient." (A Military Journal during the American Revolutionary War. By James Thacher, M. D. Boston. 1827. Page 112.)

[1] "This retreat of the British army, of which so little has been said in history, was much more remarkable than that of Moreau, which is regarded in our time as a sort of miracle, and really was so." (Betractungen über die neuere Kriegskunst. Vom General Baron von Ochs. Cassel. 1817.)

[2] This company belonged to the Anspach regiment, commanded by Colonel Von Eyk. They landed upon Staten Island on June 3, 1777, and went into camp at Colls-Ferry. On June 11th, which was a very hot day, they made this march to Amboy, at the mouth of the Raritan, and remained there till spring.

death from this cause; but, according to the accounts, some fall suddenly dead, whereas others pass first into a kind of frenzy ; some become black and blue in the face, and the blood gushes from the mouth and nostrils, whereas others are found lying motionless beside the pool or spring where they had thought to slake their thirst. These instances sufficiently indicate the cause of the sudden death. It is remarkable that cases of this description are not of more common occurrence, considering the extreme heat to which the troops, and especially the German, have at times been exposed while on the march and in battle ; enveloped as our men are in heavy woolen garments and tight leggings, and carrying the entire weight of a gun, sixty cartridges, knapsack, and rations, they cannot but suffer doubly from all the discomforts of such days. The English, who are more used to fighting in warm countries, provide their troops in summer with a lighter clothing, adapted to the climate, and leave them the free use of their limbs which is so necessary to soldiers on the march ; they do not seem to believe that the same garments that keep a man warm in Nova Zembla must also keep him cool in Jamaica. When the heat is uniform, and the troops are resting quietly in healthy camps, they endure it quite easily. During the warmest days of last August, the army hospitals had the smallest number of patients and of deaths in the whole year, but the moment the weather became changeable various diseases began to prevail. During moist and unstable summer weather, it is chiefly dysentery and kindred diseases that abound. Attacks of cholera, with incessant bilious vomiting and purging, have been common among our soldiers during the hottest seasons, but they are generally arrested in one or two days by the administration of emetics or cathartics — and quite often without them — as soon as the unusual and perhaps injurious quantity of bile, to the formation of which warm seasons and countries are so conducive, has been ejected. These attacks have seldom been attended by any marked degree of fever ; during their prevalence we have never had a single obstinate case of dysentery.[1]

[1] " Not only was the march (in Canada) very fatiguing, but, as the heat of the sun increased, many of the German troops under Riedesel's command fell sick, so that by the middle of July (they landed in June) upwards of three hundred of the Brunswickers were lying ill either in the military hospital or in private houses. Most of them suffered from a violent diarrhœa, accompanied by fever, brought on by the sudden changes of temperature

A peculiar kind of eruption, if it may be so called, known by the name of the "prickling heat," is almost universal here in summer. The skin is covered with a quantity of large or small red spots that are occasionally attended by a disagreeable itching sensation, from which symptom the name is derived. The spots are not raised, but come and go with the increase or decrease of the heat. People who keep in-doors do not have them so often, or to so marked a degree, as those who are exposed to the sun. On my own person I have observed them during the midday hours, most commonly after having been out; my entire skin would then be red. When the weather begins to moderate this eruption disappears, and the skin desquamates almost imperceptibly. The common people, who are universally disposed to regard every eruption as healthy, look upon "prickling heat" in the same way, and therefore consider its sudden subsidence to be injurious; it is not so, however, except in so far as this action is attended by the suppression of evaporation. The whole appearance is nothing more than a greater determination of red blood to the vessels of the skin, when they are relaxed by the heat from without. The rays of the sun are often powerful enough to raise vesicles on the tender parts of the body when exposed.[1]

The surface of our body is so sensitive to the slightest influences, when the heat is very great, that nothing is commoner than to meet people with catarrhs and colds at such times. The least fall of the thermometer, after a long spell of hot weather, is also extremely trying. At midday on August 19th we had a temperature of 86°; in the evening it was 79°; and the next morning 64°. It was strange to me not to find, on waking, the least trace of perspiration; my whole skin was as dry as parchment, and felt over my whole body just as leather garments do which have been wet and rapidly dried; the "prickling heat" had vanished, and many of the vesicles which the sun had raised on the

of the climate — warm days and cold nights — to which they were wholly unaccustomed." (Letters and Journal of Mrs. General Riedesel. Berlin. 1800. Translated by W. L. Stone, Albany, 1867.)

[1] "By weaning my daughter the beginning of May, I brought upon myself an eruption, to which most people in this warm climate are subject. Little pimples came out over the whole limb, which itches so that one has no peace whatever. They come with the hot and disappear with the cold weather; otherwise the person is perfectly well." (Riedesel, page 180.)

exposed parts of my body had dried and already begun to desquamate. I felt, however, brighter and more lively than before. We are accustomed either to wake in a profuse perspiration or to fall into this state on the slightest exertion. On the morning referred to above, I noticed that my pulse was stronger and fuller than on the preceding day, and that the desire to micturate roused me from sleep, which had not happened for a long time before. About midday, when the heat again increased, I experienced an unpleasant prickling over my whole body. My attention was particularly drawn to this remarkable change because, two days later, the temperature rose higher than ever, and similar fluctuations afterwards brought many patients into the hospital.

Among the autumnal affections, remittent and intermittent fever take the precedence; they are often accompanied by bilious attacks, and assume the perfect type of the West Indian fevers. The autumns of 1779 and 1780 were more favorable to their development than the preceding one. There was an unusual number of fever patients among the soldiers as well as among civilians. The greater sickliness of the past two years, and especially since the army has been here, is very striking; according to the unanimous statements of the inhabitants and physicians of this place, these years are quite exceptional when compared with the years of peace, and no explanation can be given for this difference.[1] Perhaps, however, an opinion about this question might be haz-

[1] June, 1775. "Autumnal fevers prevailed much in the army (at Cambridge), and dysentery was very severe and very fatal." (Thacher, l. c.)

"The situation (New York) is said to be perfectly healthy, but fresh water is so very scarce that the purchase of this essential article is attended with a considerable expense."

New York, August 9, 1776. "The air of the whole city seems infected. In almost every street there is a horrid smell." (Solomon Drowne, M. D., in New York during the Revolution.)

In addition to the causes of insalubrity suggested by the last two quotations, scarcity of food was also experienced. With respect to one article of diet this was effected in a strange way, if we are to credit the facts stated in the two following paragraphs, taken from independent chroniclers.

"Lobsters of a prodigious size were, till of late, caught in vast numbers (in North and East rivers), but it is a fact, surprising as it may appear, that since the late incessant cannonading they have entirely forsaken the coast, not one having been taken or seen since the commencement of the hostilities." (Letters from America during 1769–1777, inclusive. London. 1792.)

"In Nova Scotia it was remarked upon as a curious occurrence that while before the Revolution lobsters or large crawfish had never been seen in this vicinity, yet no sooner had that

arded in view of the scientific experiments on the importance of the vegetable kingdom in purifying the air that have quite recently been published by Dr. Ingenhouss. There is a belief, founded upon universal experience, that the varieties of fever of which we are speaking are chiefly generated by emanations from foul, marshy, and stagnant waters; at all events, they abound chiefly in districts of this description. The level country of America is everywhere covered with vast swamps and morasses; myriads of plants, shrubs, and trees here find a most sulphurous nutriment in the vegetable earth that has been accumulating undisturbed for so many centuries; such places are consequently almost impenetrable; the eye cannot even see the ground, into which the foot sinks at every step. The first settlers were everywhere obliged to clear the land of wood to get a field for dwellings and tillage, but throughout America the newly-settled regions were generally found to be extremely insalubrious until, after the lapse of years, the ground was dried by exposure to the sun and by other means, so that the neighboring dwellings were rendered more healthy.

This change is of common occurrence when new land is cleared and rendered arable in the interior of the country. In the regions along the coast that are termed settled and inhabited there are, nevertheless, considerable stretches of such swampy forest and wilderness, which, to all appearances, are still in their pristine condition; the emanations from these are, however, in part retained and purified by the thick covering of shrubs, as shown by Ingenhouss's experiments. The army required an immense amount of wood during a four years' stay in one small district of this description. Instead of wood being felled in spots here and there, and a great stretch of land being drawn upon to meet the demands of the chief city — the requirements of which were at that time smaller than now — as had been the custom of those who owned the fields and woodlands, great forests have of late been successively exterminated and the formerly overgrown swamps and morasses been laid bare. Here is a prolific source of diseases, which, having nothing to limit them or stay their ravages, spread to all the neighboring regions, and may generate a host of previously but little known affections. The sub-

struggle commenced than numbers of them left the continent of North America and came to New Scotland. This gave rise to a standing joke among the people of this place that the lobsters were good royalists and accordingly wore the English (red) uniforms." (Riedesel.)

sequent experiments of the author quoted show, in addition, the reason why this impurity of the air is more marked in autumn and in autumnal weather than in summer or in summer weather, since in the latter the days are longer and the action of the sun more powerful, the atmosphere clearer, and the vegetable kingdom in full activity.

It is wonderful that during this whole war [1775–1783] no contagious fevers have spread among the troops. Different varieties of them have of course been seen in the hospitals; where the latter have been crowded, continued fevers have often absorbed all the poison of the contagious ones and been converted into such, yet they have never spread outside the hospitals, but have been soon arrested by the removal of a part of the patients. With respect to the dysentery I cannot recall that it has ever been especially contagious. The young girls and children of this country, whose chief delicacies are unripe and sour apples, especially when baked and served with milk, make evident the insignificant rôle played by unripe fruit in the production of these diseases. Our men suffered principally from dysentery during the first summer and autumn after our arrival; this was, however, to be ascribed more to general causes than to contagion.

The winter is also accompanied by the host of inflammatory affections, and especially those of the chest, which are its attendants everywhere. Quite recently the physicians had scarcely anything to do throughout the whole winter. Fur garments and stoves are but little used by the inhabitants of the country, with the exception of the Germans; one source of hibernal diseases is consequently cut off. The troops, owing to their service and to the absence of the comforts of civilization, are more exposed to the inclemencies of the winter and feel its severities more keenly. Damp quarters and the scarcity of vegetables toward the end of winter give rise, in addition, to isolated cases of scurvy[1] in the army; Seyboth's regiment in 1779 suffered more from scurvy in Rhod-Eyland than any other in the army has ever done. Two forms of disease, which are common in England and other parts of Europe, but not

[1] "During our sojourn in this place (Long Island) I often saw people buried up to their necks in the earth; for in this manner they cure the scurvy." (Riedesel.)

Two other of the popular medical superstitions of the day are recorded by this charming writer: "It is said that the smoke made by burning cedar is very injurious to the nerves; so much so as to cause women with child to bring forth prematurely." (Riedesel, page 115.)

"Maple sugar has only one fault, that it is too brown; otherwise it is right good, especially for diseases of the breast." (Riedesel, page 193.)

in our fatherland, so far as I can remember, also occur here: *croup* (angina membranosa), which consists of a membranous skin lining the air passages and recognized chiefly by a high cooing tone during inspiration; and the *mumps*, which is a swelling of the glands in the neck and of the testicles. Both are principally confined to children, and the latter seems almost to belong to the contagious diseases; at any rate, a whole school of boys has often been attacked by it.

I have made a point of opening the bodies of those who have died in our hospital, when time, place, and circumstances have allowed. This calls to my mind one point which seems to me quite remarkable. In at least two thirds of the autopsies we have found large or small clots in the cavities of the heart and the large vessels; they are white and of a thick, viscid consistency, like the fibrinous coat on the blood in inflammations, or like the inorganic gelatinous membranes which I have often seen covering the surface of the lungs and other internal organs after inflammations. In all these cases there was good reason to think that their formation was of remote date, though in many instances there had been no symptoms pointing to such an affection. I cannot recall having seen or heard of so frequent an occurrence of clots in the various anatomical schools which I have attended. If it is true that they are less often noticed elsewhere, I can discover no more common cause to explain this fact than the greater consumption of spirituous liquors to which our men are here addicted. A quart of rum is given to a man in seven days, but the majority take twice as much in that time,[1] and the injurious effects of intemperance are often manifested by intestinal derangements, slow fever, general loss of strength, with which train of symptoms many depart from this world. Rum and water, under the name of "grog," is the universal drink in America; it is deemed the healthiest and best of beverages, and really is of use in the warm seasons of the year, when the strength of the whole body and especially of the

[1] A letter of August 2, 1775, says: "It is not to be wondered that the fatigue of duty, bad accommodation, and the use of too much spirits should produce fevers in the camp. The soldiers cannot be kept from rum; sixpence will buy a quart of West India rum, and a fourpence is the price of a quart of this country rum." (History of the Siege of Boston, by Richard Frothingham, Jr.)

"Camp near Ticonderoga, July 5, 1777. In consideration of the heat of the weather and the alacrity with which the men have worked, a refreshment of rum will be given to the whole army, at the rate of O½ a man." (Burgoyne's Orderly Book. Albany. 1860.)

digestive organs is greatly impaired. While the army is on the march, the men are constantly seen mixing their rations of rum with the drinking water, whereby not only does the latter lose a part of its chilliness, but a more invigorating effect is produced, and many troubles averted which might come from the inordinate use of the former. But it happens here as everywhere else that the lovers of rum are wont to extol its merits not in hot weather alone, but also in cold, in moist, in foggy, and so on throughout the year.

The rations [1] that are given to the troops in the British service in North America are, as is the pay, better than in any other service. One man receives in seven days, or seven men receive in one day, eight pounds of beef, four pounds of salt pork or six pounds of boiled beef, three pints of peas, half a pint of rice, six ounces of butter, nine and one half gills of rum (eight gills make a quart), and during the summer months one quart of thin beer, brewed from the cones of a species of pine, and called spruce-beer.[2] This seems to be one of the best possible rations for troops. At any rate, as I have already said, nothing is heard among the troops here of the common contagious diseases, about which physicians with other armies, especially during the last war in Europe, have talked so much.[3] Despite all that has been said about the injurious effect of pork, — which may have been the reason of its having been forbidden by the Mosaic law, — in this army, notwithstanding the constant consumption of salt pork, no ill effects have been ob-

[1] In September, 1776, the ration in the American army was "one pound of beef or pork, one pound of bread or flour a day, a small quantity of vegetables when to be had, one gill of rum or whisky a day ; a small quantity of vinegar, salt, soap, and candles a week." (Thacher.)

[2] "After May, the troops received so-called English small or table beer, one quart a day to each man. 'It was,' writes a German soldier, 'made from wood, herbs, and molasses, *i. e.*, boiled syrup, tastes quite sweet, is healthy, good to drink, and resembles our wood-tea or Brust-trank.' The Germans therefore called it Brust-bier, because it tasted like Brust-thee." (Eelking, Die Deutschen Hülfstruppen, page 169.)

[3] "The hospitals (in America) were most excellent, so that in spite of the severity of the climate, no such ravaging plagues prevailed as we have seen in the subsequent wars." (Von Ochs.)

Von Ochs was adjutant of the Hessian Colonel von Würtemberg, who commanded the British advance posts at Kingsbridge. This colonel received news from a French lady that the French under Rochambeau, together with the American army, really intended to capture Cornwallis, and not to make the descent upon Staten Island. General Clinton, however, gave no credence to the story. Vide Von Ochs, l. c., page 57.

served, and moreover scarcely anything is known of the common skin diseases which used to be laid to its account; when affections of the skin have occurred, they have invariably been produced and kept up by a neglect of external cleanliness. The troops prefer salt pork to boiled beef, or even fresh meat, and soon tire of the latter especially. Fevers with eruptions are rare, at least in the army. In nearly four years I have had but two patients with eruptions like the purples. Small-pox loses much of its attendant horror and danger from the general inoculations.[1] As there are always some cases of small-pox in New York, partly in the natural and partly in the modified form, it has gradually become the custom to inoculate all the prisoners and renegades who come here and have not had the disease, and that, too, without respect to age or season. There are very few instances, I might almost say none, of any ill effect from inoculation. I have heard trustworthy

[1] Inoculation with small-pox matter was introduced into Boston, at the instance of Cotton Mather, by Zabdiel Boylston in 1720, "who began to inoculate at the risk, not only of his practice, but even of his life. The friends and enemies of the practice filled the newspapers of the day with arguments for and against it. The whole of the influence which the learning and piety of the New England clergy has always given them was exerted; and the whole of it was necessary to induce his hearers to consent to inoculation. The practice by degrees extended from New England to New York and Philadelphia, and finally to Charleston, where it was partially adopted in 1738, and afterwards became general in 1760." (A Review of the Improvements, Progress, and State of Medicine in the XVIIIth Century. David Ramsay, M. D. Charleston. 1800.) Small-pox was rife in Boston during the occupancy of the British troops (1776). On July 3d, orders were given for a general inoculation of the inhabitants and troops. General Washington was inoculated in New York on June 27, 1776.

(Solomon Drowne, M. D., of Rhode Island, to Miss Sally Drowne.)

"Gen. Hosp., N. Y., *July* 13, 1776.

"I am glad our Assembly have allowed of Inoculation, and hope you and Brother Bill will not defer receiving that disease (y^e^ S. Pox) which taken by chance have proved the Bain of tens of Thousands; when it comes so near you, cloathed in gentleness, — all its Terribleness cast aside." (New York during the American Revolution.)

The New York Packet for June 27, 1776, has the following item: "Williamsburg, Virginia, June 15. We learn from Gloucester that Lord Dunmore has erected hospitals on Guyon's Island; and that his friend Andrew Sprawle is dead, and that they are inoculating blacks for the small-pox. His Lordship, before the departure of the fleet from Norfolk Harbor, had two of these wretches inoculated and sent ashore, in order to spread the infection, but it was happily prevented."

In December, 1779, Mrs. General Riedesel took her children to the country-seat of General Clinton, near New York, for the purpose of having them inoculated. "Carolina lost her whooping-cough, but immediately after it came back and lasted a whole year." (Riedesel.)

people assert that they have not lost one out of three thousand or four thousand individuals whom they have inoculated. I was an eye-witness of the following event: More than three hundred prisoners who took the small-pox last winter were confined in a sugar-house without other beds than woolen blankets upon the hard floor, without other diet than the above-mentioned rations, without treatment other than a few cathartics; yet all recovered in the most favorable manner. If there were no other advantages attending inoculation, the relief from the habitual dread of catching the disease would be reason enough for continuing its practice.

There are very few people in Rhod-Eyland who have had the small-pox. In deference to the sentiments of the greater part of the old inhabitants, who dread inoculation quite as much as infection, and in part owing to the obstinacy of several influential families, the greatest efforts are constantly made to avert any possibility of contagion. To prevent the dissemination of the poison, it has for many years been the custom to send those really affected, or supposed to be affected, with small-pox, to a small island that lies near Rhod-Eyland. In order to propitiate the inhabitants, inoculation was repeatedly forbidden while the royal troops were there; since we have left, every wagon that arrives from this city is anxiously searched. On the other hand, the inhabitants scarcely dare to leave the island, but if they must come here, they are forced to submit to inoculation, in order to escape infection. The treatment of the patients on the little island, which is consequently called Bladder-Eyland, is not the most careful. The island is only separated from the main land by a channel about fifty paces wide. No one ventures to cross as long as there are patients there. The means of subsistence are laid upon the shore, where they are sought by the man who is appointed to look after the sick. A physician rarely, if ever, crosses to the island, as he would not be allowed to visit any of his other patients subsequently, for fear lest he should transmit the contagion. When he must cross in spite of the risk, he visits the island in a complete suit of oil-silk, which is quite enough to excite alarm in the young or weak patients. As a rule, however, he inquires after the sufferers from this side of the channel, and prescribes at that distance.[1]

[1] Dr. Jenner vaccinated his first patient in 1796. This practice was introduced into America in the same year by Dr. James Jackson and Dr. Waterhouse.

Most new-comers to this country have to pay tribute to the climate by some indisposition or other, especially if they land during the hot season of the year. Our troops arrived here in July. From that time till October most of our men were, one after another, in the hospitals of New York, or in the regimental hospitals on Staaten-Eyland or at Harlem; there were very few who escaped without an attack of dysentery or fever. During the first twelve months we lost many men, but during the next twelve months barely thirty, and now, as a rule, hardly more than we lose in our fatherland. A sound European constitution soon accustoms itself to all the inclemencies of the climate, so that most of the patients in the hospitals are usually recruits. One fact is worthy of mention in this connection, which perhaps testifies as forcibly as anything can to the need of acclimatization, and is moreover universally admitted to be true. In a new-comer, almost every bite of the mosquito (*Culex pipiens*, L.) produces a boil during the first year after his arrival, but fails to have this effect in the subsequent years.[1]

The contrast between military and civil practice is very great. In the former the command "You must take this or that; you must be healthy" is often supreme. Death, to be sure, often refuses obedience, but for a long time he has treated us with indulgence. Just as hypochondria blunts our senses in time of peace (in war its mark is worth nothing), so does a tumult sometimes render us indisposed to serious study; no one, however, would wish to, or could, remain indifferent to fortunate or unfortunate, to political or warlike events in which his interests were at all involved.

P. S. January 20, 1781. The departure of several returning invalids has been delayed until now, and I have had no opportunity of forwarding the letter sooner. This winter is precisely the reverse of

[1] It is strange that the protection afforded by inoculation of various animal poisons, especially as illustrated by the effect of mosquito bites upon recent immigrants to this country, should have escaped comment for nearly a century, until attention was called to it by Dr. J. C. White in the Boston Medical and Surgical Journal for November 9, 1871.

When in London during the spring of 1873, I heard that one of the great hotels was infested by mosquitoes, and that the effect of the bites was so dreadful as to drive most of the English guests from the house. As biting mosquitoes had never before been seen in England, and had not appeared in any other quarter of the city, it was presumed that the insects were introduced by some American in his luggage. It would be interesting to have a report of this invasion from some medical man in London.

the last; it almost seems to me as though Heaven wished to give us during our stay a sample of all the marvelous peculiarities of the climate, and then perhaps to send us home in peace. The summer of 1779 was unusually moist and unhealthy; it was followed by an exceptionally cold winter, and this succeeded by a burning hot summer. The present winter has been so mild that I have not seen the thermometer below the freezing point of Fahrenheit more than three times; it has commonly stood between 40° and 60°. We have had but few fires, and have often dined with open windows and doors. The grass has remained quite green, and in many spots has even been growing. Instead of snow, of which we had a sample as early as November 1st, we subsequently had rain. We had a Carolina winter. Last night with a northeast wind we had a fall of snow, but it will not lie long. The coming summer will probably be unusually cold in order to complete the list of paradoxes.

New York, *February* 18, 1781.

Our winter has remained very mild, though we have had several severe storms this month, and some frosty days. The thermometer has not however as yet been more than six or eight degrees below the freezing point. It may have stood lower during some of the nights. The troops have been very healthy. There are not more than two hundred and fifty patients in the principal hospitals,[1] and to judge from the condition of our men, scarcely one in twenty-four is sick; these affections are trifling, or attack those with feeble and decrepit bodies, as might occur anywhere.

[1] One of the principal hospitals was the building occupied by King's College, which after the war was revived as Columbia College.

The New York Hospital was organized in 1769, but the foundation was not laid until July 27, 1773; the building was nearly consumed by fire on February 28, 1775. The loss was estimated at £7000, to meet which the legislature granted £4000, but the completion of the edifice was prevented by the war, during which the house was occupied by the English and Hessian soldiers as barracks, and occasionally as a hospital. Vide Historical Sketch of the College of Physicians and Surgeons of the University of the State of New York, New York, 1813; also An Account of the New York Hospital.

II.

THE CLIMATE AND WEATHER OF AMERICA.

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New York, *December* 20, 1780.

I regret not having seen the southern colonies, yet I am satisfied that in this part of the country and in the middle colonies there is field enough for new observations. The few Europeans who have traveled through these regions have, I hope, not been so impolite as to leave nothing for their successors, — and against discoveries on the part of the native-born Americans we are assured for many years to come. Making money and procuring luxuries are still their sole aims, and the sciences are only cultivated with reference to these dominant ideas.

The first and most striking comment of all travelers, not only in the northern but also in the southern half of America, may be summed up in this statement: that all the experience as to climate and weather acquired on the three old continents cannot be in the least applied to the new one. Cold has here the upper hand. As I, however, have only had a chance to see a very insignificant portion of the whole country, — namely, that along the coast from Delaware Bay to Rhod-Eyland and a small part of the adjoining provinces of Pennsylvania, East and West Jersey, New York, Connecticut, and Rhod-Eyland, I must confine my remarks chiefly to this section.

When we were first approaching the coast of New York,[1] I foolishly flattered myself that I should find a mild, fertile, and agreeable climate, such as those countries in Europe enjoy which lie in the same latitude. I was however soon convinced that the difference between the two was very considerable. A part of the States of the Church, the northern part of Naples, the southern provinces of France and Spain, and

[1] In January, 1779.

the equally delightful countries in the East, have the same solar elevation as the above-mentioned provinces in America. But all the agreeable features, all the advantages which have earned for Italy the name of the Garden of Europe, all the delicate wines, the excellent cereals, the multitude of delicious fruits which abound under the same parallel in Europe, and even much farther to the north, are here wanting. Instead of the moderate summers and mild winters of Naples, we have here heat and cold of extraordinary severity in both seasons, and no products which can be compared with those of that region. The two Carolinas and Floridas, although the most southerly colonies and exposed to the hottest summers, experience nevertheless for a longer or shorter period every year, all the effects of a winter often severe. These comparisons are still more striking when applied to the northern regions of America. In the latitude of 48°, 49°, and 50°, we enjoy in our fatherland a mild, temperate climate, sufficiently warm to produce good wines, cereals, and delicious fruits. A land of almost eternal ice and snow occupies the same parallels in North America. New Scotland,[1] Newfoundland, Canada, and New Britain[2] are as much unlike the countries lying parallel to them in Europe as winter is to summer. These provinces, as well as Labrador and the country about Hudson's Bay, are enveloped in ice and snow for rather more than half the year, so that Europeans living in the same latitude have not yet ventured to settle there. The same cereals and fruits which are cultivated in Europe far above the fiftieth degree, here cease to grow at about the fortieth degree. Wheat, for instance, hardly ripens any farther north. Albania and New England produce but little, and that of inferior quality. The author of the Recherches Philosophiques sur les Américains estimates the difference of warmth between the Old and New World at twelve degrees.

New York and Philadelphia languish in the summer months, often for many successive days, under a heat which, according to the sensations and testimony of travelers, as well as the height of the thermometer, is as great as in the West Indies and the most southerly portions of the terra firma ; it does not, however, persist so uninterruptedly and for so many months as there. Almost every summer the Fahrenheit

[1] Nova Scotia.

[2] New England.

thermometer has been observed repeatedly to stand at 95°, 96°, and 97°. At the end of June and in July, 1778, while the British army was retreating from Philadelphia to Jersey, it remained for eight successive days between 91° and 96°, and on the 28th of June, the day on which the battle near Monmouth Court House took place, the thermometer was at 96°. In Rhod-Eyland, which, owing to its exposed position on the sea, has a temperate summer, I have frequently seen the mercury in June, July, and August, between 84° and 90°; in this last summer we had an unusually persistent drought and heat in July and August. The height of the Fahrenheit thermometer at midday in the shade was 84°, 88°, 90°, 92°, and 96°, on successive days. Uncovered and exposed to the sun it rose to 106°, 110°, 115°, etc. In the sun, but covered with a thin, black silk ribbon to prevent refraction of the sun's rays, the mercury in my thermometer filled the whole length of the glass, but this only extended to 123°. On the other hand we have seen Dr. Nooth's thermometers, which are prepared with great exactitude and are marked to above the boiling point of water, stand between 128° and 135°, and once, on the 24th of August, at 146°, when covered as above and exposed to the sun, or laid upon a stone which was warmed by the solar rays. In the night mine has stood at 79°, 82°, 88°, and 90°, during the hottest weather.

More unexpected, however, is the extreme cold of the winter when taken in connection with the latitude of the position and the heat of the summer. To judge from the variations of the weather, one would think that this stretch of territory was transported every year from under the line up to the north pole. The credulous Americans have long flattered themselves that, by the great progress of cultivation and by the destruction of the forests of the country, their climate has for some years been rendered much milder, and the severity of their winters been moderated. The past winter, however, has disappointed these premature anticipations. Few of the inhabitants can remember a similar one in respect to the severity or persistence of the cold and frost, and to the amount of the snow-fall. Even as early as the end of November and first weeks of December a steady frost set in; snow fell frequently and remained everywhere upon the ground; in ordinary winters this is not wont to occur until four to six weeks later. Back in the country

such an amount fell in various snow-storms that sleighs were driven over all the fences. In January the severest cold was experienced ; the North and East rivers froze so thick that loaded sleds were driven over both. All excursions towards Powles Hook, expeditions, all kinds of provisions and even twelve-pound cannon were carried to and fro upon the ice for nearly four weeks. Sleighs passed from here to Staaten-Eyland and Long-Eyland, and from one to the other of these islands. Between East Bay and Westchester people went for twenty miles upon the ice. In Philadelphia the usual oxen feast was held upon the Delaware, the river being frozen down to the bay. The position of the southern provinces protected them this time as little as ever from the inclemency of the winter. The James and York rivers, in latitude 37°, were frozen hard, and Chesapeake Bay was full of ice. The streams in Georgia and Carolina, in latitudes 32° and 33°, were covered with ice an inch thick. Instances of the extraordinary effects of cold in former years throughout the southern provinces are constantly recalled. "On February 7, 1747, it froze so hard in Charleston that two bottles, which some one had taken into bed, were found in the morning burst, and the water changed into a lump of ice. In one kitchen where a fire was kept up, the water, nevertheless, in an earthen vessel, which contained a live eel, froze to the bottom. On January 3, 1765, Mr. Bertram experienced such extraordinary cold in St. Augustine in latitude 30°, that in one night the ground along St. John's River was frozen an inch thick and all the lemon and banana trees about St. Augustine succumbed to the cold."[1] The famous winter of 1740, and perhaps a few others may, judging from the accounts and sensations of the inhabitants, be compared with this one for cold. According to observations which were taken before the war by gentlemen at the New York college, the mercury had often been seen under 6° below zero, 38° beneath the freezing point; in the last one this was a common occurrence. My thermometer only extends to zero, so that I have not been able to take any observations about the extreme fall of the mercury, though I have several times seen the tube quite empty. I doubt if so striking a contrast between heat and cold has been experienced in any other part of the inhabited globe as in this place whose climate has been so extolled by

[1] Robertson's History of America, vol. ii., page 331.

Franklin. From 13° below zero to a warmth of 96° in the shade, the difference is 109°, and to the greatest heat of the sun, 136°, amounts to 159° ; the climate of England, on the other hand, though in a northerly situation, is so tempered that the variation from the greatest heat to the greatest cold does not exceed 65° in the shade.[1]

It is not enough that the extremes of heat and cold are so far apart ; it is not enough that in the uninterrupted cycle of ages, the effect of one or other is reduced to nought, and that the land, which is exposed to all the discomforts of the torrid and frigid zones, yet does not enjoy the advantages of either. Rapid variations from heat to cold constantly take place every four or five days in these regions. In the north the weather appears to be somewhat more stable ; yet very warm days often occur in the months of February and March, and alternate with frost and snow. It freezes in the middle of April, and often even in May. In the winter of 1779 people were brought to the hospital in Philadelphia with frozen toes, although on that day the thermometer was standing at 70°, and they were only suffering from the frost of the preceding night. We have sat with doors and windows open in February, without a fire, and yet, on the other hand, we have often been glad to have a fire in the middle of summer. On December 25, 1778, I encountered one of the most terrible northerly storms, on board a ship in the Sound. The mercury stood between 4° and 20° for a number of days, and immediately afterwards, the transition from the old to the new year brought us a most delightful spring weather of 45°–68°. In the month of July, 1779, there followed upon great warmth so frequent rains with easterly and northeasterly gales, and such cool days, that delicate individuals had to have fires. On the 20th of last August, after a long series of hot days, we saw the thermometer suddenly fall to 63° and rise on the 24th to 92°. It is incredible what disagreeable physical sensations are produced by these sudden contrasts, not to mention the prevalent diseases. When the Russian plunges from his vapor bath immediately into the snow, or into the stream that is covered with ice, I hardly think he suffers half as much as we do from the incessant changes of the weather. On the last day of October we had quite a warm afternoon ; between five and

[1] The greatest cold ever experienced in England was 15°. The greatest heat, in August, 1779, was 70°. (Schoepff.)

six in the evening there was thunder and lightning in the distance, and nothing was more unexpected than to find, on the next morning, November 1st, the whole ground covered with snow to the depth of an inch, and yet at eight o'clock in the morning the mercury had already risen to 80°. If America should ever have a Thomson (thus far she has not produced even a tolerable poet), I cannot imagine which season of the year he would find it worth his while to celebrate.

The only moderately agreeable months are September and October. The charm of spring is unknown and unfelt. A steady April weather is experienced through the months of March, April, and May — alternate summer and winter. Then, of a sudden, a moderate heat supervenes, in the intervals of which eastern and cool northern winds remind us of the scarcely defunct winter. The vegetable kingdom comes to life several weeks later than in England and no earlier than in Germany. . . . Northwesterly winds are the most common in this part of the world; they prevail during all seasons of the year and are often not spent till they have crossed the Atlantic. Upon them Columbus based his belief in the existence of a then unknown western continent. Although they often assail us in the rudest manner, and are so chilly, even in the hottest summer weather, we must yet credit them with the greatest of benefits, since they expedite the voyage to Europeans who are hastening home to their mild, civilized, and in every respect excellent fatherland. It almost seems as though the westerly gales, fogs, and mighty seas had been cast in the way of Europeans by a beneficent Providence as so many warnings to keep off. When they have been overcome, nothing is found but the gloomy shadow to the bright picture of home.

It has been calculated that land-winds prevail in North America during three fourths of the year; these expedite the return of ships to Europe, so that they make the trip in half the time required for the outward voyage. To shorten the passage from Europe it is necessary to steer far to the south, so as to reach the trade-winds. Single ships and merchantmen therefore often diverge as far as the twenty-sixth degree of southern latitude. Transports are not able to follow this course for fear of exposing the troops to the great heat, particularly when the sun is in the northern hemisphere.

It has been observed that the severest storms commonly approach on the side toward which the wind is blowing [to leeward] ; a north-west storm, for instance, breaks out a day earlier in Virginia than in Boston. The cause of this is apparent, for if the atmosphere in the south becomes rarefied for any reason, the denser air will at once move from the adjacent regions in that direction ; an influx from the north is thus gradually set up.

Besides these winds, there exist along the coast of North America during the hot days, the so-called sea-breezes. They do not penetrate for any distance inland ; Philadelphia, which lies far from the sea, is never reached by them, so that the heat is heavy and oppressive ; Boston, at the head of a deep bay, feels them but little. New York is, in a manner, sheltered from them by the heights of Long and Staaten Eylands, yet they seldom fail to reach the city with the flood-tide. Their effect is most marked in Rhod-Eyland, where, owing to its immediate propinquity to the sea, the excessive midday heat is greatly moderated. For this and other reasons this island is always regarded as an agreeable and healthy summer resort ; people of means frequently come there from the West Indies and the southern provinces to pass the summer. The land-breezes, — which in the West Indian Eylands and in most warm countries alternate with the sea-breezes and render the nights cool by blowing from the land towards the sea, — are not much felt here, at least, not invariably ; they occasionally spring up toward midnight or later, and die down toward sunrise. In summer there is apt to be a calm in the morning and evening ; this and the sea-breezes through the day have often detained ships for many days in the harbor of New York. Another disagreeable feature of this coast is the thick, heavy fogs which collect in the summer, produce an unpleasant, sultry weather, and are often so thick as to wet one's clothes. . . . . The natives consider them to be harmless, which is true, in so far as they contain no injurious exhalations from stagnant water or marshes, but are simply sea-water disseminated in the air. . . . .

It is a pet theory of the Americans that the excessive cold of their country is imparted to the wind chiefly by the snow which lies so long in their boundless forests. They base this belief upon a fallacious experience. Thus I have heard several old inhabitants assert that the

cold has not been nearly so severe in recent winters as it was twenty or thirty years ago ; in the interval of time very many forests have been leveled. This opinion is based only upon physical sensations, and the memory is very likely to be at fault in comparing the experiences of different years. During the war, a much greater amount of wood than usual has been cut in this neighborhood by both armies ; the past winter has nevertheless been more severe than any of its predecessors ; all these considerations make it very desirable that proofs should be brought forward in support of the above assertion.