PHYSICAL

OBSERVATIONS,

AND

MEDICAL TRACTS AND RESEARCHES,

ON THE

TOPOGRAPHY AND DISEASES

OF

LOUISIANA.

BY JABEZ W. HEUSTIS, M. D.
Late Surgeon in the Army of the United States, &c. &c.

Δοκέει μεν οὖν τά νουσηματα οὐδέν αλληλοισιν ἐοικέναι, διὰ τον αλλοιότητα και ανομοιότητα των τόπων, ἔστι δε μια των νουσέων ἁπασῶν καὶ ἰδέη, καὶ αἰτίη η αυτη. *Hippocrates.*

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TO HIS EXCELLENCY

DANIEL D. TOMPKINS,

GOVERNOR OF THE STATE OF NEW-YORK, &c. &c.

I Feel myself happy, on the present occasion, in the opportunity afforded me, of thus publicly expressing my sentiments of honour and esteem for so distinguished and illustrious a character; in whom are happily united the rare, estimable, and enviable qualities of civil, military, and private worth; the patron of science, and the irreproachable friend of his country; whose skill in devising, and zeal in executing, the various means of safety and defence in the late arduous and important conflict, entitle him to the grateful remembrance and the affectionate acknowledgments of an applauding people.

That your Excellency, through the favour of Divine Goodness, may long be rendered the happy guardian of our Republic, and the blessing of our Country, is the unfeigned wish of

Your humble Servant,

J. W. HEUSTIS.

New-York, Dec. 2, 1816.

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PRELIMINARY OBSERVATIONS.

LOUISIANA is a country so important, so interesting, and, at the same time, so little known, that all information respecting it will, no doubt, be seized with avidity, and read with attention. On this account I have somewhat enlarged upon my original design, and have given a faithful geographical sketch not only of the state, but also of the whole country of Louisiana. This will not be deemed irrelevant, nor stand in need of apology, when it is considered, that the endemics of every climate owe their generation and character to the local peculiarities of physical causes. This is a subject that cannot fail to prove interesting to all, and particularly to the physician; who should view, with critical observation, the walks of nature, in all their intricacies and meanderings; and pursue his investigations over hill and dale, through shady forests and cultivated gardens: all creation being the field of his inquiry, and the book of nature the authentic source of his information.

But what claims his more particular consideration are the diseases peculiar to the climate. It is here that disorders exhibit a greater variety of form, and more malignancy of character than in any other portion of the United States.

If, therefore, diseases, by their importance, and in proportion to their malignancy, and the destruction which they produce, interest the feelings, and engage the attention of the physician, in the same manner as political disasters, and the convulsions of empires interest the statesman and the politician, the subject of the following pages, will, I trust, be found not altogether unworthy of serious consideration. If they fail to interest and instruct, it is not from their want of importance, but of an abler pen. I considered it a field, in which much remain to be done; and as none have hitherto stepped forward to the undertaking, I have thought it my duty to make the attempt.

The substance of the following observations was drawn up during my residence in Louisiana, amidst the professional avocations of a military life. Having a field for research, and medical information, I did not suffer the opportunity to escape without improvement. I saw the complicated character of diseases, considered their origin, and marked their progress. I committed my observations to paper; and what I saw and observed, I endeavoured to understand. The more I saw, the more was I convinced of the natural affinity and close analogy of the various modifications of those diseases which fell under my observation. From researches into their causes, and attention to their phenomena, I endeavoured to ascertain their nature. Experience, reading, and reflection at length afforded a satisfactory clue to my inquiries, and enabled me to trace the simple operation of nature in bringing about the complicated appearances of effects.

The pestilential scurvy of Terre-aux-Bœufs, the destructive ravages of which are without a parallel in the military annals of our country, particularly engaged my attention. That I might understand its character, I inquired into the nature of scorbutic diseases, which is the first disorder to which the reader's attention will be directed.

I have chosen scurvy as the first object of consideration on the subject of diseases, because, in my opinion, it is of primary importance, on account of the mortality which it frequently occasions; and, also, from the relation which it has to other diseases. It has frequently committed the most destructive ravages in the army and navy; and even towns, villages, and countries have witnessed its desolating progress. The other diseases of the climate are considered in their proper places, and with as much detail as the prescribed limits of the present performance will admit.

In the prosecution I have endeavoured to arrive at practical conclusions by an inquiry into the nature of those morbid phenomena. By an intimate acquaintance with the immediate causes of diseases, we are furnished with the necessary indications for their cure. The illustrious Sydenham has observed, that, possessing this knowledge, and a correct history of a disease, he was never at a loss to prescribe a suitable remedy for it; and that he always proceeded with caution, until these circumstances were ascertained. In forming conclusions reasoning becomes necessary, without which memory is soon fatigued, from its constant uniformity of action. Memory itself is unfaithful, and by trusting to it, we shall frequently render ourselves the subjects of disappointment. Reason forms her system, makes her principles the rule of conduct,

and stands in no need of having recourse to the mechanical imitations of others, to enable her to discharge the duties of her office. It was well observed by Dr. Gregory, that "although facts afford the only solid foundation for genuine science, yet when we consider them as unconnected with other facts, they convey but little instruction. The phenomena of nature are infinite; but the capacities of the human mind, and, particularly, of the memory, are limited. If these phenomena, therefore, were not reducible to certain general principles or laws, our experience of particular facts could do us but little service."* If I have made frequent references to different authors, and employed occasional quotations, I have done so because I conceived this to be the best mode of inquiry and instruction. The originality of a single individual, must, at best, be very limited and imperfect, even with the advantages of many years of observation in an extensive practice. Man, left to his own experience, without the aid of instruction from books, and the experience of others, is, to say the least, a mere novice, and an ignorant pretender. Of what use is his experience, unless directed by settled principles of conduct? It is the aid of reading and reflection alone that can mature his understanding, and furnish him with a discriminating judgment. His own experience is often deceitful, unless sanctioned by that of others. Numerous experiments, conducted with the greatest accuracy, are necessary to establish the certainty of a single circumstance. But how easy is it for a man to be mistaken with respect to the propriety of his own conduct in the treatment of diseases; a certain medicine may produce but little injury in one person, although directly prejudicial in its influence, and the patient, supported by the strength of constitution, may recover in spite of the error of the physician. Here, then, it may be said, is a well authenticated fact, in support of the efficacy of the medicine employed; and which furnishes a precedent for succeeding trials. Another patient may, also, resist its pernicious influence, and escape the threatening grave. The Doctor is now more strongly confirmed in his experimental practice, and institutes his prescriptions upon the ground of that experience, which has proved so successful. *Experientia docet* —"I am correct," says he; "I am glad I have hit upon the right method." Unfortunately, the next patient falls a sacrifice to his empiricism; but, surely, the medicine cannot be to blame; two facts in favour of its efficacy, stand in opposition to one against it; the patient's death must have been owing to

* Gregory's Lectures on the Duties and Qualifications of a Physician p. 119.

the absolute incurability of the disease. In this manner he proceeds in the work of destruction, without sufficient discernment to discover the danger and fatality of his misguided practice.

In order, therefore, to derive the full advantages of a free discussion, it has been my business to examine, weigh, and scrutinize opinions; and to investigate, compare, and analyze facts; and, in this way, have endeavoured to arrive at some useful pathalogical conclusions. To some, the conclusions which I have formed, and the opinions which I have advanced, may appear new. Some may consider me as desirous to revive the exploded doctrine of the humoral pathology. It would be vanity in me to think so; or to consider myself, in any degree, competent for such an important event. Nothing but truth has been my object, and an unbiassed mind has directed my researches. In forming conclusions, I have had recourse to the facts recorded by different authors; unwilling to trust to the evidence of a solitary circumstance, or of a single individual; but, in using their facts, I have disregarded their theories. And though, in many instances, I may have differed in sentiment from others, it has not been for the love of altercation; nor in those where we may happen to agree, has it been merely from respectful complaisance, and deference to opinion.

Εχθρὸς γαρ μοι κεῖνος, ὁμῶς ἀίδαο πυλῃσιν,
Ὅς χ' ἕτερον μὲν κευθει ἐνὶ φρεσὶν ἄλλοδε βάζει.

Freedom of opinion is our unalienable right; and, in this land of liberty, may tyranny never raise its pernicious head, and establish its dominion! Perish the despotism that would bend the mind to the domineering power of arbitrary sway, or seek to rule the sentiments of mankind by any other means than strength of reason, and the force of argument!

Though in relation to our intercourse with cotemporary individuals, a becoming respect is due to the hoary locks which adorn the heads of our fathers; yet, in the republic of letters, the garb of antiquity should afford no protection or sanctity to the errors that lie under its mouldy covering. It is a duty which we owe to ourselves and others, to think and speak agreeably to the dictates of our own understanding. Without a difference of opinion, there would be no improvement; an obsequious and servile imitation would mark the degeneracy of our natures, render us unworthy of respect, and stigmatize us as the groveling objects of contempt. But such is the sanctity of age, and our reverence for that which is old, that we are apt to look with submissive deference, and awful veneration upon all things which bear the stamp of antiquity.

Could we, however, disrobe them of this ornamental garb with which they have been invested by ancient time, and view them in the light, and with the scrutinizing severity of cotemporary objects, we should frequently find that this *crugo* of antiquity had served only to conceal their real character and aspect from our view; and by its removal, we might experience the mortifying disappointment of Dr. Cornelius Scriblerus, who had the infelicity and unspeakable grief to discover, that his supposed shield of the ancients, when divested of its venerable rust, by the sacrilegious nicety and industrious scouring of the maid, was nothing more than a paltry noseless sconce. Thus it is, that the writings of the ancients are quoted with such religious veneration by succeeding authors; and notwithstanding their innumerable errors, both in theory and practice, (with respect be it spoken,) the man who should confidently presume to differ from them in opinion, would perhaps be liable to the censure of some old fashioned orthodox believers. Let such, however, consider, that science is progressive in improvement. Unlike art, she proceeds from one degree of perfection to another, through the revolutions of succeeding ages. The science of medicine is the offspring of philosophy, and of cource its growth and improvement will keep pace with the discoveries that are made in the physical world. Art frequently begins, and arrives at its perfection, in a single age, country, or individual. Homer, though the first, or father, by just pre-eminence, is still the prince of poets. In sculpture, Phidias bears the palm; and in painting Raphael, who imitated nature, is still inimitable. To these succeeding artists may look up with respect and admiration, and consider themselves supremely happy in the ability to accomplish a slight and imperfect imitation of their beauties. Not so with science: unlimited as the immensity of space, are the objects of her investigation; and infinite as the omniscience of the Divine Mind, is the *ultimatum* of her perfection.

Let it not be supposed from this, that it is my intention to pass a general and unqualified sentence of disapprobation on the ancient physicians. Just merit is too strong in the protection of superior worth to fear the attack of obloquy, or to be shaken by the assault of criticism, envy, or detraction. Merits they have, which neither time nor change can sully with reproach. As it is necessary in an historian carefully to notice the various causes and gradations of the prosperity, rise, maturity, and decline of nations; so it is necessary in a physician, who would wish to excel in his profession, to be acquainted with the science of medicine from its infancy, through its various states of improvement. Let us not, therefore, in con-

temptuous pride and ingratitude, turn our backs upon the authors of our elevation, without an acknowledgment of the debt we owe them. Let us examine their doctrines, shun their errors, and give them credit for the facts they have recorded.

Upon the subject of the humoral pathology, we may remark, that since the time of Dr. Cullen, the materials of this doctrine have almost disappeared from the pages of modern productions, so that only here and there is a vestige discernible in the writings of later physicians, to indicate the reality of its former existence. Such has been the influence of a great name, and the power of fashion.

From the low and imperfect state of chemistry, and the relative branches of medical science, previous to the eighteenth century, it could not be expected that the systems formed by the ancient physicians would withstand the scrutinizing test of progressive improvement and future investigation. It is no wonder, therefore, that Dr. Cullen should have discovered the imperfections and errors prevailing in the systems of his predecessors, and perceived the necessity of forming a new one; or, at least, of renovating and exhibiting under a new aspect, one that already existed. From the imperfection of chemistry, anatomy, physiology, &c. an attempt to explain the phenomena of diseases upon the principles of the humoral pathology, must doubtless have appeared unsatisfactory and erroneous: yet, if, as the doctor admits, "the fluids of the human body do suffer various morbid changes;" and if, "upon those diseases may primarily depend;" are we to be deterred from the consideration of them, in the investigation of diseases, on account of the difficulty and obscurity of the subject? If, in any cases of morbid affections, the immediate cause of diseases is only to be found in the fluids of the body, what prospect have we of arriving at a discovery of their nature, by searching in any other part of the general system? Such a labour would be vain and futile: we may compare it to the conduct of a man in search of treasure concealed within a rock, but who, unwilling to encounter the laborious task of working through its solid substance, avoids the difficulty of the undertaking, by digging in the neighbouring sand; where he finds nothing but dross to compensate him for his labour.

If the morbid changes which take place in the fluids of the body were but little and indifferently understood previous to the time of Dr. Cullen, later discoveries and improvements in physic have, in some degree, removed that difficulty, and cast a light upon the obscurity of the subject; so that an investigation of the nature of diseases, upon those principles, may now

be attempted with a prospect of better success. Dr. Cullen has pretty effectually avoided the doctrine of the fluids; and in his zeal for improvement, has run into the opposite extreme.

The nervous system, and the mysterious laws of excitability, modified into a doctrine of inconsistency by Brown, and improved in absurdity by Darwin,* have exercised the ingenuity of succeeding physicians, who, from an almost exclusive reliance on this hobbling chimera, have been misled and bewildered in the intricate mazes of a labyrinth with which they were but little acquainted.

There are undoubtedly many morbid phenomena of the human body which have their seat exclusively in the nervous system; and there are others again that are independent of this, and are only to be referred to in a morbid change in the circulating fluids. But in the affections of the sanguiferous system, it not unfrequently happens, that the former becomes disordered, as a consequence of the original disease: and thus the several systems of the animal frame may become morbidly deranged at the same time. This is more particularly the case in fevers, where the variety of pains, spasms, and occasional convulsions, indicate a general affection of the whole body; while, on the other hand, it not unfrequently happens, that the nervous system becomes violently and mortally affected, without communicating derangement to the sanguiferous system. This is particularly exemplified in tetanus. Hence it happens, that from the frequency of nervous affections being observable in almost every morbid derangement of the body, physicians have been led to conclude, that the whole of the morbid phenomena are referable to the nervous system. I think, however, that in the course of the following pages I shall be able to advance sufficient evidence to prove that in this they have been mistaken.

Scurvy is only one of many diseases that owe their existence to a vitiated state of the fluids of the body; but it is one in which this condition admits of more easy demonstration than many others, the consideration of which I at present omit.

Upon the subject of the bilious remitting, or yellow fever, I have been necessarily short; concisely relating what fell under my own observation. I could not pursue the subject to a greater length, without swelling it to a voluminous bulk.

Some, perhaps, may consider me rather too free and unguarded in my observations; but, if I have sometimes used a

* It is far from my intention to detract from the reputation which, by general consent, these physicians have so justly acquired. We admire their genius, and applaud their merits, notwithstanding the number of their errors and absurdities.

warmth and severity of expression, I trust I have done so on proper occasions only: and where occasion dictates to the mind in the cause of truth, justice, humanity, or virtue, it would be acting inconsistent with the duty which we owe to society, and to ourselves, as members of the community, to stifle and suppress the voice of utterance.

OBSERVATIONS

ON THE

TOPOGRAPHY OF LOUISIANA.

"Let us, (since life can little more supply
Than just to look about us and to die,)
Expatiate free o'er all this scene of man;
A mighty maze! but not without a plan;
A wild, where weeds and flowers promiscuous shoot;
Or garden, tempting with forbidden fruit.
Together let us beat this ample field,
Try what the open, what the covert yield;
Eye Nature's walks"———

POPE.

IT is a fact confirmed by the general experience of mankind, that diseases are essentially influenced and diversified in their character and symptoms, by the local circumstances of climate and situation. In all inquiries, therefore, upon the subject of endemic diseases, the physical appearances and condition of the country are entitled to primary consideration. I shall, accordingly, dwell for a little upon the topography of this interesting portion of the union; a country, which, from the richness of its agricultural advantages, claims the pre-eminence over every other portion of the United States; and, in this respect, is certainly entitled to the flattering commendation of M. De Vergennes, who says, "la Louisiane est sans contredit, le plus beau pays de l'univers par la douceur de son climat et son heureuse situation."* Though this advantage of climate and happiness of situation, with respect to the acquisition of wealth, are, in a great degree, counterbalanced by the tax which nature imposes upon the health and lives of the inhabitants.

* Memoir de M. De Vergennes sur la Louisiane.

The state of Louisiana extends from about the 29 to the 33° of N. lat. and lies between 89 and 95° 30′ W. long. from Greenwich. This state is bounded west by the Sabine River, which separates it from the Spanish province of Taxes; north by the Missouri Territory, east by the Mississippi and Pearl Rivers; and south by the Gulf of Mexico. The general dimensions of the whole country of Louisiana extend from the Missisippi to the Pacific Ocean.

The principal rivers of Louisiana are the Missisippi, Red, Ouachitta, Pearl, and Atchafalaya Rivers. Advancing westward, from the Atchafalaya and Plaquamine, we successively find the smaller rivers, Teche, Courtableau, Vermilion, Mermentau, Calcasu, and Sabine, besides other numerous small anastomosing Bayous. On the east side of the Missisippi, between it and Pearl River, are the Amite, which empties its waters into the Bayou Manchac, or Iberville River; the Tickfah, which empties itself into Lake Maurepas; and the Tangipao and Chifuncte, which fall into Lake Pontchartrain. All these latter are rivers of small dimensions, from 40 to 100 miles in length, which take their rise in the Missisippi Territory, and pursue a southwardly course. The Bogue Chito is another river, or branch of the Pearl, which unites with it twenty miles from its junction with the Rigolets, after pursuing a course of 80 miles. The Pearl is a larger and more important river, rising like the other streams west of the Missisippi, in the Missisippi Territory, and falls into the Rigolets, after running a distance of 180 miles. Many streams of considerable size besides the Bogue Chito contribute to augment the Pearl.

The country of Louisiana is separated into two portions, by that great ridge, called the Stony or Rocky Mountains, which gives rise to the Missouri and Columbia Rivers; the latter running west, and discharging its waters into the Pacific Ocean; the former taking a southern and eastern course, and uniting with the Missisippi. Hence it follows, that the country of eastern Louisiana, from the sources of the Missouri, Red, and Arkansas Rivers, &c. to the Gulf of Mexico, is an inclined plane, sloping to the south-east, the direction in which the rivers run. The Stony Mountains are destitute of trees, and have but here and there a scanty covering of herbage. The mountains gradually decline in elivation as they approach the Gulf of Mexico. A few hills of inconsiderable height verge along the western part of this state, about the 31° of north latitude, dividing the waters that flow into the Red River and Calcasu eastward, from those which pursue an opposite course and fall into the Sabine. North of 31° 30′, this ridge of hills runs

nearly equidistant between the Red and Sabine Rivers; becoming irregular and broken, they pursue this direction beyond the state of Louisiana. A chain of hills winds along the south bank of Red River, near the Panis village, giving the waters a southern direction towards the Gulf of Mexico. Another elevated ridge enters this state about the 93° W. long. runs a few miles south, reaches the bank of the Ouachitta in 32° 15′, ranges along that river, until it finally disappears in 31° 42′ N. lat. and divides the streams which fall into the Red River from those which unite with the Ouachitta. An insolated hill, called Sicily Island, rises from the bank of the Ouachitta, below the mouth of Bœuf River, on the same side. This elevation is about 40 or 50 feet, and continues to preserve that height for some distance, when it gradually sinks into the overflown lands towards the Tensaw River. Below the town of Alexandria, at the rapids of Red River, the hills slope off in opposite directions towards Opelausas and the Ouachitta Rivers. There is an elevated ridge which commences at New Iberia, in the lat. of 30 3°′, and runs through Opelausas and Attacapas, in a north-western direction, being, apparently, a continuation of the mountains that give rise to the Red and Arkansas Rivers. Avoyelles, at the junction of the Red with the Missisippi River, is an elevated tract of prairie, about 16 miles long and three broad, rising to the height of 15 or 20 feet above the general level of the country. These are all the hills worthy of notice in the state of Louisiana; the rest of the country is either a prairie or morass.

The land of this state decreases in fertility as we proceed westward from the alluvial tract of the Missisippi. Immense prairies, or natural meadows, then open to the view, and constitute the greatest portion of Louisiana. These prairies extend in a north-westerly direction, from the Gulf of Mexico to the Stony Mountains of the Missouri, and to the polar regions. Here and there these plains are intersected with strips of timber land, bordering the streams: but more than four-fifths of the country is prairie. The northern portion of this tract, watered by the Missouri, is more fertile and productive than that of the southern, lying in the vicinity of the Gulf of Mexico. In no situation, however, is it well adapted to agriculture; and nature seems to have intended it as a never-failing source of life and enjoyment to the herbivorous animals of the American Continent. Though possessing a greater degree of fertility, these plains have no inconsiderable resemblance to the desert steppes of Asia, north of the Caspian and Aral Seas. In this wild region, with the exception of a few well watered spots, this arid country presents a dreary expanse, extending from the state of

Louisiana to the Rio Gila and the eastern ridge of the Californian Mountains. Though affording an inhospitable residence to man, it, on that very account, gives greater security and protection to those wild animals that shun the society of their common enemy and destroyer. Here range innumerable herds of buffalo and deer, and other animals of the sheep and goat kind, whose constitutions enable them to resist the scorching droughts of this thirsty region.

Such, however, is the condition of animal existence, that few beings subsist solely for their own enjoyment, but for the purpose of affording gratification and comfort to others; more particularly to man, the lord of the universe. Even here in this wild, dreary, and forbidding region, nature has not opposed sufficient obstacles to prevent him from rioting in the carnage of those peaceful tenants of the desert. Leading a wild and vagrant pastoral life, the Hietans, like the Tartars and wandering Arabs, following the herds, have no settled place of abode, but shift and adapt their residence to the migratory movement of these animals, who change their pasture whenever drought and scarcity of water compel them to seek a more favourable situation. The Hietans, who inhabit these regions, have tamed and domesticated the horse, and excel in the management of this noble animal. They are the only aboriginal inhabitants of this continent who have been gallant enough to attempt, and sufficiently skilful to withstand, the shock of cavalry instituted on the principles of European tactics.* In this respect they resemble the Mexican troops of the Presides, according to the account of Baron Humboldt, who observes, "The Mexican troops of the Presides are exposed to continual fatigues. These soldiers are all natives of the northern parts of Mexico. They are mountaineers, of high forms, extremely robust, accustomed to the frosts of winter, and to the ardour of the sun in summer. Constantly under arms, they pass their lives on horseback. They often march eight or ten days over those desert steppes, without carrying with them any food, except the flour of Indian corn, which they mix with water, as they meet a spring or pond on the road. Well informed officers assert, that it would be difficult to find in Europe a troop more light and active in their movements, or more impetuous in their charge.†"

Here may these outcasts, and strangers from polite society, find a safe retreat from the encroachment of their white countrymen, who are not disposed to envy them the poverty of their enjoyments. Though poor in the estimation of civilized

* Pike. † Humboldt's Political Essay on New Spain.

refinement, a serene sky, a temperate climate, and a pure atmosphere, give them the greatest of worldly blessings, the possession of health. An atmosphere uncontaminated with noxious exhalations, fanned with salubrious breezes, and purified by passing over the verdant herbage, diffuses health around them on its balmy zephyrs. Free from anxiety, and strangers to the pangs of disappointed ambition, and unmolested by corroding cares, hope deferred, or blasted expectation, in the possession of health, happiness gilds the unenvied life of nature's humble fondlings: whilst, in the refined societies of civilized life, how often do we see poverty and disease aggravate the misery of existence, and cause the unhappy patient to drain, to the very dregs, the bitter cup of calamity.

But leaving those wilds to the native inhabitants who possess them, and directing our view to the *state* of Louisiana, a different scene presents itself to our observation: the mountains gradually subside into plains, the arid prairie yields in many places to the more fertile tracts of alluvion, the earth is clothed with a richer covering of vegetable growth, and trees of a gigantic size indicate the existence of a more prolific soil. It is here that the Father of Rivers dispenses his fertilizing influence, in the annual inundation of the surrounding country. The spiral pine gives place to the umbellated cypress; the lakes, ponds, and streams are covered with the migratory water fowls, that annually and alternately visit the lakes of Canada, and the waters of the Gulf of Mexico.

A considerable portion of the state of Louisiana is unfit for the purposes of cultivation. The south-western part is principally prairie, whilst the southern, and much of that bordering on the river, is an impassable morass. At the mouth of the Sabine, which forms the western boundary of this state, the country exhibits the wildest state of desolation. A line of shell-banks extends along the shores of the lake, into which the Sabine River expands, at the distance of 20 miles from its mouth. These banks are covered with trees of a stunted growth; the surrounding country is a morass, for the extent of near 20 miles above the lake, at which distance trees begin to make their appearance. Throughout the whole extent of the southern boundary of Louisiana, the Gulf of Mexico is unapproachable in any other way than through the water-courses, except at three or four places west of the Atchafalaya; the whole coast being low, swampy, and impassable for some miles into the interior.

Between the smaller rivers which discharge their waters into the Gulf of Mexico, the country is intersected by prairies. Proceeding from the Atchafalaya River westward, we find, in

succession, the Prairie Grand Chevreuil, which lies between the Atchafalaya and the Teche, occupying the high ground between the two rivers, beyond the reach of inundation; the Attacapas Prairie, between the Teche and Vermilion Rivers; and Opelousas Prairie, lying upon the west side of the Vermilion River. This prairie is of larger extent than either of the others, taking a direction from S. W. to N. E. and is 70 miles in length and twenty-five in width. We then meet with the Grand Prairie, Prairie Mamou, Prairie Calcasu, which, extending from N. E. to S. W. is fifty miles long and twenty wide; and, lastly, the Sabine Prairie, between the Calcasu and Sabine Rivers.

The soil of these prairies decreases in fertility as we recede from the Missisippi, becomes dryer, and less subject to inundation. The Attacapas Prairie, along the margin of the Vermilion, is of a good quality, and well adapted to the cultivation of cotton, tobacco, indigo, corn, and rice. It is probable that the sugar cane might also be cultivated to advantage south of the 30° of N. lat. Springs of water are not common in these prairies, though it is easily obtained by digging through the soft earth to the depth of from 20 to 60 feet. The Opelousas Prairie affords a vast and extensive range for cattle. It is principally from this immense meadow that the inhabitants of the country, and the city of New-Orleans, are supplied with beef. This prairie contains more than 1,120,000 acres; upon the calculation that five acres are sufficient for the annual production of a single animal, the number of 224,000 is afforded, which, at the average price of ten dollars a head, yields an aggregate amount of 2,240,000 dollars a year. The Prairie Mamou is well adapted, and is now appropriated to the rearing of cattle. To give an idea of the extent to which this branch of husbandry is carried on, we way remark, that three gentlemen in the different provinces of Calcasu, Mamou, and Opelousas, are collectively in the possession of nearly twenty thousand neat cattle, together with several hundred horses and mules.

A singular appearance is observable in the Prairie Mamou, which is, the existence of a number of little hillocks, resembling vegetable beds in a garden. These little beds are ten or eleven feet wide, and from ten to eighteen inches high. They appear to be the work of some small animal of the mouse or mole kind. These elevations possess more fertility than the other parts of the prairie, as indicated by the larger size and more verdant colour of the herbage, which occasions these meadows to exhibit an agreeably diversified appearance. A great portion of these prairies is sterile, and not well adapted

to agricultural purposes. This is more especially the case with those in the western part of the state. Near the Missisippi, and along the margin of the Teche River, the land is of a superior quality.

Iron is found in the upper and hilly parts of the state, and might be manufactured on the Little Missouri, and other branches of the Ouachitta, where the ore abounds. Salt plains are very numerous in Louisiana, which will render this necessary article cheap, in proportion as it is easily attainable. Near the sea-coast of the Prairie Calcasu, salt may be obtained in any quantity. It is now manufactured to a considerable extent at the valuable salt flat on the Sabine River, at the works of Mr. Postlewaite, near Natchitoches, and is thence transported to Natches, New-Orleans, and other parts of the country.

As the Missisippi River is the largest, and of the first importance in the state of Louisiana, and as the physical appearance and phenomena of the country are, in a great degree, to be ascribed to the agency and effects of this voluminous stream, a more particular account of it may not be considered improper on the present occasion. Rising in the most northern parts of the United States, and augmented by the afflux of mighty rivers, it rolls its serpentine stream along the eastern border of Louisiana, and, passing through the lower part of the state, discharges its waters into the Gulf of Mexico.

To enable the reader to form a better idea of the country through which it passes after receiving the Missouri, the following table of the distances of various places on this river is introduced.

	Miles.	Whole Distance.
From the Missouri to St. Louis,	14	14
St. Genevieve,	73	87
Kaskaskias River,	16	103
Grand Chain of Rocks,	75	178
Mouth of the Ohio,	15	193
New-Madrid,	75	268
St. Francis River,	240	508
Arkansas,	107	615
Yazoo,	241	856
Natches,	142	988
Loftus' Heights,	55	1053
Line of demarkation between the United States and Florida,	5	1058
Red River,	10	1068
Baton Rouge,	104	1172
New-Orleans,	136	1308
Fort Balize,	100	1408

From the Great Bend to Cape Girardeau, 157 miles, the Louisiana bank generally continues high, except the interval land on the immediate margin of the river; yet, throughout all this distance, it forms only a moderate elevated ridge, from one to four miles from the river. At Cape Girardeau it begins to assume the appearance of a rough and mountainous country. This continues fifteen miles to the Grand Towers, where the ridge is a perpendicular rocky precipice, 200 feet high. From the Grand Towers to the Grand Chain of Rocks, six miles, the land gradually descends to its general level, which it afterwards preserves without interruption.

From the Grand Chain of Rocks to Fort St. Philip, or Plaquemine, situated 70 miles below New-Orleans, a distance by the river of 1173 miles, the Louisiana bank is but a little higher than the ordinary level of the river. It preserves this height from a quarter of a mile to two miles wide; westward of which, throughout this whole extent, is a swampy country, from 20 to 50 miles in breadth. This bank is inundated every spring, and sometimes in the fall, and the superabundant waters of the river are thus diffused over the whole surface of the swampy low ground of the adjacent country, which, in many places, is so wet and miry, as to render it uninhabitable, and incapable of being cultivated. In all this distance of 1173 miles, there are very few spots on the narrow slip that forms the margin of the river, which afford a site sufficiently elevated for a town or village, that would be at all times safe from inundation. New-Madrid, the only town on the western side below Cape Girardeau, has been once inundated; and the street which was intended to front the river, has been washed away by the current. A considerable portion of the eastern shore is also subject to inundation, except in those situations where it is prevented by the projection of narrow bluffs and high lands. Of these there are 14 between the Ohio River and the Gulf of Mexico. The following table exhibits the names, distances, and breadth of these bluffs on the river, where they are known:

	Miles.	Front.
From the Great Bend to the		
Iron Bank,	20	¼
Chalk Banks,	6	½
Upper Chickesaw Bluffs,	154	1
Second Chickesaw Bluffs,	11	1
Third Chickesaw Bluffs,	26	1
Fourth Chickesaw Bluffs,	33	10
Walnut Hills,	253	
Grand Gulf,	53	

	Miles.	Front.
From the Grand Gulf to the Petit Gulf,	20	
Natches,	77	25
White Cliffs,	20	
Loftus' Heights,	35	
Little Cliffs,	103	1
Baton Rouge,	24	

Throughout this distance, the banks on both sides are universally covered with forest trees. From Fort Plaquemine to the mouth of the Missisippi, a distance of 30 miles, the land upon both sides is a mere morass, or a marshy impassable prairie, skirted with small willows upon the margin of the river.

We meet with many islands in descending the Missisippi. There are 23 between the Great Bend and the Ohio, 33 between the Ohio and the Upper Chickesaw Bluffs, 51 between these and Natches, and 42 between Natches and New-Orleans. Some of these are five or six miles in length; but they are all low, and subject to inundation. They are undergoing continual change in their position and appearance, from the action of the river diminishing them in one part, whilst the deposition of new materials increases them in another. Their formation is effected in the following manner: A tree, in floating down, gets fastened by its branches to the bank or to the bottom of the river, where the water is shoal; against this obstruction, other trees, leaves, brush, and the mud of the river, are lodged, and, by continually accumulating, in a short time form a solid compact mass, in the form of an island; the upper end of which is constantly enlarged by fresh accumulation of those various substances, while the lower part is often undermined and washed away by the current: and in this manner, many of these islands, by renovation and the accretion of fresh materials, are constantly ascending the stream.

The navigation of this river is not free from danger, and is attended with many difficulties; amongst which *sawyers*, *planters*, *falling banks*, and *bayous*, are principally worthy of notice.

Sawyers are the bodies of trees which, from their roots having become fastened into the bottom of the river, receive, from the pressure of the current, a constant vibratory motion. They frequently disappear from one to 20 minutes, and then raise their trunks with great swiftness, from one to 10 feet above the water. The unfortunate boat against which they may happen to strike, is immediately destroyed. *Sleeping sawyers* approach only within 12 or 15 inches of the surface, and from being concealed, are still more dangerous.

Planters are trees firmly beded in the soft sandy bottom of the river. Some are perpendicular, others incline up or down the stream. At night they are peculiarly dangerous. The middle of the river is too deep to admit of the fixation of trees in the bottom, so as to be productive of any injury. They are only dangerous upon each side, about one third across the river.

Falling banks are parts of the banks so much undermined by the current, that pieces of them, frequently more than an acre in extent, are constantly falling into the stream. Boats are sometimes destroyed by them. They are also sometimes dashed in pieces on the upper end of the wooded islands, against which they are unavoidably forced by the excessive rapidity of the current.

Besides these dangers, against which it is impossible always to provide, even by day, and which render the navigation very unsafe by night, there is another, during the freshet, more formidable than either. Below Cape Girardeau, in consequence of the lowness of the adjacent country, the force of the inundation from the river has worn outlets or *bayous* in the banks, through which its waters are impelled with great violence. When a boat is passing one of these bayous, great care is necessary, in order to guard against the danger of its being carried away by the current, and lost in the swamp.* Several of these bayous are properly branches of the main river, conducting a part of its waters to the sea. Bayou Chaffalaia, or Atchafalaya, commences three miles below the mouth of Red River, and pursuing a south-west direction, empties a part of the waters of the Missisippi into the Gulf of Mexico, near Vermilion Bay. In high freshets it is navigable for canoes the whole length. Bayou Manchac, or, as it is sometimes called, the Iberville River, is an outlet on the eastern side, 15 miles below Baton Rouge, which separates Florida from Orleans. It is navigable three months in the year, for boats drawing five feet water. During the greater part of the remaining nine months it is perfectly dry. It conveys a portion of the waters of the Missisippi, during freshets, in an E. S. E. direction, to Lake Maurepas; which is about twelve miles long and eight wide. This is connected, at its eastern end, by a short strait, with Lake Ponchartrain, which is about 35 miles long and 25 wide, and generally from 12 to 14 feet deep. This lake has several connexions with the Bay of Spiritu Santo. Bayou Plaquemine commences eight miles below Manchac, and Bayou Fourche 32 miles below Plaquemine; both are on

* *Bayou*, in the Spanish language, expresses the diminutive of bay; but in Louisiana it is frequently applied to a creek or small river.

the western side of the Missisippi, and communicate with the Gulf by several branches. Besides these bayous, which considerably diminish the volume of the river, the main branch of the Missisippi has three mouths, or, as they are called, passes. The *east pass* is 20 miles long, and has 16 feet water over the bar at its mouth. It is the pass principally used; and immediately above the bar, which is very narrow, there is water sufficient for a ship of the line. The *south pass* is 22 miles long, and the *south-west* 25. They both have about 8 or 9 feet water over the bar. A log fort, called Fort Balize, was partially constructed upon a plan of General Wilkinson's, at a great expense, on a little island, at the north side of the east pass. This fort was destroyed by the British in the late war. The block-house and two or three out-houses are still remaining in the vicinity of the ruined fortification. The land upon which they stand is a mere swamp, impassable except along a raised foot-way of communication. They now serve no other purpose than that of affording a convenient situation for the pilot of the port.

It appears from careful triangular measurement made at the Balize, Fort St. Philip, New-Orleans, and other places, that the medium width of the river is about 800 yards, or rather short of half a mile. The depth, however, compensates for its narrowness, being from 120 to 150 feet deep. And from the bar to the mouth of the Ohio, there is sufficient depth of water to float a ship of the line.

The *Devil's Race Ground* is a difficult and dangerous passage, 107 miles above the River St. Francis. The current is here very rapid, and the river is crowded with planters and sawyers. The *Grand Chain of Rocks* extends in little clusters of islands quite across the river. Many of them are visible when the water is low. The spaces between these rocks are large enough to afford safe navigation to those who are acquainted with their situation. *The Grand Towers* lie nine miles above. The river here turns to the east. The west bank is a solid perpendicular rock, through which the stream has scooped out a basin 200 or 300 yards in length. In front of this basin stand several perpendicular columns of solid rock, of a circular figure, upwards of 100 feet high, which have hitherto withstood the force of the current. Forty miles above these is the Picket Island Passage, which is so full of snags, sawyers, and planters, as to render the navigation very dangerous at low water. These are all the obstructions below the Great Bend in the Missisippi.*

* Morse's Geography

The usual current of the river is three miles an hour; when the water is very low, it is less; in ordinary freshets it is commonly four, and in the highest it never exceeds five. Ships are liable to much delay in passing from the Balize to New-Orleans. With a good wind they can perform the voyage in less than two days; but when opposed by head winds or becalmed, they are not unfrequently 15 or 20. Another difficulty is the narrowness of the bar, to cross which it is necessary to have a favourable wind, so that vessels are sometimes detained nearly a month at the mouth of the river before they can put to sea. With a fair wind, vessels sail from New-Orleans to the Balize in 10 or 12 hours. It often takes from 60 to 80 days to perform a voyage from New-Orleans to Natches. Ships rarely ascend above this place. Boats descend from Natches to New-Orleans in one week, but are about three in returning. The steam boats, which have lately come into use upon the Missisippi, afford much greater ease and rapidity to the navigation. The principal branches of the Missisippi below its junction with the Missouri, are the Ohio from the east, and the Arkansas and Red Rivers from Louisiana.

Little can be said in favour of the religion of Louisiana. The French, and a few Spaniards who yet remain, are professedly Catholics. They have but one cathedral. There is, however, a convent of Ursulians, to which is attached about 1000 acres of land, rented out in three plantations. At present the nuns do not exceed 10 or 12 in number, all of whom are French. Formerly there were about the same number of Spanish ladies belonging to the order; but during the period when it was expected that the province would be transferred to the French, they retired to Havanna. Young ladies are received as boarders by the neighbouring nuns, who instruct them in reading, writing, and needle-work. They have always acted with great propriety, and are generally respected and beloved throughout the province. With the assistance of an annual allowance of 600 dollars from the treasury, they always support and educate 12 female orphans.*

According to the census of 1766, the number of inhabitants in Louisiana amounted to 11,496; in 1804, to 35,932; and in 1810, to 97,401; of the latter number, the Territory of Orleans contained 34,311, and the Territory of Louisiana 51,538.

The inhabitants of Louisiana are chiefly the descendents of the French and Canadians. There is a considerable number of Americans and English in New-Orleans. The two Ger-

* Jefferson.

man Coasts are peopled by the descendants of settlers from Germany, and a few French mixed with them. The three succeeding settlements up to Baton Rouge contain mostly Acadians, banished from Nova-Scotia by the English, and their descendants. The government of Baton Rouge, especially the east side, which includes all the country between the Iberville and the American line, is composed partly of Acadians, a few French, and a great majority of Americans. On the west side they are mostly Acadians. At Point Coupee and Fausse River they are French and Acadians. A considerable part of the population of the Attacapas and Opelousas is American. Natchitoches, on the Red River, contains but a few Americans; the remainder of the inhabitants are French; but the former are more numerous in the other settlements on the river, viz. Avoyelles, Rapide, and Ouachitta. At Arkansas they are mostly French; and at New-Madrid, Americans. At least two fifths, if not a greater proportion of all the settlers on the west side of the Missisippi, in the Illenois Country, are likewise supposed to be Americans. Below New-Orleans the population is altogether French and the descendants of Frenchmen.

Literature is at a low ebb in Louisiana. There are no colleges in the state, and but one public school, which is at New-Orleans. The masters of this were formerly paid by the king of Spain. They taught the Spanish language only. It has been observed by Mr. Jefferson, that not more than half of the inhabitants are supposed to be able to read and write; and that of those, not more than 200, perhaps, are able to do it well. In general, the learning of the inhabitants does not extend beyond these two arts.

New-Orleans, in lat. 29° 57′ N. long 90° 8′ W. from Greenwich, and 13° 9′ from Washington, is the only town of any considerable consequence in the whole of Louisiana. It was founded in 1717, and stands on the east bank of the Missisippi, 100 miles from its mouth, 1308 below that of the Missouri, and 1115 below that of the Ohio. It is on the south-west of the Island of Orleans, four miles from Lake Pontchartrain, with which it communicates by the Canal of Carondelet. The town is regularly laid out; the streets cross each other at right angles, and are generally about 40 feet broad. The side-walks are paved with bricks, but the middle of the streets is not paved. This neglect is a material inconvenience to the city, as the natural humidity of the earth renders it very muddy in the spring of the year, and after falls of rain. It is an inconvenience, however, not easily remedied, as there are no stones within the distance of some hundred miles from the city. The houses of the three principal streets, Levee, Char-

tres, and Royal streets, near the river, are built chiefly of brick, plastered over with lime, or roughly stuccoed, and the roofs are made of slate or tiles. The back part of the town consists mostly of wooden buildings. New-Orleans extends along the Missisippi in the form of a parallelogram; its length, in the direction of the river, is 1320 yards, and its breadth 700 backwards towards the swamp. In the centre of the town, at the N. W. corner of Chartres and St. Peter's streets, stand the Cathedral, or Church of St. Lewis, and the Town-House, in front of which is an open square covered with grass. The Market-House is a fine brick building, situated on the Levee, nearly in front of the square which lies before the Cathedral, between St. Anne and Du Maine streets. At the south-east end of the town, stands a building occupied as a convent by a number of Ursulian nuns. Besides these public buildings, there are an Hospital, the Barrack-Buildings, a Custom-House, the Orleans, Louisiana, and Planters' Banks, Government-House, the District-Court, and Latrobe's Water-works.

The Levee, before the city, is upwards of 20 feet wide, and in dry weather, when the river is high, affords a pleasant walk; but in the summer and autumn it is rather to be avoided, on account of the offensive odour of the miasmatic exhalations of the corrupting filth left upon the banks after the falling of the water, and accumulated by constant addition from the city.

The city and suburbs of New-Orleans contain about 24,000 inhabitants. The proportion of whites and people of colour is nearly equal. Amongst the whites, the French are most numerous and wealthy. There are a few Spaniards and Portuguese, some Italians, and a number of Indians. From all which, it will readily be supposed that there must be a great diversity and contrast of complexion, language, and manners among the different descriptions and classes of society.

To the credit of the fair sex of New-Orleans, it is but just to remark, that they are more particular in the selection of their society than the gentlemen. At the approach and during the winter season, or carnival, balls are the fashionable amusement. The female portion of these assemblies consists of two classes, one white and the other coloured. The balls, composed of these different parties, are called, one the white, or grand ball, and the other the quatroon ball; the females of the latter being of negro extraction; to these none but free, young, and blooming coloured women, generally tinctured with the admixture of white blood, are admitted; and no males but white men are permitted to appear. The female part consists of three kinds or varieties: First, the kept mistresses; these are the most respectable, and in general are faithful to their keepers.

Second, those who have not yet commenced the occupation, and are looking out for a man of sufficient generosity to comply with their terms, which is generally a domestic establishment, and an annuity of four or five hundred dollars. Third, common prostitutes. The latter class is the least respectable, but, at the same time, the cause of the greatest disturbance, tumult, uproar, rioting, and fighting. One man, for instance, engages one of these females for the night, another subsequently fixes his affections upon her, and is determined to have her, let the consequences be what they may. Reason is suffocated in the heat of passion, and desire impels to violence and outrage. The man, second in claim, takes forcible possession; the first insists upon his right, and resists the injustice; a riot ensues, and the friends of the respective parties fly to their assistance; all is uproar and confusion; blows ensue; and broken bones and black eyes follow in the train of consequences. Unfortunately the tumult does not always terminate so favourably; but at the conclusion of the ball, under the covert of the night, one, two, or more, of the ring-leaders, are sometimes stabbed and murdered by the secret assassin. Some may think this representation exaggerated; but I speak the truth from observation, without the fear of contradiction: and when we are told that these yellow, or quatroon balls are preferred by the gentlemen to the white, where superior splendour, together with the fascinating charms of female elegance, gracefulness, and beauty conspire to claim the admiration of every beholder, we are strongly impressed with the unfavourable idea of the perversion and depravity of taste, the licentiousness of principle, and the corruption of manners, which sully and debase the character of our countrymen of Louisiana.

Billiards, cards, and other games of chance, are the fashionable amusements of the gentlemen. There are two French theatres in New-Orleans, one of which is open three times a week; and what might shock the religious gravity of our countrymen of steadier habits, is the circumstance that this place of amusement is always most frequented on *Sunday evening*. Sunday is devoted to general amusement and recreation by gentlemen and slaves; whilst the mechanics and the poorer classes of society pursue their various occupations. Those disengaged from business, resort to the amusement of cards, billiards, &c. the balls, the cues, and the maces are heard rolling and knocking in every part of the city. At the same time, the negroes, men and women, relaxed from the drudgery and servitude of the week, assemble, towards the close of the day, in numerous groupes, on the green in the suburbs, and dance in easy jesticulation to the simple music of their native songs and

their drums. Amidst the general festivity of their diversion, the bitterness of slavery is forgotten.

The Indians who reside in the vicinity of the town, are miserable outcasts from the Albania, Tunica, Chittemaches, and Atacapas tribes. They wear but little clothing, and participate in all the vices of intoxication, riot, and debauchery.

The situation of New-Orleans possesses many and important advantages as a city, from the extensive communication which the rivers afford it with the northern parts of the United States. The Missisippi, and the great rivers connected with it, the Red River, the Arkansas, the Ohio, the Missouri, the Illenois, and their branches, open an extent of inland navigation, of which there is scarcely a parallel on the globe. The difficulty and delay in entering the mouth, and in ascending the river, deprives New-Orleans of many commercial advantages, which a more easy access would otherwise afford. The easiest and most usual mode for small vessels to transport their merchandise to New-Orleans, is to ascend Lake Pontchartrain to the mouth of Bayou St. John, where the goods are put into boats, carried up the bayou six miles, and through the Canal of Carondelet to the city. This canal is two miles in length, and leads from Lake Pontchartrain, by way of Bayou St. John, to New-Orleans, and is to be extended to the Missisippi. For this purpose 25,000 dollars were appropriated by Congress, in February, 1809.

Forest trees flourish in this state, in great abundance and variety. The following list contains the names of the principal part of the trees which are found in Louisiana:

Acer negundo,	Box Elder,
Acer nigrum,	Black Sugar Maple,
Acer rubrum,	Red Flowering Maple,
Amygdalus Persica,	Peach,
Andromeda racemosa,	
Annona triloba,	Papaw,
Betula lentea,	Black Birch,
Bignonia catalpa,	Catalpa,
Carpinus ostrya.	Iron wood,
Carpinus Americana,	Hornbeam,
Castanea parmila,	Chincapin,
Cerasus Caroliniana,	Laurier Almond,
Cerasus Virginiana,	Wild Cherry,
Citrus aurantium,	Sweet Orange,
Citrus medica,	Seville Orange,
Cornus Florida,	Dogwood,
Cornus Alba,	Swamp Dogwood,

Cupressus disticha,	Cypress,
Diospiros Virginiana,	Persimon,
Fagus Sylvestris,	Beech,
Fraxinus aquatica,	Water Ash,
Fraxinus tomentosa,	Red Ash,
Gledista monosperma,	Water Locust,
Gledista triacanthos,	Honey Locust,
Ilex opaca,	Holly,
Juglans amara,	Bitternut Hickory,
Juglans cathartica,	Butternut,
Juglans aquatica,	Swamp Hickory,
Juglans laciniosa,	Thick Shell-bark Hickory.
Juglans myristicæformis,	Nutmeg Hickory,*
Juglans olivœformis,	Paccan,†
Juglans nigra,	Black Walnut,
Juglans porcina,	Pignut Hickory,
Juniperus Virginiana,	Red Cedar,
Laurus benzoin,	Spicewood,
Laurus sassafras,	Sassafras,
Laurus Caroliniensis,	Red Bay,
Liquidamber styraciflua,	Sweet Gum,
Liriodendrum tulipifera,	Poplar,
Magnolia glauca,	White Bay,
Magnolia grandifloria,	Large Laurel,
Morus rubra,	Red Mulberry,
Morus scabra,	Spanish Mulberry,
Nyssa aquatica,	Tupelo,
Nyssa sylvatica,	Black Gum,
Pavia lutea,	Buckeye,
Pinus taeda,	Loblolly Pine,
Pinus rigida,	Pitch Pine,
Populus angulata,	Cotton Wood,
Platanus occidentalis,	Sycamore,
Quercus alba,	White Oak,
Quercus aquatica,	Water Oak,
Quercus falcata,	Spanish Oak,
Quercus ferruginea,	Black Jack Oak,
Quercus lyrata,	Swamp White Oak,
Quercus macrocarpa,	Overcup Oak,

* This tree, first noticed by Michaux, grows plentifully on the rich acclivities of hills in the western part of the Missisippi Territory, and west of the Atchafalaya, wherever the country is broken and fertile.

† The Paccan grows in immense quantities above Natchitoches, on the banks of the Red River, as also upon those of the Trinity, Brasos à Dios, and Rio Colorado.

Quercus obtusiloba,	Post Oak,
Quercus phellos,	Willow Oak,
Quercus rubra,	Red Oak,
Quercus tinctoria,	Black Oak,
Quercus virens,	Live Oak,
Robinia pseudacacia,	Black Locust,
Robinia pumila,	Dwarf Locust,
Robinia bistineau,	Bistineau Locust,
Tilia pubescens,	Downy Linden,
Ulmus Americana,	Mucilaginous Elm,
Ulmus rubra,	Red Elm,
Ulmus aquatica,	Swamp Elm,
Ulmus alata,	Large-leaved Elm.

The soil and climate of Louisiana, though very fertile and congenial to the plants naturally adapted to the country, do not admit of that variety and excellence of grain, fruits, and culinary vegetables, that is found in the northern states.

Rice is one of the staple commodities of the country. This article is cultivated in abundance on the low lands near the Missisippi, and smaller streams. The land below New-Orleans is particularly adapted to it, and it is there almost exclusively substituted in the place of flour. Many families taste no other food throughout the year than rice. Certainly, if the eating of this grain could have any effect in producing blindness, as has been alleged, it could not fail to manifest its pernicious influence among those persons who are habitually accustomed to its use: and yet the daily and habitual consumption of this article is here found to be perfectly innocent. Rice has an advantage over maize and the other articles of agriculture, since it can be raised in situations too wet and marshy for the cultivation of those substances. Ten or fifteen barrels of rice may be considered as an ordinary crop for an acre of ground. The common price of a barrel of rice in Louisiana, may be estimated at six dollars.

From the Balize to the English Town, 15 miles below New-Orleans, the country is unfit for the habitation of any human being, and adapted for the residence only of aligators, snakes, frogs, and other reptiles and amphibious animals, who claim possession by the right of nature; yet, even in this last place of creation, do we here and there see the habitation of man, amidst the society of these abominable objects. We here behold a few poor, wan, and copper-coloured creatures, who exist by the cultivation of rice, and by raising a few hogs and a little poultry, scattered along this marshy coast, in detached situations of three, four, or more miles asunder, according

as they may find a spot of sufficient firmness to support a habitation. Wherever they fix their abode, it is necessary to prevent the inundation, by leveeing the banks of the river, which obliges the water to run off by the collateral passages.

Maize (Indian-corn) is not raised to any considerable amount in Louisiana; the farmers, finding it more to their interest to receive their supplies of this article from the states of Ohio, Kentucky, and Tennessee, turn their attention to the cultivation of the more profitable commodities, sugar-cane, rice, cotton, indigo, and tobacco: the two latter articles, however, at present, receive but little attention. Besides, the heat of the climate renders maize less productive in Louisiana than in the northern states. In this country, the range that seems to be best adapted to maize, is included between the 35° and 40° of N. lat.

Nor is the climate of Louisiana well adapted to the raising of wheat; its cultivation has been accordingly neglected. The same observations may be made with regard to rye, barley, oats, &c.

The Irish potatoe, in this state, seems to be out of its congenial soil and climate; and generally degenerates in size and taste from the potatoe of the northern states. They might probably be raised of a good quality in the northern parts of the state, where the soil is more sandy, dry, and elevated. Land of this description lies north of 31° N. lat. and is designated by the growth of oak and hickory timber. The inhabitants depend, for the supply of potatoes, upon Kentucky and Tennessee, whence large quantities of this and other vegetables are brought down by water, during the fall and winter seasons. The climate of this state is well adapted to the growth of the sweet potatoe, (Convolvulus Batatas of Muhlen.) which is here raised in great plenty; though they are not so dry and well flavoured as in the Carolinas.

Culinary vegetables, in general, are inferior in Louisiana to those of the northern states. The carrot and the egg plant are of a good quality; but beets, parsnips, turnips, &c. soon degenerate. The heat of summer scorches and dries up the melons and cucumbers, which wither and die towards the end of June.

Some fine apples are produced in the upper part of this state; but the tree soon sickens, withers, and decays out of its congenial climate, under a scorching sun.

Several kinds of figs have been introduced, and flourish in this state; of these the large purple fig is the most excellent. North of 30° N. lat. it is unable to resist the frost, by which, even south of that parallel, it is sometimes destroyed. The yellow fig, from the south of France, is more hardy, and is the

kind most generally cultivated on the Missisippi. This tree flourishes generally throughout the state of Louisiana, as it does also in the Missisippi Territory, wherever the whites, by their enterprise and industry, have made their establishments, and improved the face of the country. This tree lives as far north as the limits of the state extend, and, excepting the peach, is that which is most generally cultivated in our southern climate.

Peaches are found in the northern and western parts of the state, though not in any considerable quantity or perfection, being injured by the heavy rains which fall during the summer season, as likewise by the heat of the climate. The peach is much esteemed by the Indians; and there is scarcely a hut or wigwam in their country where this tree is not to be found. The traveller, in passing through the nations of the Cherokee, Chickesaw, Chactaw, and other tribes of Indians, frequently finds the Amigdalus Persica encircling and shading the rude habitation of the American savage. When travelling through the wilderness, inhabited by those Indians, in the heat of summer, I have often been gratified and refreshed with this delicious fruit. As yet, peaches are scarce in Louisiana, and very few are brought to New-Orleans.

Below the 30° N. lat. the sweet orange is produced in abundance. The sour orange is found as far north as 33°. The pomegranate also flourishes in the southern part of Louisiana. If this description of tropical fruit-trees, instead of being brought from the West-Indies, had been transplanted from Spain and Italy, the climate of which more nearly resembles that of Louisiana, the change would have been considerably less, and they would thereby have accommodated themselves with greater facility to their new situation, and been better able to resist the cold of winter.

These fruits are of vast importance in the economy of health; there can be no doubt that they are materially connected with the welfare of the inhabitants. They are the antidotes which Nature, in her providential beneficence, has designed and provided as remedies against the diseases of the climate where they abound; illustrating the truth of the circumstance, that *ubi morbus, ibi remedium*, wherever disease prevails, there also exists the remedy.

The cherry, the currant, and the gooseberry, bear fruit with difficulty and in small quantity; and in a short time languish and die.

Plumbs grow in considerable quantity and variety in different parts of the state, and are brought to the market of New-Orleans.

Grapes of different kinds, as the Vitis laciniosa, (Parsley-leaved Water Grape;) Vitis riparia, (River Grape;) Vitis verrucosa, (Muscadine;) are also common: of these, the latter is the most plentiful. The Cranberry is found upon the banks of the Mermentau. Tree Whortleberries, (Vaccinium arboreum) abound chiefly upon the dry upland, west of the Delta of the Missisippi; and the Vaccinium stamineum and Resinosum, both east and west of the same river.

Of all the plants of agricultural pursuit, which have received the attention of the inhabitants of Louisiana, none has been found so profitable as the sugar-cane. This plant may be cultivated to advantage as far north as the 30° 30′ N. lat. or from about the parallel of Baton Rouge to Fort Plaquemine, 30 miles from the mouth of the Missisippi; which extent, upon a moderate calculation, we may venture to say, contains 7,000,000 acres. Admitting that an eleventh part of this may be cultivated, there remains 636,000 arable acres; of which, allowing half for the cultivation and use of other necessary articles, there is left a residue of 318,000 for the sugar-cane. It is generally considered that an acre of ground will afford 1000 pounds of sugar; but, lest this calculation should exceed the actual quantity, we may make an allowance of 200 pounds, leaving a neat amount of 800 pounds per acre; this multiplied by the number of acres, gives an aggregate of 254,400,000 pounds, which, at eight cents a pound, would yield an annual revenue of 20,352,000 dollars to the state of Louisiana. This calculation is probably considerably short of the amount to which this branch of agricultural emolument will arrive at some future day; since, from the accounts of some respectable planters, it appears that the cane can be advantageously cultivated, even as far north as the Red River, which enters the Missisippi at 31° N. lat. It may also be reasonably presumed, that the increasing warmth of the climate, and the naturalization of the sugar-cane to the American soil and temperature, will considerably increase the saccharine quality of the plant.

Next to the sugar-cane, the cultivation of cotton is the most profitable article of agricultural pursuit; but upon this I shall not enlarge my observations.

A considerable part of the state of Louisiana is of secondary formation, produced by the abrasion and subsequent deposition of alluvial matter, and thus gradually encroaching upon the Gulf of Mexico. Trees are annually torn from their foundation by the undermining current of the river, and, floating down the stream, lodge at the mouth of the Missisippi, upon the bars, and in the shallow water. These bars are formed by the opposing currents of the river and the gulf,

The Missisippi carries down the extraneous substances that it has received in its passage, which, upon arriving at the mouth of the river, meet with an obstruction from the opposition of the tide; the latter, on the other hand, washes the sand and mud from the bottom of the gulf, and meeting with the river, occasions a degree of stagnation in the opposing columns, which permits the alluvial matters to subside. These bars and shallows gradually encroach upon the waters of the gulf, in consequence of the current of the river being stronger than that of the sea. The trees, logs, and bushes, brought down by the Missisippi, are constantly accumulating at its mouth; and at length, by the deposition of leaves, mud, &c. the interstices become filled up; and thus a new portion of land is formed, producing, in its turn, a fresh crop of herbage, shrubs, and trees. That such is the fact, no person will have a moment's hesitation to admit, who has ever visited the mouth of the Missisippi. He has there seen a long raft of mouldering trunks of trees, in different states of decay, adhering to the soft mud in the shallow water, and extending from the land a considerable distance into the gulf; and has thus observed the manner in which this physical change is gradually effected.

It is probable that all the land in the state of Louisiana, south of 31° N. lat. has been formed in this way. In fact, the whole of this state appears to be of modern formation. No rocks, or stones, or mineral substances, are found in the hills between the Ouachitta and the Missisippi. These hills present a regular stratafied arrangement of alternate depositions of sand, argillaceous, and calcareous earth; intermixed with which are found shells and other exuviæ of marine animals.* Similar marine substances are also found in the banks of Red River and other places.

The immense shell-banks that are seen at the mouth of the Sabine, and also upon the islands lying between the Mobile and the Missisippi, some of them 50 feet in height, above the reach of the highest tides, and affording support to trees of considerable size upon their summits, evidently show that the waters of the gulf have receded considerably from their original boundaries.

It has been supposed that the Missisippi, as well as the other rivers of Louisiana, ran upon the apex of a ridge. This opinion is certainly erroneous. In no place within the alluvial tract are the banks of the river elevated more than six or eight

* North-west of the Missisippi, about the northern confines of Louisiana, near the waters of the Derbane and Ouachitta, masses of loose sand-stone, lying parallel to the horizon, are found in some of the hills.

feet above the general level of the swamp in its vicinity; a circumstance of no moment, when we consider that the river extends to the depth of more than a hundred feet below the surface of the swamp itself. Nor is this elevation of the banks above the general level of the country peculiar to the Mississippi; all the bayous and rivers of Louisiana exhibit the same appearance, in a greater or less degree, proportionate to the size of the streams; and is, in all, to be ascribed to the same causes. This circumstance is to be accounted for in the following manner. It is well known, that when the Mississippi is at its height in the spring, it undermines and sweeps away a number of trees which stand upon its banks; these float along with the current, till driven to the shore, and carried by the inundation upon the river's bank; here, from the shallowness of the water, they become entangled among the standing trees and bushes, and remain permanently fixed; bushes, sticks, leaves, and earth are mixed and deposited among them; and an imbankment of considerable height is thus, in time, effected. From what I have seen, I am satisfied that this is the manner in which this circumstance is to be explained. Below Fort Plaquemine the banks of the river are covered with the trunks of trees, some of them six or eight feet in diameter, for a considerable distance beyond the margin of the river. These are so closely compacted, that a person may walk for miles upon them, in the direction of the river, without touching the earth. By this natural process, at some future time, the banks of the Mississippi, from Plaquemine to the Balize, which are now nothing but a morass, will become as elevated and dry as they are at and above New-Orleans: when, also, an encroachment of equal extent will be made upon the Gulf of Mexico. There is another circumstance which may contribute, in some degree, to this effect; which is, the deposition of earth, that must necessarily take place upon the water's losing the velocity of its motion immediately on leaving the channel of the river: for it is well known that the quantity of matter which a fluid is capable of holding suspended is increased in proportion to its agitation; whence it follows, that the heavier and earthly matters, which were with difficulty held suspended, will be first deposited in the vicinity of the river, whilst the lighter comminuted vegetable substances will be carried to a greater distance.

In this way, we may reasonably suppose that the whole of the flat and low country of Louisiana has been gradually formed. A considerable portion, even of the most northern parts of this state, is also of alluvial formation. The alluvial banks of the Red River, swelled in its passage by numerous

streams, commence about the 33° of N. lat.; and we have already remarked, that, from the Grand Chain of Rocks, 75 miles above the mouth of the Ohio, the Missisippi annually overflows its banks. This inundation becomes more considerable and extensive as we advance towards the mouth of the river.

It is a circumstance worthy of observation, that the Missisippi, from the mouth of the Ohio to Baton Rouge, runs close along the edge of the eastern bluffs, which, in many places, are broken, and are continually falling in fragments into the river; while, on the other hand, in no place throughout this distance, does it come in contact with the bluffs which range along its western bank. Hence it appears that the bed of the Missisippi is slowly progressing towards the east. This circumstance is, no doubt, owing to the quantity of alluvial matter, mud, and sand, that is brought down by the larger rivers, (all of which enter the Missisippi from the west,) and is deposited upon the same side; thereby gradually filling up and diminishing the western portion of the channel of the Missisippi, and increasing upon the same side the extent of the valley through which the river runs.

The Red River and the Missisippi are skirted with an immense number of ponds and lakes in their vicinity, with which they hold communication by small channels and bayous, through which the water rushes upon the rise of the river. These lakes serve as temporary reservoirs for the superfluous water, which would otherwise occasion a more extensive inundation of the country, and be productive of much injury and inconvenience to the farmer.

The water, in the greater number of these lakes, more especially in those bordering on Red River, is subject to an alternate flux and reflux of its current, occasioned by the rising and falling of the river. In the winter and spring, when the Red River is high, the water runs with considerable force into these lakes, which thereby become replenished, and so continue until the river begins to fall, when the current runs in an opposite direction. In this way, towards the close of the summer, the water in those lakes becomes exhausted and dried up, and their beds are converted into meadows, clothed with verdant and luxuriant herbage. The channel, running through the middle, however, always contains a quantity of water. On one side of most of those lakes, is a range of pine woods, the soil of which gives origin to salubrious and limpid streams, to the convenience and comfort of the inhabitants, who would otherwise be obliged to drink the impure water of Red River.

In the spring of the year, all the swamps in the vicinity of the Missisippi are inundated and filled with water; and the country, in many places, exhibits the appearance of a vast lake. During the summer season, as the river falls, these swamps are gradually exsiccated, so that in autumn they become nearly dry.

Every where, upon the sea-coast, and near the margins of rivers, throughout the state of Louisiana, the attention of the observer is lost and bewildered in the intricate mazes of natural canals, and communicating streams and lakes, that chequer the face of the country. Bayous and rivers inosculating with each other, wind in serpentine meandrings through the alluvial plains. This appearance is more remarkable near the coast of the Gulf of Mexico, where bayous, lakes, woods, and morasses diversify the confused scenery of nature.

We have already noticed the appearance of the country west of the Missisippi, where river is united to river by communicating lakes and bayous; and where soil, the most fertile, imparts its prolific quality to the support of deep and luxuriant forests of maple, elm, willow, cotton-wood, &c. We have also noticed the different prairies that range between the rivers, and the irregular and broken hills which begin to appear in the northern parts of the state; and that, excepting these, the whole country is a flat, alluvial, and marshy soil, formed by the annual overflowing of the rivers, which spread and deposit the ruins of the upper country upon the surface of the inundated earth.

Lakes are more numerous along the course of Red River than on the Missisippi; but the land in the former situation is not so low, and on this account they dry up during the summer season.

The Missisippi begins to rise in January, and continues to rise irregularly till the month of June, when it attains its height. Its fall is then very rapid; not unfrequently passing from its highest to its lowest state in fifteen or twenty days, or even less.

To prevent the inundation of the country, artificial barriers of earth, called *levees*, are raised upon the banks of the river; so that when the Missisippi is at its height, confined between the levees of the opposite sides, it is in many places eight or ten feet above the surface of the adjacent country. The river, thus restrained, sometimes bursts its artificial barrier, and breaks forth through the opening with uncontrollable violence, deluging and destroying the crops of several plantations. During the great freshets of 1811, 1813, and of the present year (1816), great injury was committed by the water bursting this artificial imbankment. This accident is liable to happen

from two causes: viz. from a weakness and defect in the levee itself, or from the falling of the bank. Several acres of land are sometimes undermined by the silent gliding of the water; the first intimation of which is the sudden breaking and falling of the incumbent earth into the watery abyss, sometimes carrying along with it the houses and inhabitants of the place. Frequently the falling in of the bank is announced, and for some time preceded by a deep fissure or crack in the earth at the intended place of separation, giving the proprietor an opportunity to secure himself against the accident, by surrounding the suspected portion with another levee upon the land side, and connecting it with the old one above and below the seat of danger. Notwithstanding this precaution, unforeseen accidents frequently occur, to the great injury of the farmer. It is probable, that if, instead of these levees, the natural canals or bayous were cleared of their obstructions at proper places, and new canals opened in situations where least injury would be done by the redundancy of the water thus carried off, the danger of inundation would be more effectually guarded against. It is, however, a matter of uncertainty, whether the rapidity of the stream would have force enough to keep these channels in a sufficient degree free from obstruction; and whether the trouble of clearing them would not be attended with more labour than the keeping of the levees in repair. One thing is certain, that in such a loose muddy soil, the levees can never afford perfect security. Besides, these artificial imbankments are productive of another physical evil, which is, that they prevent the surface of the country from becoming any higher by the deposition of fresh matter from the overflowing of the rivers' banks, and the consequent accretion of new soil. These are evils, however, to which man, in the gratification of his avarice or wants, must be content to submit.

From Natches to Baton Rouge the country exhibits the appearance of a finely cultivated garden, blooming with a luxuriant growth of cotton, and embellished with numerous well built edifices; whilst groves of orange-trees, clothed in perpetual green, adorn and beautify the landscape. There the pride of the forest, the magnificent magnolia, in aspiring grandeur, rears its majestic head, and by its stateliness and beauty claims the admiration of the passing traveller: its large and polished leaves exhibit a perpetual and unfading verdure; and its extensive, beautiful, and odoriferous blossoms perfume the air with their aromatic fragrance.

Perfect happiness and enjoyment are not the growth of a terrestrial soil: gratification and pleasure are alloyed with care and trouble; and such is the hard condition of human

existence, that man is obliged to taste the mingled cup of sweet and bitter. These are moral reflections, as old as the days of Homer, and faithful as the Oracles of Truth. Their application is easy on the present occasion. With all the advantages of wealth, which Louisiana affords to the inhabitants, it is unquestionably the most unhealthy portion of the United States. A vast alluvion of vegetable mould, and the decaying remains of animals, and of countless myriads of animalcula, afford a fruitful hot-bed of corruption, quickened by the operation of a powerful sun, and teeming with the generation of sickness and of death.

Previous to the rise of the river, the surface of the earth is hard and dry; but as the river augments, the water rushes through the various bayous or natural channels, and finds admittance to the low grounds beyond the banks, rendering them very moist and wet.

Heat and moisture, by mutual co-operation, cause sickness to prevail with the greatest mortality in the months of June and July. Local circumstances, however, may prevent and vary this effect, as at New-Orleans, where sickness is most prevalent in August. This is owing to the number of ponds lying in the rear and vicinity of the city, which being filled with water through the early part of the season, thereby prevent decomposition from taking place in the morass beneath, till the exsiccation of the water is in a great degree effected by the falling of the river and the continuance of heat. From the same local circumstances, it happens, that a rainy season renders the city of New-Orleans healthy, by keeping the ponds filled with water, while it has a contrary effect upon the country generally; so that New-Orleans is healthier than the coast either above or below. In illustration of this circumstance, the classic reader will recall to his recollection the instance related in the history of Empedocles, the Sicilian philosopher and poet, who put an end to pestilential diseases among the Salacentii, by turning two streams of good water into the morass from which they originated.

The wind which generally prevails in Louisiana is from the south. With a few degrees variation, east and west, the current of air proceeds from that quarter for the space of more than six months in the year. These winds are always warmer than those from any other point of the compass, on account of the atmosphere having been heated in the tropical regions. A south wind, concurring with humidity, is particularly uncomfortable and oppressive. The body is heated, relaxed, and enervated; sweat exudes from every pore; and the air being

already saturated with moisture, is unable to receive and take away the perspiration that bedews the surface of the body.

The northern and more elevated parts of the state are less humid and subject to rain than the more sunken, alluvial, and swampy region of the southern portion.

In the month of February the returning spring announces its appearance by the soft fanning of the southern wind. A mild serenity of weather expands and re-animates the dormant germ of vegetation, whose green mantle, at this time, begins to clothe and beautify the face of nature. The month of February, in Louisiana, nearly corresponds, in its effects upon vegetation, to the month of April with us. The farmer and the gardener then return to the culture of the earth, and plant their seeds for the ensuing harvest. The south wind continues to prevail in the month of March, sometimes alternating with sharp blasts from the north and north-west. The wind from the south is frequently accompanied with copious showers. An increase of southwardly winds, accompanied with a greater degree of heat, ushers in the month of April. The nights still continue cool; and in the northern parts of the state, the crops of cotton, in this month, have been sometimes injured by the frost. The growth of the vegetable world, aided by the occasional refreshment of gentle showers, proceeds with rapid strides. A mild temperature of air and serenity of weather afford enjoyment to man; while, at the same time, he beholds with a degree of complacency bordering on delight, the rich, verdant, and flowery prospect which every where adorns the face of creation. The nights, as yet, are comfortably cool. During the month of May the winds shift more to the east and west; the heat increases, and becomes uncomfortable; vegetation proceeds rapidly towards maturity, and culinary vegetables are now in the height of their perfection. In June, the temperature of the weather is hotter and more oppressive. Showers are less frequent, and vegetation often languishes and withers for want of rain. The soil being light and spongy, retains the water but a short time; and the surface of the earth becomes exsiccated into a hard dry crust. The month of July is sultry and oppressive. The wind from the south and south-east brings frequent showers of rain; which descends in inundating torrents, preceded and accompanied with loud peals of thunder and vivid flashes of lightning. The heat continues to prevail, with little variation, throughout the months of July, August, and September. It is at this season that the powerful sun shines forth with sickening beams upon the hot-bed of mouldering creation, and excites into activity the miasmatic agents of disease and death.

During the hot months of summer the thermometer ranges from 80 to 87°, and not unfrequently rises to 90°, or even higher. Man languishes under the oppressive heat; and through the day his clothes are constantly wet with sweat exuding from every pore of the body. Though the heat of the day is oppressive, the nights are cool and refreshing. This is owing to the humidity of the atmosphere, occasioned by the quantity of aqueous vapour exhaled, during the day, by the burning sun, from the humid earth. As soon as the bright luminary has sunk beneath the western horizon, the dew falls in copious quantity, and by its density abstracts the heat, and affords a comfortable coolness to the body. At the same time, the vapours are collected over the Missisippi and other streams, in the form of a thick fog, of such a degree of density, as to render objects invisible at the distance of 30 yards. They commonly rise only to the height of 30 or 40 feet. These *low hung vapours, motionless and still*, remain during the night undisturbed by a breath of wind; and in the morning, as soon as the sun begins to exert his influence, and calls forth the breeze, they may be seen rising by degrees above the surface of the water, suspended between the earth and sky, till, at length, dispersed and scattered by the God of day, they vanish in thin air.

The winter is cool, with frequent, strong, and chilling winds from the north and north-west. The thermometer, during this season, fluctuates between 45 and 56°. Rain is frequent, rendering the country wet and miry. Frost is very seldom observed as low as New-Orleans, and snow never; though the latter is sometimes seen in the northern parts of the state, and frost often; where the crops are sometimes injured by it, even in the month of April. At and below New-Orleans, the cold is never sufficient to stop the growth of lettuce and radishes, which are always best in the winter season. Cabbages, as if by instinctive consciousness that the cold of winter is not sufficient to injure their expanded leaves, after the first year cease to head.

One of the greatest torments that was ever sent to afflict man for his iniquities in this world, is the musquetoe. This tribe of tormentors begin to swarm with the returning heat of the season in April, and continue their annoyance till they are stiffened and benumbed by the cold of November. As soon as the evening shades begin to prevail, the air is thickened with swarming myriads of these venomous insects, that arise in clouds from the meadows and marshes, like volumes of dust in the deserts of Arabia. Their murmuring tinkling singing is so strongly associated in the mind with the disagreeable sensa-

tion of their bite, that their noise is rendered far more unpleasant than the most discordant music, the pealing thunder, or the rattling storm. Without the protection of screening curtains to defend him from the unremitting intrusion of these active and vigilant attendants upon man's sleeping moments, as well might he endeavour to seek repose upon a bed of thorns. Blood is their cry; nothing but blood will quench their thirst and satisfy their sanguinary appetites. Compared with them, the musquetoes of the northern states are mere gnats. Furnished with a bill like iron, they perforate the toughest hide, and drink the crimson stream of man and beast.

It is well known that musquetoes and other noxious insects are most numerous in wet and marshy places, where ponds, lakes, and morasses diversify the face of the country; and where morbific miasmata are exhaled in greatest quantity, and contaminate the atmosphere. It may therefore be considered as an indication of nature, that wherever those insects are very numerous, there also unwholesome exhalations prevail, inimical and dangerous to health, and destructive to human existence.

The chigoe is another troublesome insect in Louisiana, as well as in the other southern states, but far less common than the musquetoe. It is a sort of small flea, but little larger than a cheese-mite, bred in the dust and in the chimney-corners. Without being perceived, these insects insinuate themselves under the skin of the feet and about the toe-nails; where a little bag, about the size of a small pea, is formed around them before they are discovered. This bag forms the nidus of the parent chigoe, that appears through the skin of a bluish colour, and is surrounded with an innumerable multitude of young animalcules contained in the capsule. From being suffered to remain, these chigoes multiply by generation in the skin and under the nails, and the young broods, dispersing, extend their habitations in every direction. These animals are particularly troublesome to the bare-footed negroes. In removing them, care should be taken not to break the bag in which they are contained; the hole may then be filled with tobacco-shes.

The stingray is also worthy of notice, on account of the wounds which the men sometimes receive from its poisonous tail, by accidentally treading on this fish, which lies in shallow water, along the shore of the Gulf of Mexico. To obviate any dangerous consequence, the puncture should be dilated with a knife and touched with lunar caustic.

The centipede, mokason, rattlesnake, &c. also deserve to be noticed among the noxious animals and reptiles of Louisiana; but my limits do not permit me to enlarge upon the subject.

With respect to animals used as food, it may be observed, that, in general, the flavour of their meat is less pleasant to the taste than that of the northern states. We may make an exception of their mutton, which is by far the best meat the market of New-Orleans affords, and appears superior to that of the north: but whether this superiority is real or only comparative, as being so much more excellent than the beef, I am unable to determine. The impure water of the Missisippi affords but a small variety of fish; scarcely any are caught but the cat-fish, which is very large—sometimes weighing 60 or 80 pounds. This fish, though eatable, is by no means delicious.

I shall now close these observations with a few remarks respecting the influence of the climate of Louisiana upon the moral character of the inhabitants. But upon this occasion, I am sorry to say I have so little to offer in their praise. Though, to the benevolent and philanthropic feelings of the human heart, the commendation of virtue is a more grateful employment than the censure of vice in morals, and licentiousness in manners, yet it is a duty which we owe to truth, to mankind, and to the cause of justice and integrity, to represent and portray the principles and manners of a community in their proper characters and colours, so as to exhibit them in their true light, and not through the false medium of misrepresentation: neither embellishing the deformity of vice with the fictitious gloss of virtue, nor blackening the latter by the invidious shade of the former.

It has been asserted, that the immorality and corruption of the inhabitants of Louisiana proceed from the custom of holding a portion of mankind in a state of slavish subjugation. But whence proceeds a custom so repugnant and derogatory to the precepts of republican liberality, freedom, and equality; so abhorrent to the dictates of nature; so inconsistent with the benevolent principles of Christianity; and so incompatible with the modern refinement of civilized society? It is evident that this is only the effect of a cause more remote; and that slavery and the circumstances by which it is occasioned, stand in the relation of final and efficient causes. The practice of enslaving mankind is certainly a vice; but will this plead in favour and extenuation of the other vices to which it gives birth? Equally great would be the poverty of reasoning to say, that, because a man is addicted to the debauchery of drunkenness, he is not therefore chargeable with the crimes resulting therefrom. To me it is clear, that slavery is only a link in the chain of effects produced by the influence of climate; but that, in its turn, it becomes a secondary agent of still greater corruption.

The enervating heat of climate produces a relaxation, debi-

lity, and listlessness in the animal body, and disinclination to labour. Its effects upon the intellectual faculties are similar; showing themselves in a vacuity of mind, and an aversion to mental exertion. The exercise of thought and reflection becomes irksome and painful to the understanding; nor can the exertion of the latter be long continued, without finding the fatigue insupportable, and perceiving the necessity of repose. Their minds, unaccustomed and averse to serious reflection, regard only the indulgence of the vicious propensities of their nature. Hence it happens, that, in administering to their gratifications and conveniencies, the cause of virtue and humanity is disregarded, and the laws of moral obligation are insufficient to retain them in the paths of philanthropic duty; so that slavery, with its train of wretchedness and wo, follows as a necessary consequence of aversion to labour, and the corruption of morals.

The mind, ungoverned by the curb of reason and reflection, gives loose rein to the ebullition of passion; and conscience, obtuse in sensibility, feels not the compunctious visitings of remorse; nor can its feeble voice, stifled in utterance, be heard amidst the conflicting din of voluptuary desires and gratifications. Alas, my country! even there where munificent Providence, with a prodigal hand, is dispensing his gifts in the exuberance of bounteous profusion around thee, how is the noble nature of thy sons sunk in degeneracy, and swallowed up and ruined in the vortex of dissipation!

"Pity bleeds at thought of thee."

It affords me, however, much pleasure to remark, that these observations apply only to a small part of the community of our extensive Republic. Blest with a constitution and form of government, the best adapted of any in the world to the fructification of those sacred plants, religion, liberty, and virtue, it would be inconsistent with the principles on which this Republic is founded, should her sons be found deficient in those graces which adorn and exalt the most noble and virtuous of mankind. Free from the rude, withering, and destructive grasp of the iron hand of tyranny and oppression, the generous and ennobling faculties of the mind may here expand and flourish in a clime the most congenial to their growth and perfection.

"Thine, *Freedom*, thine the blessings pictured here;
Thine are those charms that dazzle and endear."

Though I have been somewhat severe in my strictures upon the character of the inhabitants of Louisiana, far be it from me to wish to stigmatize any portion of our country with unmerited censure and reproach. With the observance of truth, it would afford me the greatest satisfaction and pleasure to bestow, without alloy, an approving tribute of commendation. As it is, I feel it a duty to say, that there are not wanting in Louisiana, men, whose benevolence, generosity, virtue, and genius would do honour to any country or community.

It is only by the slanderous misrepresentions of such European visitors as Ashe, (Alias Arville,)* whose delight is detraction, and whose province is falsehood, that the world is indebted for those erroneous impressions of our country generally, which the *uncharitableness*, *envy*, *hatred*, and *malice* of those invidious slanderers have conspired to produce. Once, in the pride of ignorance, they could point the finger of

* This man, prompted by a restless curiosity, visited the United States, and surveyed, with a malevolent eye of prejudice and envy, every object which fell under his observation: but more particularly men and manners. He was poor, and occasionally kept a school for the purpose of defraying his expenses. This, however, is only an historical incident, and in itself free from reproach. He resided some months in the state of Ohio, in the capacity of a teacher of the French and English languages; (for he had acquired a smattering of learning;) during which time he contracted an intimacy with Dr. William Goforth. The latter gentleman, in company with another, had been at some hundred dollars expense in digging up and collecting a handsome assortment of mammoth's bones, and of some other strange and unknown animals, with the design of sending them to the Philosophical Society of Philadelphia. Arville was then, as he said, about to proceed to New-Orleans by water, and thence to Philadelphia, and proffered his services faithfully to take charge of the collection. The Doctor, confiding in the seeming friendship of this treacherous and deceitful miscreant, entrusted those valuable natural curiosities to his care. Arville proceeded with the skeletons to New-Orleans; and even there had the offer of some thousand dollars for them, which he refused; and, with the first opportunity, took ship with the trophies of his perfidy for Europe. Since which nothing has been heard from him, except through the medium of the publication of his travels, wherein he assumes the cognomen of Ashe, from the name of his illegitimate father. I received this information from the mouth of Dr. Goforth himself.

This is a slender tribute which our country has long owed to the *candour* and *politeness* of the *ingenuous* Mr. Ashe. Were it not incompatible with my design, I could do greater justice to this *worthy character*, by giving him a more complete and full drawn portrait. These few outlines, however, are sufficient to represent his more prominent features, and to enable the reader to form some idea of the original. It is a pity that a man of so much cleverness of intellect, and vivacity of fancy, should have prostituted his honour to the cause of slander, knavery, and falsehood. The only way in which this can be accounted for is, by supposing that he adapted his story to the vitiated taste of his countrymen. Who would not turn knave, and apostatise from every thing that is virtuous and good, when sanctioned by the approbation, applause, and reward of his country?

derision to the inhabitants of independent America, and with supercilious and presumptuous arrogance, seemed to consider themselves as the peculiar favourites of indulgent Heaven; and that the Almighty Sovereign of the universe was, himself, a transatlantic partisan, lavishing and exhausting the blessings of his providence and bounty upon their favoured country, to the neglect of others. But late experience has, I trust, in some degree, dissipated the illusion, and scattered the clouds of ignorance which obscured their vision.

MEDICAL

TRACTS AND RESEARCHES

ON THE

DISEASES OF LOUISIANA.

CHAPTER I.

An Inquiry into the Nature, Causes, and Cure of Scurvy.

INDEPENDENT of its own individual importance, the consideration of scurvy is rendered still more interesting from the relation which it bears to other diseases; so that, whilst we become acquainted with a disease which has committed such ravages in Louisiana and other places, we, at the same time, in some degree, develope the nature of those disorders, the pathology of which may be supposed to be intimately connected with those symptoms by which scurvy is particularly characterized.

The most striking features of this disease are indolence and lassitude; a gloomy and bloated countenance; *gums livid, spongy,* and *apt to bleed;* breath offensive; and œdematous swellings of the legs.

As the disease advances, the debility increases, and motion becomes difficult and painful; the tendons in the hams are rigid and contracted; black and livid spots appear upon the body; profuse hæmorrhages take place from the gums, nose, lungs, intestines, &c.; foul, livid, offensive, fungous, bloody, and spreading ulcers make their appearance, and originate from the least bruise or scratch; the urine is extremely rank and fœtid; the stools are very offensive, and it is not unusual for the patient to be affected with a diarrhœa or dysentery; a salivation frequently attends, which is sure to be produced and aggravated by the exhibition of a few grains of mercury; various eruptions, blotches, scabs, and tumours appear upon the surface of the body, and sometimes even buboes and carbuncles; dropsical effusions take place into the cellular membrane of the lower extremities and cavities of the body; the breath-

ing becomes difficult, and can only be performed with facility in a recumbent position, and is often attended with pain in the chest, and coughing; the patient is apt to faint in erect posture, and frequently expires upon the least motion of the body, or exposure to the fresh air.

In this disease the pulse is generally slow and feeble, though occasionally the patient is affected with some degree of fever. For the most part the appetite is good, and the function of digestion unimpaired.

Section 1.

Of the Remote Causes of Scurvy.

The predisposition to this disease is debility, from whatever circumstance it may arise: whether from previous disease, or a natural and habitual delicacy of constitution.* The debilitating passions and affections of the mind, as fear, grief, melancholy, anxiety, &c. are also to be enumerated among the predisposing causes of scurvy. It has likewise been observed, that persons of a dull, slothful, and inactive disposition, and such as are negligent in keeping their skins clean, are the first to be affected with this disease.

The more immediate cause of scurvy, and that which deserves particular consideration, is improper diet. It is now a fact very well ascertained, that the excessive use of animal food, without a due proportion of vegetable aliment, disposes the body to scorbutic affections. From this circumstance it happens, that scurvy occurs more frequently at sea than on land. Animal food, in a putrescent state, is more particularly calculated to produce this disease. Fat and greasy articles of diet have been found instrumental in giving origin to scurvy. Flour that is old and damaged also contributes to its produc-

* Dr. Lind observes, that the first who generally feel its effects are those who are recovering from a fit of sickness, by which the whole body has been greatly weakened; and are, in this condition, obliged to use the ship's provision; as also such as are convalescent from fever, &c. The same author elsewhere observes, that the lazy and indolent, and those of a sedentary life, as shoe-makers, tailors, especially weavers, by reason of their working in damp places, are most subject to it; while hard labourers, and those who use much exercise, though living on the same, or even grosser food, keep entirely free. Fishermen, from their way of life, gross food, and habitual use of spirituous liquors, are often scorbutic. Persons who have been weakened by other preceding distempers; such as fevers or fluxes; or by tedious confinement and cures; as those who have undergone a salivation, are, of all others, most subject to this disease. Intermitting fevers, he remarks, in a particular manner dispose the body to it.

tion. The opinions of Drs. Boerhaave and Sydenham, that Peruvian bark occasions the scurvy, is too unfounded to deserve consideration; besides, in opposition to this opinion, the highest encomiums are given by Dr. Brocklesby in favour of decoctions of this medicine with elix. vit. as a remedy in scurvy.

These may be considered as the internal and efficient causes, while the external may be viewed in the relation of the adjuvants; the effects of which may, with certainty, be prevented by a proper diet.

The most powerful of these external causes is cold; the efficacy of which is increased by the co-operation of humidity. Hence cold northern climates are more subject to scurvy than those under the influence of a warmer sun. Cold, bleak, and exposed situations are more liable to it than those which are less so.

It may be said to be the endemic and constant disease of Iceland, Greenland, Cronstadt, the northern parts of Russia, Denmark, Norway, and the coast of the Baltic, and of most northern countries from the latitude of 60° to the North Pole.* In these situations, the morbific influence of cold is greatly assisted in its operation, by the diet of the inhabitants, which consists principally of animal food.

Low, damp, marshy, and rainy places, are more liable to scurvy than others differently situated. This was exemplified at Terre-aux-Bœufs in the year 1809.

We are informed by Ronsseus, that, in his time, scurvy was scarcely ever seen at Dort; but that, in all parts of the country where the soil was fenny, damp, and marshy, it raged with the greatest violence. This very accurate observer also notices the great influence which the state of the weather has upon this disease; as that a long continuance of southwardly and westwardly winds always occasioned it to be considerably prevalent; and that rainy seasons, especially, rendered it quite epidemic and malignant. The marshy state of the country at that time, the frequent inundations to which it was subject from floods and high tides, together with the coarse diet used by the Dutch, made the scurvy the most common disease with which they were affected. We are, however, informed by Dr. Lind, that since they have become a rich and flourishing people, and have drained and improved their land by dykes and ditches, and have also quite altered their way of living, the disease appears less frequent; and is to be seen chiefly among the poor, who

* See Lind on Scurvy, who refers to a variety of authors; and Mead's Works, who quotes Eugalenus and Senertus.

inhabit the low and damp parts of the provinces, and continue to live on salted, smoaked, often rancid pork, and coarse bread, and who are obliged to drink unwholesome and stagnating water. The case is the same with many other countries at present; viz. Lower-Saxony, and other parts of Germany, Sweden, Denmark, and Norway; where, in general, the disease is much less frequent than it was formerly; the inhabitants, within these last 200 years, having much improved the face of all these countries, as well as their manner of living; they, at present, drink wine more freely, live in drier and more comfortable houses, and have greatly drained and improved their lands.*

Lind remarks, that he has observed scorbutic patients generally grow worse after great rains, or a continuance of close foggy weather, but found a mitigation of their symptoms and complaints upon the weather becoming dryer and warmer for a few days.† The same author, in a note, states, that the ships which are annually employed in the whale fishery, are, of all others, the best fitted out, both as to the variety and quality of their food; that the voyage is short, and the seamen kept much in action; so that bad water and decayed provisions can scarcely fall to their share: yet that there is no part of the world where ships' crews are so liable to the scurvy as in the polar circle. Those who are seized upon their first entrance into the cold, find an increase of their symptoms when they get into the ice. The attack of the malady is here more sudden, and its progress more rapid than any where else. The patient has seldom any cure or alleviation till the weather softens, which happens in the month of July; at which time, a temporary pause of winter takes place, and the scurvy-grass springing up, comes to their aid, and performs wonders.

Moisture alone, unaided by cold, has little or no influence in the production of scurvy; for at Venice, the situation of which is damp, the disease is unknown. This is owing to the warmth of climate, to their light and wholesome diet, and the great quantity of vegetables used by the Italians.

In cold sea-port towns, where the situation is bleak, low, and damp, the inhabitants are frequently affected with putrid gums, swelled ulcerated legs, &c.; whilst the neighbouring villages, situated in a sandy dry soil and pure air, are entirely free from all scorbutic appearances.

Those who live in swampy situations, encompassed with fogs and mists, are subject both to scurvy and intermitting fever.

* Lind's Treatise on Scurvy.
† Ibid. p. 218.

We may generally observe them to be of a pale wan colour, with scorbutic spots on the skin; of a dull, inactive, melancholy disposition; their scorbutic, discoloured countenances bespeaking the place of their abode. Whereas those who inhabit the mountains, or more dry and healthy places, are active, well coloured, and long lived. It may be remarked, that those who live in the higher apartments of a house are less liable to the scurvy than others who dwell on the ground-floor of even the same houses. The poorer sort of people, who live in damp vaults and cellars under ground, are most affected with symptoms truly scorbutic; as are likewise those who are confined in dungeons, and in the damp unwholesome cells of a prison. These circumstances are the more worthy our attention, as they relate to fever with equal certainty and force.

It will hence readily appear, that sailors who are wet and exposed to the cold and inclemency of the weather, crowded in the hold of a vessel, and there frequently exposed to unwholesome vapours, subsisting upon salted pork and beef, and perhaps old and damaged bread, are particularly liable to be affected with scurvy.

Similar causes, however, when occurring on land, will be apt to produce the same effect. Many examples of which have been afforded in this country.

Nearly one half of the first colony which came over to New-England was destroyed by the scurvy in 1621. But the French especially, upon their first settlement of Canada and New-France, suffered such a mortality in the winter season, that they had serious thoughts of abandoning the country; even the natives themselves were not exempt from its ravages. At present, however, the inhabitants residing in the British factories at Hudson's-Bay are quite healthy: we are informed by Ellis, that they sometimes did not bury one out of a hundred that were in their four factories in seven years;* whereas, according to Churchill, the first adventurers to that part of the world, who wintered in the same places, were almost all destroyed by the scurvy. The same author informs us, that a set of sailors, consisting of seven men, was left at Greenland and Spitzbergen, two winters successively, in the years 1633 and 1634, by way of experiment; but in the ensuing spring it was found that every one of them had died with the scurvy. The unhappy fate of these men, who left behind them a journal of their sufferings, is to be ascribed to the universal ignorance of the disease at that time; and the pernicious means recommended for its prevention and cure; consisting chiefly

* Voyage to Hudson's-Bay.

of purging antiscorbutic potions and distilled spirits. From these unsuccessful trials, it was judged impracticable to pass the winter in those parts. But the following accident afforded a most convincing proof of the mistake. A boat's crew, consisting of eight men, was accidentally left behind, and obliged to winter in almost the same place. The season proved equally severe. These unhappy men had no means of subsistence but what their guns afforded; and from being unprovided with the pernicious and fanciful preservatives of health, they all escaped the calamity of their unfortunate countrymen. They had no brandy, salted meats, &c.

These facts are sufficient to show, that the coldness and severe inclemency of a rigorous climate are not sufficient to occasion scurvy, when unassisted by other causes.

I have already mentioned, that the more immediate and efficient cause of this disease is improper diet. It is now necessary to consider this circumstance more fully, together with the facts with which it is connected.

It is generally considered, that the salt with which animal food is preserved, has a considerable share in the production of scurvy. It is very possible this may be the case. A curious fact is mentioned by Dr. Percival, which seems to prove the influence of salt in producing a scorbutic tenuity in the fluids of the body. The case is that of a young woman in tolerable health, who, according to advice, drank a pint of sea-water every morning, for three days successively, on account of a strumous swelling of her upper lip. She was thereupon suddenly seized with copious hæmorrhagies from the uterus and gums, and the appearance of petechial spots on different parts of the body. A hæmorrhage from her nose at length took place, accompanied with frequent faintings, which soon put an end to her existence. The Doctor observes, that "the blood which was drawn in her last sickness, was a putrid and dissolved gore."*

We are also informed by Dr. Sherwin, that in two gentlemen whom he attended, who lived in all the luxury of affluence and wealth, the scurvy appeared to be produced by an inordinate inclination for common culinary salt.† Upon the same subject Dr. Charles Linnæus, in a letter, giving an account of the scurvy in Sweden, says, "Lappones qui fere omnes ignorant salis usum in cibo, a scorbuto immunes vivunt; honeratiores apud nos a salis cavent, ne scorbuto corripiantur sine motu viventes,"‡

* Percival's Essays, Med. and Experim. vol ii.
† Edinb. Med. and Surg. Jour. vol. x. p. 46.
‡ Lind on Scurvy, p. 264.

Larrey found that the rice used by the French army in Egypt, from being saturated with salt, had an injurious effect in aiding the other causes of scurvy.

Notwithstanding salt may assist, it is by no means a necessary cause in the production of this disease, since facts prove that fresh animal food alone is sufficient for this purpose. We are informed by Sinopeus, through the authority of Dr. Lind, that there are whole nations in Tartary who live altogether on milk and flesh; and that, although these people are never seized with the small-pox, they are, on the other hand, subject to violent epidemic scurvies, which at times sweep off as great numbers as the small-pox does of other nations. In Lord Anson's voyage, where great ravages were committed by the scurvy, there was no scarcity of fresh animal food, though it does not appear that they were supplied with vegetables. The judicious and discerning Dr. Ferriar found that the exclusive use of animal food had the effect of rendering a number of his diabetic patients scorbutic.* Dr. Lind has a note from Kramer, who affirms, that salted meats have sometimes no share in occasioning the scurvy; as demonstrated from the many Germans destroyed by it in Hungary, who eat neither salted beef nor pork; but who, on the contrary, have fresh beef at a very low price.

The instances of its originating from the excessive use of salted animal provision, without a suitable proportion of vegetable food, are very numerous. I shall mention only a few by way of example.

The learned Van Swieten observes, that in Holland many who lived throughout the winter on salt beef and pork, were greatly affected at the end of that season with the scurvy. They were generally restored to health in the spring, by the use of fresh vegetables and fruits: the disease recurring again in the winter, upon their return to the use of their former diet. But he particularly remarked, that, by constantly eating old acrid cheese, their relapse was hastened more than by any other cause.† Dr. Huxham, in a letter, observes, that he found the disease produced, in his country, among those who eat few vegetables, and live mostly on flesh and fish; eating them not only at dinner, but also at supper; leading inactive lives, and indulging too much in ease and appetite.‡ Dr. Mead says, he was informed by Sir Charles Wager, that, one year when he commanded in the Baltic, the British sailors were terribly affected with the scurvy; but that the Dutch ships in company

* Med. Hist. and Reflect. vol. iv.
† Comment. in Aph. 1150.
‡ Lind on Scurvy, p. 129.

with them, were much more free from the disease. This he imputes to the difference of food used by the Dutch, which was stock-fish, (fish dried without salt,) and gort, (a kind of barley ground;) while that of the British was pork and oatmeal.* Dr. Lind gives us a remarkable and interesting example to the same effect, which being much to the purpose, will excuse for the length of the quotation. The relation is as follows: "In the last war, the men belonging to the Sheerness, bound to the East-Indies, apprehensive of sickness in so long a voyage, petitioned the captain not to oblige them to take up their salt provisions, but rather to permit them to live upon the other articles of their allowance. Captain Palliser ordered, that they should be served with salt meat only once a week; viz. beef one week, and pork the other. The consequence was, that, after a passage of five months and one day, the Sheerness arrived at the Cape of Good-Hope, without having so much as one man sick on board. As the use of Sutton's pipes had been newly introduced into the king's ships, the captain was willing to ascribe part of such an uncommon and remarkable healthfulness, in so long a run, to their beneficial effects; but it was soon discovered, that by the neglect of the carpenter, the cock of the pipes had been all this while kept shut. This ship remained in India some months, where none of the men, excepting the boats' crews, had the benefit of going on shore; notwithstanding which, the crew continued to enjoy the most perfect health. They were, indeed, well supplied with fresh meat. On leaving that country, knowing that they were to stop at the Cape of Good-Hope, and trusting to a quick passage, and to the abundance of the refreshments to be had there, they ate their full allowance of salt meats, during a passage of only ten weeks; and it is to be remarked, that the air-pipes were now open. The effect of this was, that when they arrived at the Cape twenty of them were affected in the most miserable manner with scorbutic and other disorders. These were speedily recovered on shore, by the land refreshments."

"Being now thoroughly sensible of the beneficial effects of eating, in those southern climates, as little meat as possible when at sea, they unanimously agreed, in their voyage from the Cape, to refrain from the too plentiful allowance of salted flesh. And thus the Sheerness arrived at Spithead with her full complement of 160 men, in perfect health, and unbroken constitutions; having, in this voyage of fourteen months and fifteen days, buried but one man, who died in a salivation for the pox.†"

* Mead's Works. Discourse on Scurvy.
† Lind on Seamen, p. 27.

The herpes which Dr. Pallas mentions his having seen in more than one place in the Russian dominions, from the livid, foul, and spreading ulcerations occasioned by the slightest bruises, and from the mortifications of the fingers, appears to be of the scorbutic character. The Tartars, who are subject to this disorder, are utter strangers to agriculture. They live in a country where the soil is impregnated with salt, and abounding with salt lakes. Their diet is fish, often salted when it is more than half putrid. Few or no vegetables are to be obtained.

Dr. Holland has lately observed, that the Icelanders are generally affected with scorbutic disorders, owing to the almost exclusive use of animal food. We are informed by Dr. Hosack, that "Upon the first establishment of the New-York State-Prison, about 1797, before a regular system of internal management with respect to the diet of the house was adopted, an alarming scorbutic disorder made its appearance among the greater part of the prisoners in that institution. They had been confined to a diet almost exclusively of animal provisions, and it was only by the liberal use of recent vegetables that the progress of the disorder was checked, and the prisoners restored to health."* "The habitual use of salt provisions," says Dr. Blane, "besides producing evident symptoms of scurvy, begets such a state of the constitution, that, upon the least scratch being received, particularly on the lower extremities, large and incurable ulcers ensue; and this circumstance, trifling as it may appear, is the cause of losing an incredible number of men to the service, especially in the West-Indies."†

These facts are sufficient to convince us of the pernicious effects produced by salted animal provision, when used exclusively or in undue proportion. A quere may arise, whether the atmosphere of the sea may not also have a share in the production of scurvy, by aiding the other causes. It is very possible this may be the case. There can be little doubt that the sea air is impregnated with saline particles. We know that the water of the ocean, even when distilled with the greatest nicety, contains a portion of muriate of soda, and is sensibly brackish; and therefore infer that the vapour which is exhaled from it by the influence of the sun, is likewise impregnated with the same substance. This also appears from the injurious effect which the sea air has upon vegetation in its vicinity, and from its destroying the fertilizing quality of sulphate of lime, or plaster, by the decomposition of its elements; as shown by

* Amer. Med. and Phil. Reg. vol. iv. p. 86.
† Blane on Seamen, p. 300.

the learned and ingenious Dr. Mitchill. Its effect, however, in producing scurvy, must be very slight, since the cure of this disease is effected with the greatest facility at sea by proper remedies.

Fat and greasy substances were also mentioned as causes of scurvy. We have a striking fact in illustration of this, related by Dr. Trotter, who, among other instances, makes mention of five natives of China returning on board the Chesterfield Indiaman, in the year 1788. These men were so fond of slush, which is the fat of salt meat skimmed from the water in which it is boiled, that, with a cunning not to be described, they evaded the quick-sighted vigilance of the cook, and in five weeks from the time of their leaving England, became monstrously corpulent. In consequence of this they were shortly overrun with scurvy; and although none of the crew, not even the landsmen, had the least symptom of that disease, they suffered by it the whole voyage, to a most dreadful degree, till the Chesterfield arrived in port.* The Rev. Mr. Wilson, of Sussex County, on the Delaware, among other things, mentions it as a certain fact, that when people in these warm climates use swine's flesh, from generation to generation, they are mostly affected with eruptions, foulness, rotten legs, sordid ulcers, &c. or, at least, they have scorbutic gums; hence stinking breath, loss of teeth, &c. "But," continues he, "when such families will be persuaded to live on vegetables, they may be cured with few medicines."† The unfortunate Dr. Stark, who fell a sacrifice to his experimental researches, found, that a diet of oil, bread, and water produced a scorbutic disposition. A diet consisting of a considerable proportion of suet, had the same effect: though bread alone did not possess this property.‡ Allied to these causes is a curious fact, related by my friend Dr. Forsyth, which happened under his observation in the state of Ohio, of a number of persons being seized with the scurvy, from the inordinate and protracted use of hickory-nuts. One of those patients died of the disease with the most aggravated symptoms of scurvy, such as livid maculæ, profuse hæmorrhagies from different parts of the body, &c. By the use of acescent vegetables, however, the patients were, in general, speedily recovered. He further observes, that by the same causes, the squirrels were also affected with this disease, of which hundreds of these animals died; and others were so debilitated and languid, as to be unable to run, or avoid the pursuer; that

* Townsend's Guide to Health, p. 453.
† Med. Rep. vol. xiii. p. 105.
‡ Stark's Works, p. 96. &c.

when examined, their bodies were found covered with ulcerations, and the blood appeared livid and preternaturally fluid.*

Spirituous liquors, as a cause of scurvy, also claim our consideration. I have already noticed the circumstance, in illustration of which it will not be improper to mention a few particulars. Ellis, in his voyage to Hudson's-Bay, mentions the following fact: "The bringing of two casks of brandy from York fort, for our Christmas cheer, was attended with fatal consequences. The people had been healthy enough before this season of mirth came on; but indulging themselves too freely, they were soon invaded by the scurvy, the constant attendant on the use of spirituous liquors." Dr. Lind remarks, that he has always observed the scurvy to increase in frequency and violence upon the ship's small beer being exhausted, and having brandy served to them in lieu of it.† He elsewhere observes, that distilled spirits have a most pernicious influence on this disease.‡ Dr. Robertson says, that "Grog will sometimes produce scurvy, when drank to excess, let the patient's circumstances and situation in other respects be ever so advantageous. I have known some instances of this in gentlemen. From these and similar observations, I consider grog as one of the principal causes of scurvy amongst seamen of the navy. When either good beer or good wine is served, scurvy seldom appears, or becomes fatal. But when men have been long at sea, under the circumstances we have mentioned, one fit of intemperance will induce scurvy."§ Dr. Trotter observes, that changing the beer for grog had a quick effect in increasing the number of scorbutic patients.‖

Similar facts are related by other writers. To which I may add the testimony of my own observation, while in the army of the United States in Louisiana.

Bad air, unwholesome water, and miasmatic exhalations, as causes of scurvy, are also worthy of consideration; but of these, as well as of some others which I here omit to mention, I shall have occasion to speak in the next chapter, on the subject of the scorbutic or pestilential epidemic of Terre-aux-Bœufs.

* Med. Repos. vol. ii. p. 456. Also his Inaugural Dissertation.
† Lind on Scurvy, p. 448.
‡ Ibid. p. 76.
§ Robertson's Obs. on Jail, Ship, and Hospital Fevers, vol. iii. p. 329.
‖ Med. Naut. vol. i. p. 410.

Section 2.

Appearances on Dissection.

One of the most remarkable appearances upon the dissection of scorbutic subjects, made by Lord Anson's Surgeons, M. Poupart and Dr. Lind, was the effusion of black and, as they call it, corrupted blood in various parts of the body. "The quantity of this effused stagnating blood," says Dr. Lind, "was sometimes amazing; we have opened bodies in which almost a fourth part of this vital fluid had escaped from its vessels." "All those who died suddenly," says M. Poupart, without any visible cause of their death, had the auricles of the heart as big as one's fist, and full of coagulated blood. The muscles were mortified, and stuffed with black corrupted blood; and upon handling them they fell to pieces. The muscles of the legs were so full and distended with blood that they remained bent, and did not admit of being stretched or extended. The breast, belly, and several parts of the body, were filled with water or serum; which was of different colours, and so corrosive as to inflame and remove the skin from the hands of those who touched it. The epiphyses were found separated from the body of the bones; the ribs were detached from the cartilages, and their bony part, next the sternum, was carious for four fingers breadth; the ligaments of the joints were corroded and loose. Instead of finding in the cavities of the joints the usual sweet oily mucilage, there was only a greenish liquor, which, by its caustic quality, had corroded the ligaments.

The lungs were blackish and putrid; as were also the bowels in those who had been affected with fluxes. Their spleens were three times larger than natural, and fell to pieces, as if composed of coagulated blood. Sometimes the kidneys and breast were full of imposthumes. The glands of the mesentery were found obstructed, inflamed, and some of them in a state of suppuration. What they considered as surprising was, that the brains of these people were always found sound and entire.

Section 3.

Of the Nature of Scurvy.

In the prosecution of this subject, the next object of inquiry will be, the manner in which the remote causes of scurvy operate upon the body in producing this disease.

As the circumstances attending the production and symptoms of scurvy are more obvious than those of most other diseases, I enter upon the inquiry with a degree of modest assurance of being able to establish something like a consistent and practical pathological basis, on which the treatment may rest with certainty and success.

Where any thing like a correct pathology admits of being ascertained, it should always be our endeavour to establish certain fixed and rational principles, by which we may be guided in the treatment of diseases. The instability of empirical practice, or such as is not founded upon systematic principles, labours under the disadvantages of being impotent and uncertain, or blindly and destructively active: and under such circumstances it is no longer questionable, whether the practice of physic is productive of most benefit or injury to mankind. Where obscurity prevails, and doubt exists, speculative and hypothetical opinions may lead to dangerous and destructive practice. Even in this disease, where experience has pointed out an effectual antidote, I have known the salutary remedy abandoned to the indulgence of the erroneous notions of a fatal opinion.

The position which it is my object to establish is, that there is a redundance of alkali in the fluids of scorbutic patients; and that this condition of the fluids is the cause of the phenomena of scurvy. But, in attempting this, it is not my intention to substitute speculation for argument, or hypothetical postulata for acknowledged facts: and, after weighing every circumstance for and against each respective theory, it will readily be acknowledged, that the one which has the greatest and most weighing number of facts for its support, is best entitled to acceptance and belief.

Even Dr. Cullen, that famous exploder of the humoral pathology, on the subject of this disease, has been forced to sacrifice his favourite theory to the irresistible conviction of his better judgment. But a fear of appearing inconsistent with the general tenour of his doctrine, prevented him from stating the facts on which he founded his opinion; and by an artful evasion of the question, he concludes that the subject is too plain to stand in need of demonstrative proof. After stating his opinion, that "the disease depends upon a particular condition of the fluids of the body," that this condition is a saline state, which he infers from the natural process of the animal economy tending to alkalescency, and that this saline state is the cause of the debility, he proceeds, "It is possible that this debility may have a great share in producing several of the phenomena of scurvy; but a preternatural, saline, and consequently

dissolved state of the blood, will account for them with more probability; *and I do not think it necessary to persons who are accustomed to reason upon the animal economy, to explain this matter more fully.* I have only to add, that if my opinion, in supposing the proximate cause of scurvy to be a preternatural saline state of the blood, be at all founded, it will be sufficiently obvious, that the throwing into the body, along with the aliment, an unusual quantity of salt, may have a great share in producing the disease. Even supposing such salt to suffer no change in the animal body, the effect of it may be considerable; and this will be rendered still more probable, if it may be presumed that all neutral salts, consisting of a fixed alkali, are changed in the animal body into ammoniacal salt; which I apprehend to be that especially prevailing in scurvy. If it be at all right in concluding that meats, from being salted, contribute to the production of scurvy, it will readily appear how dangerous it may be to admit the conclusion of another theory, that they are perfectly innocent."* He elsewhere informs us that the animal fluids are strongly disposed to run into a state of alkelescency.† Notwithstanding his avowed declaration in favour of this opinion, the idea has not been adopted and prosecuted by succeeding physicians; but impelled by the tide of fashion, they have forsaken the ground on which alone a true and substantial theory could be founded, and have pinned their faith to the unsubstantial and tottering fabrics of the Hoffmanean and Brownonean systems.

There is one part of the Doctor's opinion, however, as well as that of Sir John Pringle and others, with respect to this disease, which does not admit of demonstration equally clear and satisfactory. Dr. Cullen's opinion is, that there is a tendency in scurvy to putrefaction. Dr. Pringle supposes scurvy to be owing to an actual putrescency of the blood. The latter opinion is certainly unfounded; and if, by the former, is meant any thing more than that, as animal bodies are deprived of the principle of life, and verge towards dissolution, they become proportionably qualified to undergo the changes of dead animal matter, it is equally erroneous. We all know that a body deprived of life, in ordinary circumstances, undergoes putrefaction; and therefore we may say with truth, and without the fear of contradiction, that in all diseases, the tendency of which is to terminate in death, there is also a tendency to putrefaction. Such an idea, however, is weak and puerile, and degenerates into nonsense; and the other should be totally rejected, as em-

* Practice of Physic, p. 577.
† Mater. Med. vol. i. p. 218.

bracing the supposition of a condition of the fluids altogether incompatible with the phenomena of animal life.

Dr. Pringle, as well as the other physicians of his time, was no doubt led to this conclusion, by remarking the offensive state of the excretions, the livid and purple spots upon the surface of the body, &c. without considering the actual condition of the blood. It is really ridiculous to observe to what a degree prejudice will sometimes influence the senses of bigoted inquirers; and although we may have too good an opinion of their veracity to doubt the sincerity of their conviction, yet we must be permitted to call in question the correctness of their perception, when they tell us, that the blood of scorbutic patients was actually putrid to the smell. This is contrary to reason, and the general experience of others; and I therefore choose to disbelieve the circumstance.

It by no means follows as an obvious and necessary inference, that because the excretions of the body exhale an offensive odour, the blood itself must be in a putrid or prutrescent state. The excretory organs are the emunctories of the body, by which those substances that, if retained, would prove deleterious to it, are eliminated from the system. And since these excretions consist of the superfluous, effete, and noxious matters of the system, it is not surprising that they should smell offensive when the body is affected with disease. I speak here with respect to the excretions by the skin, urinary organs, and lungs.

Since in scurvy the blood is morbidly changed, (as will hereafter be shown,) this change must necessarily produce an alteration in the excreted fluids of the body; hence their fetor.

Animal food in a particular manner has the property of communicating this disagreeable smell to the excretions. Those of carnivorous animals, are known to be peculiarly offensive. Van Swieten observes, that all those creatures which feed upon prey, have constantly a strong and fetid breath. Hunter says, the flesh of carnivorous animals is rank and offensive: and it is well known what a nauseous effluvium exhales from the urine of a cat. An offensive odour is evolved from the feet and lungs of some persons in health and we all know how palpable to the olfactories are the odoriferous emanations which escape from the skin of a negro. This is more particularly the case with the black Jalofs of Africa. The *Vultur jota* of Molina is peculiarly remarkable for its odour, which resembles excrement. The flesh of sea-birds has a rank taste, particularly that of the icthyophagous species, inhabiting the shores of the northern seas. The rank

taste of the flesh of the *Colymbi* of Linnæus is even communicated to their eggs. The same taste is found in carnivorous turtles, as the *Testudo carretta,* (the hawk's-bill turtle,) &c. The smell of asafœtida is perceived in the toad and salamander. The Samoiedes, Esquimaux, and other northern nations of Indians have an offensive smell, derived from the putrid food upon which they subsist. Persons that are hairy, and of a dark complexion, as the Mongolic species of men, and those of a bilious constitution, have excretions of an alkaline quality, similar to the strong scented breath of carnivorous quadrupeds.

Many other instances of a similar nature might be mentioned, but these are sufficient for our purpose. No person will presume from this condition of the excretions, that the blood of these creatures is in a putrid state. Such a supposition would carry a conviction of its own falsehood and absurdity: and such is the absurdity and falsehood of that opinion, which supposes the putrid, or putrescent, or any other degree or condition of putridity, in the circulating fluids of the living animal body. Life, to be sure, exists in a less vigorous state in a scorbutic subject than in a healthy person; and from the weakness of the circulation, the vital fluid may cease to move in particular parts of the body during the life of the patient; and thus partial mortification may take place: this, however, is the immediate effect of the cessation of the circulation, and not of the supposed putrescent condition of the blood, although the morbid condition of this fluid essentially produces the various phenomena and effects of this disease. But to bring this question to the test of experiment, it appears that, when blood drawn from scorbutic patients is kept in the same state of air, it corrupts no sooner than the blood of healthy persons: and that thin slices of mutton steeped in the serum of similar blood, continued sweet and free from taint, as long as in the serum of persons in health.* Considering the antisceptic properties of alkali, this is no more than, *a priori*, we should have been induced to suppose.

The opinion of Dr. Lind, Dr. Blane, and Dr. Milman, which supposes the phenomena of scurvy to originate from, and to be dependent upon a debilitated condition of the digestive organs, induced by the remote causes of the disease, or that scurvy is rather owing to a deficiency of nourishment than to a vitiated state of it, is evidently erroneous. Dr. Lind expresses his opinion in the following words: "Though my inspection of dead bodies, and later observations, do not evince such a constant aud universal state of *putrefaction* in the bowels

* Lind on Scurvy, Postscript, p. 513.

as some authors induced me formerly to believe was attendant on the scurvy, yet I am fully confirmed in my opinion, that whatever weakens the constitution, and especially the organs of digestion, may serve, without any other cause, to introduce this disease, in a slighter or higher degree, even among such as live on fresh greens, vegetables, or the most wholesome diet, and in the purest air."*

Did scurvy originate from a debilitated state of the digestive organs, it would be an inseparable attendant on dyspepsia; and, of course, such tonic medicines as are found most serviceable in the cure of this affection of the stomach, and in strengthening the general system, would prove the most effectual for the cure of scurvy; whereas experience teaches us, that, in this disease, they are altogether inert and unavailing. Besides, it appears that the function of the digestive organs is the least impaired of any part of the body; the appetite, for the most part, continuing pretty good, and the food being easily digested. Nor does it proceed so much from a deficiency, as from an improper quality of the nourishment. It must certainly be admitted that animal is more nutritious than vegetable food; and although the former be salted, we must certainly conclude from daily observation of the fact, that it still possesses a sufficient quantity of nutriment, and requires but to be properly qualified, by the admixture of a due proportion of vegetable aliment, to afford nourishment of a proper quality.

That animal food is more nutritious than vegetable, is generally admitted by the most respectable authors. Dr. Falconer, in his remarks on the influence of climate, food, &c. says, "Animal diet is greatly more nutritious than vegetable, both as containing a greater quantity of nourishment, and as this nourishment is more easily extracted."† The same assertion had been previously made by Haller, "Dudum est annotatum eas gentes robustissimas esse quæ carnibus et iis crudis vivunt, ut Tartaros, Brasilianos, Esquimantsicos, tum venatores quos diximus."‡

It appears then that animal food is more nutricious than vegetable; and we therefore conclude that it does not occasion scurvy from a deficiency of nourishment.

Again, supposing scurvy to proceed from a defect of nourishment, how can we account for its removal by the use of such means as afford no nourishment, as exercise, vegetable acids, diuretic and diaphoretic remedies?

* Lind on Scurvy, Postscript, p. 516.
† Falconer's Works, p. 232.
‡ Haller's Physiol. Lib. xix. sec. 3

But what strikes directly at the bottom of this opinion, and fundamentally subverts it, is the well known fact, that fat and oily substances are more nutritious than any other kind of animal or vegetable matter;* and yet, notwithstanding, these constitute the very aliment that is most apt to produce scurvy. I have previously mentioned the anecdote related by Dr. Trotter, of the Chinese, who became monstrously corpulent, and consequently affected with scurvy, from eating slush. Dr. Trotter elsewhere observes, that in the slave ships, when a negro became remarkably fat, it was no difficult matter to determine how soon he would be seized with the scurvy: and that in a mess of midshipmen, who lived altogether on the ship's fare, the only one he ever saw affected with the scurvy was a young man remarkably corpulent.†

Dr. Trotter, reasoning from the experiments of Dr. Goodwin concerning the action of *dephlogisticated air* on the blood, infers, that the black colour of the blood of scorbutic patients is owing to the abstraction of dephlogisticated air (oxygen gas), and that fresh vegetables cure the disease, by restoring to the blood this lost principle. As this and the following opinion of Dr. Beddoes admit of a similar explanation, I shall consider both at the same time.

Dr. Beddoes supposes scurvy to be owing to a gradual abstraction of oxygen from the whole system, just as death is produced in drowning, by withholding all at once the same substance from the blood which is to pass the posterior cavities of the heart. Of the two causes of scurvy, want of fresh vegetables, and want of air sufficiently furnished with oxygen, Dr. Beddoes thinks the latter by far the most powerful.

* Dr. Moore observes, that the most nutritious substance, next to chyle, perhaps, is fat: thence inferring, that the fat which lines the integuments of the bear is an economical provision of nature; as affording the greatest quantity of nourishment in the smallest bulk, during the hibernation of this animal; at which time it serves as food, and is absorbed into the system for the support of the animal economy. Mater. Med. p. 82.

We are informed by Dr. Stark, that from the trials which he had made with a great variety of food, he found a smaller quantity of fat than of any other substance sufficed for his subsistence. Dr. Jones, in his observations on gun-shot wounds, says, that two ounces of suet will afford more nourishment than ten ounces of lean meat.

† Beddoes' Obs. on Scurvy, Consumption, &c. p. 98.

From the property which Dr. Stark observed fat and oily substances to possess of inducing a scorbutic habit of body in his own person, he makes the inquiry, whether "It is not probable that animal oils, though they nourish and increase the weight of the body, are not of themselves sufficient to prevent a morbid alteration from taking place in the fluids?" Stark's Works, p. 140.

I do not conceive that there is an actual abstraction of oxygen from the system; but that the quantity of oxygen remaining the same, the morbid condition of the blood is occasioned by the increase of excrementitious matters. This we infer from chemical researches, by which it appears that the relative proportion of oxygen to the other constituent elements of the atmosphere, in all situations, exists unchangeably the same. The experiments of Priestley, succeeded by those of De Marti, Davidson, and Gattoni, have ascertained, that the air of places the most offensive and unwholesome, affords as much oxygen as that of others of an opposite description: the air, for example, of crowded cities, on the summits of the highest mountains, and in the bottoms of the deepest vallies, has not been found to vary in the proportions of its two constituent elements; the noxious qualities of the atmosphere depending, not on the deficiency of oxygen, but on the admixture of deleterious substances, beyond the power of eudiometry to detect. It even appears from the experiments of Gattoni, that the stagnant air of the offensive marshes around Fort Fuentis, at the mouth of the River Vatteline, where bilious fevers constantly prevail in the summer season, was two degrees purer than that from the summit of Mount Legnone, which forms a chain with the lofty mountains of the Grisons, 8640 feet in height, and which is perpetually covered with snow. Though this experiment was repeated fifteen times, the result was still the same. It is a lamentable fact, that such is the imperfection of science, and the grossness of chemical experiment, that eudiometry can discover no difference between the air of an infected prison, the atmosphere of a swamp loaded with sickly vapours and the deleterious products of animal and vegetable decomposition, and that of the most salubrious situation. But what is sufficient for our purpose, and the more immediate subject of inquiry, it proves that there is no diminution of oxygen in those unhealthy places; and, consequently, invalidates the theory of Beddoes, founded on the supposition that the air of close and confined situations, and of infected places, owes its deleterious properties to a deficiency of this vital element. In reading Dr. Trotter's Medicina Nautica, Dr. Beddoes laid great stress where the former subsequently appears to have laid but little. To Dr. Beddoes' observations on this subject, Dr. Trotter replies in the following words: "Dr. Beddoes, in his remarks on my work, laid much stress on the impure air of ships in producing scurvy. If this had so much effect, surely it would have counteracted the cure, when the seamen remained on board: but that has not been observed. The surgeons generally remarked a very great difference on the second and third day; and a week

was long enough for to complete the cure."* It is also worthy of remark, that Dr. Trotter is here unwittingly so ingenuous as to contradict and disprove his own theory; and thereby saves us the trouble of pursuing the subject to a greater length.

Our celebrated countryman, Dr. Rush, has offered an opinion with respect to this disease, which, at least, has some pretensions to novelty. The Doctor considers scurvy as a *state of fever.* He observes, "From some of the predisposing, remote, and exciting causes of this disease; and from its symptoms and remedies, I have supposed it to be originally a fever, generated by human miasmata in a misplaced state. The hæmorrhages which sometimes accompany the scurvy, certainly arise from a morbid state of the blood-vessels; the heat and quick pulse of fever are probably absent, only because the preternatural excitement of the sanguiferous system is confined to those extreme cutaneous vessels which pour forth blood. Or, perhaps, the excitability of the larger blood-vessels may be so far exhausted by the long and forcible impression of the remote and predisposing causes of scurvy, as to be incapable of undergoing the convulsive action of general fever."†

That, in many of its symptoms, scurvy bears a striking resemblance to fever, a slight and superficial observation renders sufficiently evident; but the idea of its rising from human miasmata, appears extremely foreign to the fact. Perhaps, however, I do not understand the Doctor's observation, that it arises from those miasmata in a misplaced state; though I suppose he means to imply, that they occupy a place in the body different from that in which they exist in ordinary fever. This notion is answered in the sequel. The hæmorrhages which accompany scurvy, I suppose to arise partly from the morbid state of the blood-vessels; but that they, as well as this particular state of the sanguiferous organs, are essentially produced by the morbid condition of the fluids themselves. The doctrine of excitability, by which the Doctor was governed and his inquiries modified, led him to account for the absence of the quick pulse and increased heat, by supposing that the excitement of the sanguiferous system is confined to those extreme cutaneous vessels which pour forth blood. If this excitement were confined to these vessels, it is reasonable to suppose, that it would manifest itself by increased action and heat on the surface of the body, and not in passive hæmorrhage. The remainder of the opinion, which casts a shadow of doubt

* Medicin. Naut. vol. i. p. 426.
† Medical Inquir. and Obs. vol. iii. p. 65.

over the whole, by the expression, "*or perhaps*," appears less exceptionable, though not altogether correct; since intermitting, remitting, and continued fevers sometimes occur in scorbutic patients; which shows that the excitability of the larger blood-vessels is not so far exhausted as to be incapable of undergoing the *convulsive action*, as the Doctor terms it, of general fever.

Having taken a short critical review of the opinions of those gentlemen, and having, I trust, at least in some degree, removed the obstructions that impede our progress, we may now return to the prosecution of the subject matter of investigation.

I have already mentioned the facts in proof of the circumstance, that the disproportionate use of animal food, particularly of that which is salted, gives rise to scurvy; it now remains that I notice the circumstances in confirmation of its producing an alkaline tendency in the fluids, and the manner in which this, as well as some other causes operate in the production of the disease. Upon this subject, we are informed by the experiments of Dr. Young, that by feeding a bitch on vegetable food alone, she afforded milk acescent and spontaneously coagulating like that of ruminating animals; whereas the same bitch, for a little time fed entirely with animal food, afforded milk manifestly alkaline, and not spontaneously coagulating.* And Boerhaave says, that such animals as feed upon those of another kind, (i. e. carnivorous animals,) have their fluids disposed to turn easily into an alkaline state; and that those which feed upon herbs and water, make a chyle either sourish or easily turning so, and consequently give milk of the same nature.† A person, says Dr. Huxham, who lives on nothing but water and flesh, or fish, without any thing either acid or acescent, soon contracts a very great rankness in all his humours; he grows feverish, and, at length, his blood runs into a state of putrefaction.‡

It is from the alkaline tendency of the fluids, that the body is rendered scorbutic by starvation; and hence this disease has so frequently affected the inhabitants of besieged towns and places where scarcity of provisions has existed.

Schwenke observes, that unless the blood is refreshed with new chyle, it becomes dissolved and putrid; the breath is fœtid, and the secreted fluids are acrimonious and corrosive, destroying the parts in which they are contained.§ The blood of those who die of famine, says Dr. Huxham, becomes highly acrimonious, producing fever, phrenzy, and such a degree of pu-

* Cullen's Mater. Med. vol. i. p. 218.
† Boer. De Cog. et Cur. Morb. Aph. 78—9.
‡ Dissertation on the Ulcerous Sore Throat, p. 304.
§ Hæmatolog. p. 131.

trefaction, as to be entirely destructive to the vital principle.* Haller observes, that of those who die of famine, the woman's milk becomes acrid, and the urine intolerably acrimonious. In the progress of the starvation, excruciating pains are produced by the erosion of the nerves; the vessels being broken, hæmorrhages take place from the nostrils, into the stomach and intestines, &c.; and alienation of mind, epilepsy, delirium, and raging madness at length supervene, and precede the death of the patient.†

Dr. Milman has remarked, that, during a scarcity of corn, the indigent inhabitants of the colder districts of Italy, near the Alps, suffered considerably from scurvy. Their subsistence was frequently on the decoction of a few roots; and often, for a whole day, they never tasted any food.‡ Dr. Lind observes "that, in several religious orders, those who are obliged, by way of penance, to abstain a considerable time from food, perceive their breath become fœtid, their teeth loose, their gums spongy and soft." And in a note, he says, "I have always observed men of the rigorous orders in the Church of *Rome* greatly scorbutic. They are remarkable for rotten gums, (part of which is commonly eat away,) want of teeth, and a most offensive breath." He further adds, "The same symptoms are observed in those who are starved to death." In support of which he refers to Tschirnhaus. Medicin. Corporis, p. 23; and Lister de Humoribus, cap. 12.§

In a Treatise on the Scurvy by Abraham Nitzsch, we are informed of the distress occasioned by this disease at the siege of Asoph; and at the siege of Thorn, in 1703, as related by Vander Mye *de Morbis Bredensis*, several thousand Saxons shut up in that city, were cut off by it at the latter end of the siege. In the year 1757 and 1758, the Austrian garrison in Swednitz, a fortress in Silesia, during three months blockade, lost 3500 men, most of whom died of this disease. In the year 1699, the French in Paris, and several other parts of the country, were affected with the scurvy in consequence of famine.

Having thus cursorily noticed the influence of animal food, starvation, &c. in producing a scorbutic habit of body, we may proceed with the explanation of the phenomena.

We know that animal food consists principally of the two constituent elements of ammonia, nitrogen and hydrogen,

* Huxham on Fever.
† Haller. Elem. Phys. tom. vii. p. 167.
‡ Milman's Inquiry, p. 24.
§ Lind on Scurvy, p. 251.

with a portion of carbon and phosphorus. The same constitution exists in vegetable gluten: and from the chemical changes which are constantly taking place in the animal economy, we infer not only the possibility, but also the probability, and even the almost demonstrable certainty of these principles entering into a state of chemical combination in the body, and thereby constituting ammonia. Unless formed by the combination of its constituent elements, or resulting from the decomposition of those substances which afford it, how can we account for the presence of alkali in the body? where it is found to exist in considerable quantity, particularly in the bile and serum of the blood.* We know that alkali is formed by the spontaneous putrefaction of animal substances in the open air, but we are not able to account for its production from the same process in the living body; unless we are inclined to suppose that it results from the putrefaction of the residuary mass in the large intestines; a cause apparently unequal to the effect.

In whatever manner it may be produced, chemical experiments exhibit the fact of the existence of alkali in the fluids of the body, in the clear light of demonstrative truth. But when this is generated only in the ordinary quantity, it is prevented from accumulating, and thereby from exerting any deleterious influence, by the various excretions which, in a state of health, are continually going on. When, however, it is formed in unusual quantity, by the excessive supply of the principles which afford it, the excretory organs are no longer capable of performing the task imposed upon them—of freeing the body from the redundant alkali, which, by accumulating in the system, soon shows its deleterious properties, and exerts its morbific influence upon the general system.

As ammonia is formed and evolved by the process of putrefaction, so, it is probable, that the nearer animal food approaches to the putrid state, its tendency to produce scurvy will be proportionably increased. Hence, as salted animal food is frequently in a tainted condition, so is its power, (independent of the salt which it contains,) as a morbific agent thereby augmented.

But it is also probable that the effect of animal food is increased by the salt with which it is impregnated, when preserved for use. It is not my opinion, however, that this is to be ascribed to its sceptic influence, although the experiments of Dr. Pringle prove it to possess this property, when the proportion to the fermentative matter to be acted upon is very small. The proportion

* The experiments of Saunders, Roeder, Burgrave, Hartman, Baglivi, Verheyen, and particularly of Cadet, have ascertained the existence of uncombined alkali in the bile; whilst several others have unequivocally detected the same substance in the serum and other fluids of the body.

of salt which Dr. Pringle found to answer this purpose, was ten grains to two drachms of meat; and in this quantity, instead of hardening, he found that it softened and relaxed the texture of the meat more than plain water does. Hence it may possibly be of service in the process of digestion, by enabling the gastric fluid to resolve the tenacity of our food with greater facility. But it is probable that it may possess a still further use in the animal economy, when used only it sufficient quantity. I give it as my opinion, that this ultimate use is derived from its alkaline property, by which it corrects the undue and morbid acidity that vegetable food might otherwise produce in the fluids of the body. I agree with Dr. Cullen, that muriate of soda may, probably, be converted by the animal process into an alkaline salt. We know that the living animal body is a powerful chemical laboratory, where new combinations and decompositions are constantly going on, in a manner inimitable by human ingenuity.*

In support of the opinion above stated, we may remark, that carnivorous animals have no natural propensity for eating salt; the food upon which they subsist not standing in need of such a corrector, being in itself of an alkaline quality. While, on the other hand, salt seems to be a necessary article in the economy of herbivorous animals: witness the avidity with which the bisons of our western country visit the Salt-licks. There thousands of those peaceful inhabitants of the forest, in gratifying their appetites with this savoury delicacy which indulgent Nature had provided for their use, have fallen an unresisting prey to the wanton cruelty of our countrymen; who, at the same time, deprive the poor, homeless, wandering

* I was pleased with the perusal of the following experiment, from the interesting novelty of its nature; and as it may serve to give a faint idea of animal secretion, I have thought it worthy of insertion: Dr. Wallaston has been led by Mr. Davy's experiments on the separation and transfer of chemical agents, by means of the Voltaic apparatus, to imagine it probable that animal secretions are selected by the agency of a similar elective power. In this opinion he is supported by the following experiment: He took a piece of glass-tube, about three quarters of an inch in diameter, and nearly two inches long, open at both ends, one of which he covered with a piece of clean bladder; into this vessel he poured some water, in which had been dissolved 1.240th of its weight of salt; and after placing it upon a shilling, with the bladder slightly moistened externally, he bent a wire of zinc, so that while one extremity rested on the shilling, the other might be immersed about an inch in the water. By successive examinations of the external surface of the bladder, he found that even this feeble power occasioned soda to transude through the substance of the bladder. The presence of alkali was discernable by the application of reddened litmus paper, after two or three minutes, and was generally manifest even by the test of turmeric, before five minutes had expired. Med. Repos. vol. xiii. p. 208.

Indian of his food, for the pitiful venality of converting the skins of these animals into articles of traffic. But moral considerations apart, let us not neglect the thread of our subject: to this purpose we may remark, the satisfaction and delight with which sheep, cattle, and horses instinctively devour this luxury of nature, while the dog and the cat shun a repast so repugnant to their savage and sanguinary appetites.

When the two agents therefore, salt and animal food, particularly if the latter should be in a putrescent state, co-operate in the human constitution, their effect must be peculiarly striking. We are frequently sensible of an instinctive craving for acidulous fruits, after having dined heartily upon animal food, especially if salted.

From this property which animal food possesses of inducing scurvy, it would seem that man was not originally constituted a carnivorous animal. Whether the habitual and exclusive use of animal food, from infancy through life, might not have the influence of adapting the functions of the body to this particular diet, is impossible for us to determine. I am inclined to think, however, that its effect in this way would be considerable. But, as we are the creatures of habit, habit or nature has made it necessary that luxurious man should partake of the enjoyments both of the animal and vegetable creations, and thereby rendered the exclusive use of either pernicious.

Among the causes of scurvy, distilled spirits were particularly noticed as having an obvious influence in the production of this disease. This effect seems to be occasioned by the quantity of hydrogen which they contain; which being one of the constituents of ammonia, combines with the nitrogen of animal food, thereby increasing the alkaline state of the blood. Besides, when used to excess, by its debilitating influence, it may produce a predisposition to the disease.

Corrupted stagnant water must operate in the same manner as putrescent animal food, and therefore does not require a particular consideration.

There can be little doubt with respect to the propriety of considering cold and moisture as remote causes of this disease. Their modus operandi seems to be that of suppressing the excretions from the surface of the body. The same may be observed of inactivity and sloth, which, by rendering the circulation languid, retard and diminish the excretions, particularly that of perspiration, the most important of all; and thereby still further increase the accumulation of morbific matter. Sanctorius has illustrated the influence which the state of the weather has upon the body, by the test of experiment; and briefly enumerates the principal causes which are liable to obstruct the per-

spiration, and those by which this disease is occasioned: viz. "aer frigidus, cœnosus, et humidus, natatio in frigida, gross viscid food, and neglect of exercise."* He observes in another place, that "Too cold, windy, or wet air, lessens perspiration.†" He likewise notices the effects produced in consequence of this suppression of the perspiration, from the influence of such a cold and wet air; "that it converts the matter of perspiration into an ichor, which being retained, induces cachexy."‡

With respect to the alkaline condition of the body in scurvy, Dr. Trotter observes, that when the sick-buckets have been allowed to remain too long uncleaned, the smell of ammonia became intolerable; and that, in his experiments, the urine of scorbutic patients changed vegetable blue colours to a green.§ Upon the same subject Mr. Patterson observes, that when a vegetable blue infusion was added to the urine of a person labouring under scurvy, the mixture turned green; but when a similar addition was made to the urine of a healthy person, the colour of the infusion was no further altered than by being made lighter; and it was also found that the urine of a person recovering from scurvy, lost the power of changing vegetable blues to a green.‖ Parmentier and Deyeux found the taste of the blood of scorbutic patients alkaline; it changed syrup of violets green.

Johnson says, that the alkali in the blood appears to be always in a caustic state.¶

The following seem to be the principal circumstances in proof of the redundance of alkali in the fluids of scorbutic patients:

I. The urine turns vegetable blue infusions to a green colour.

II. The blood is dissolved, and more thin and fluid than natural.**

III. The fleshy or fibrous parts of the body are relaxed, soft, tender, and easily lacerated.

IV. The water contained in the thorax and abdomen, found upon dissection, possesses such a high degree of acrimony and causticity, as to excoriate the hands upon coming in contact with it.

* Aphorism, 67.
† Aphorism, 200.
‡ Aphorism, 146.
§ Trotter's Medicin. Naut. vol. ii.
‖ Duncan's Annal. Medicin. vol. i. p. 133.
¶ Johnson's Animal Chemis. vol. i. p. 104.
** According to the observations of Lord Anson's surgeons, Messrs. Ettick and Allen, in the dissection of scorbutic subjects, the blood in the veins was so entirely broken, that, by cutting any considerable branch, the part to which it belonged might be emptied of its black and yellow liquor.

V. The blood of scorbutic patients, by the admixture of lemon-juice, becomes somewhat lighter; on the addition of a solution of nitre in vinegar, it becomes of a florid red; the same appearance takes place with nitre and lemon-juice. By volatile alkali the coagulum was turned black, and was again rendered florid by the addition of nitre in the juice of lemons, and in vinegar.

VI. The exhibition of alkalies produces a scorbutic habit of body.

VII. It is well known that vegetable acids and acescents are the most powerful and infallible antidotes against scurvy.

The certainty of the first and sixth positions is sufficient to establish the truth of my opinion. But as we can never be too certain of any important truth, it will not, perhaps, be considered superfluous to notice particularly a few circumstances, for the sake of a more perspicuous illustration. For this purpose, let us consider the operation of alkalies upon animal substances.

Experiments prove, that alkalies mixed with the blood, render it more thin and liquid, change it to a darker colour, and prevent its spontaneous coagulation; evidently from its solvent power on the albumen and fibrin. The acids, on the other hand, coagulate it.*

Animal substances, when immersed in an alkaline lie, become relaxed, softened, and finally converted into a saponaceous mass.

A state of general relaxation and scorbutic disposition affects those persons, who, for a considerable time, have persevered in the use of alkaline remedies for the cure of calculous complaints. Their gums become relaxed, spongy, and apt to bleed; scorbutic affections appear on the surface of the body; hæmorrhages take place from different parts; debility prevails; and lassitude ensues upon the slightest motion: in short, a general scorbutic diathesis is acquired; for the removal of which, acid and acescent vegetables are no less necessary than for the sea-scurvy. Dr. Haller observes, that the protracted use of lixivial salts, in which the efficacy of Mrs. Stephens' medicine consists, renders the blood acrid, alkaline, and scorbutic; (alkalinum, acrem, scorbuticum,) and even raises vesicles upon the skin.† Dr. Percival also remarks, that "the lixivial remedies employed for dissolving the human calculus are extremely destructive to some constitutions. There are instances of their having produced the most putrid diseases, and increased a dis-

* Murray's Sys. of Chem. Johnson's Anim. Chem. &c.
† Haller. Elem. Physiol. tom. iii. p. 90.

position to scorbutic complaints. They sometimes bring on the most dangerous hæmorrhages; and the regimen employed being chiefly animal diet, the putrescent state of the blood is thereby greatly increased.*

We perceive, therefore, that the evidence upon this subject, amounts to the absolute certainty of demonstration. In the first place, a redundancy of alkali is discovered in the fluids of scorbutic patients; secondly, the exhibition of alkalies produces a scorbutic habit of body: the inference which follows is evident and conclusive, that a redundance of alkali in the body is the immediate cause of the symptoms of scurvy.

From the alkaline condition of the blood, the characteristic symptoms of this disease may be explained. The hæmorrhages, petechiæ, vibices, and discolourations of the skin, take place, partly from the dissolved condition of the blood, and partly from the relaxed state of the solids.

It is the relaxed, and tender, and (if I may be allowed the expression,) saponaceous state of the body, produced by the redundance of alkali, that has given rise to the doctrine of putrid diseases, and putrescent condition of the fluids: an opinion which has taken its origin from a mistaken notion, and altogether founded in error; since no such state can take place during the existence of animal life. Instead of the word *putrid*, I would therefore substitute *scorbutic*.

The cough and pain in the chest, which Mr. Murray says answer to the description of the *pleuritis notha*, and which are so conspicuous and distressing in the advanced stage of this disease, no doubt proceed from the acrimony and irritating quality of the fluids acting upon the lungs. This also accounts for the ulcerated state of the lungs, which Mr. Ives says is a common consequence of the scurvy.† The same may be said of the dysenteric affections of the bowels, &c.

It is this same relaxed and partially dissolved condition of the body that occasions the debility, lassitude, and sudden exhaustion upon using exercise. As formerly stated, the muscles, after death, are found soft and tender, as if in a state of putrefaction.

This relaxed condition of the solids also accounts for the difficulty of breathing, so conspicuous in this disease, upon the least motion of the patient. While the body is at rest, the blood moves on slowly, and but little force of the blood-vessels is necessary to propel it. But when a sudden exertion is made, the blood is urged forward in considerable quantity

* Percival's Essays, Med. and Experim. vol. iii. p. 316.
† Lind on Scurvy.

to the heart, which, being relaxed and debilitated, is no longer capable of contracting with sufficient energy and strength to free itself from the accumulated load. Nature makes an effort to perform her function, by occasioning a full and frequent dilatation of the thorax, or panting, to enable the blood to pass with greater facility through the lungs; but the power of the heart is soon overcome, and its strength exhausted, by this accelerated action, and suddenly sinks into a state of quiescence, occasioning syncope; from which, when occurring in the advanced stage of the disease, the patients frequently never recover.

It is in this manner, I presume, that death takes place when scorbutic patients are removed into the fresh air, from the motion to which the body is unavoidably subject. This explanation is authorized by the observation of Mr. Poupart, who, as formerly stated, remarks, that all those who died suddenly, without any visible cause of their death, had the auricles of the heart as big as one's fist, and full of coagulated blood: evidently owing to the relaxation and want of power in this organ to carry on the circulation, or free itself from its contents.

From the observations of Drs. Trotter, Beddoes, and others, we have reason to suppose that a foul air, abounding with the miasmatic products of animal and vegetable decomposition, may have some effect in producing this disease; but as the scurvy is cured with little difficulty, even in those suspected places, when proper remedies can be procured, we may conclude that such a cause, in general, has but little influence.

The reason why scurvy is not generally attended with fever, is, probably, owing to the gradual manner in which the matter producing this disease, is introduced into the system; and the probability is, that, were it conveyed in greater quantity, and more suddenly into the blood-vessels, fever would be excited by it; but from the gradual manner in which this morbific poison is received into the body, the blood-vessels, by degrees, become accustomed to this new stimulus; and from its habitual and constant impression, like other exciting agents, it loses the stimulating influence which it would otherwise possess. This opinion is supported by the circumstance, that fever is sometimes observed at the commencement of scurvy, when the excitability is still alive to the too great accumulation of morbific matter. Fever, also, sometimes supervenes upon scurvy, in a continued, remittent, or intermittent form. This coincidence is, no doubt, owing to a similarity in the causes of these diseases: whence it happens, that the febrile miasmata being suddenly superadded to the morbific matter already existing in

the fluids, the sanguiferous system is stimulated and excited into febrile commotion. I have myself seen scurvy, intermitting fever, and dysentery, existing together in the same person, and each pursuing its distinct course, uninterrupted by each other's presence.

From a consideration of the various causes and circumstances of scurvy and fever, it will be seen, that these two diseases are closely allied. This will more clearly appear, when we come to speak of the disease of Terre-aux-Bœufs. At present, I shall only notice a few circumstances of their analogical affinity.

They often arise under similar circumstances of weather, climate, situation, &c.; as in low, damp, marshy places, rainy seasons, bad air, and from miasmatic exhalations.

A febrile state is also sometimes attendant upon scurvy. Dr. Lind informs us, that some of his patients had a feverish pulse, and complained of head-ache and thirst; and that *a tertian or quartan ague*, with perfect intermissions, *sometimes accompanies this disease.** I have also noticed the same occurrence. Dr. William Brown, in a letter to Dr. Guthrie, of St. Petersburgh, giving an account of the scurvy which prevailed in Russia, in the year 1787, states, that the force of the heart and arteries seemed, in many cases, to be increased, if we may judge from the state of the pulse, which, frequently, on the patient's first arriving at the hospital, was full and hard. Even in some cases, when, during the whole course of the disease, the pulse had been in a natural state, in most respects; yet, a few days before death it attained a wonderful degree of force. An increased degree of heat was also observed.†

Dr. Lind says, that, in the course of the year 1746, several of his scorbutic patients were feverish in the beginning of the distemper.‡ In Lord Anson's voyage, it is related that this malady was accompanied with other dangerous symptoms, besides those strictly scorbutic, particularly putrid fevers, pleurisies, jaundice, &c. Burserius distinguishes a fever which he calls *scorbutic tertian*, on account of the symptoms of scurvy manifested by it.§ Ettmuller also makes mention of a scorbutic tertian, and has been followed by Sauvages. That mentioned by Ettmuller could be cured by antiscorbutics only, or chiefly; seldom yielding to bark.‖ Morand likewise takes

* Lind on Scurvy, p. 506.
† Dunc. Med. Comment. vol. xii. p. 342.
‡ Lind on Scurvy, p. 107.
§ Burser. Institut. of the Prac. of Medicine, vol. i. p. 344.
‖ Ettmul. Opr. tom. ii. p. 32, & seq. Colleg. Practic. sec. xv. cap. 2.

notice of a similar disease; with this difference, however, that it was immediately stopped by the bark. Dr. Alibert observes, that, in the climate of Middlebourg, the malignant intermittent is oftentimes united with the scurvy; and that this complication is known from the fetor, the flaccidity, and the erosion of the gums, the deep colour of the urine, the blotches on the skin, &c. In the treatment of it, the bark is advantageously joined with the acids.* Sinopeus acquaints us with a similar coincidence: "Although the scurvy," says he, "was a distemper bad enough of itself, it was, however, often rendered worse by being complicated with other intercurrent diseases, viz. fevers and rheumatism, but especially the intermitting fever."† Dr. Lind, speaking of the scurvy in Hampshire, says, such as died of fevers had their legs, several days before death, covered with scorbutic small spots, of a purple, red, or black colour.‡ The same author observes, in another place, that a fever appeared on board the Edgar, in a few months acquiring great vigour, which, together with a supervening scurvy, destroyed sixty of her crew.§ Bisset, in a treatise on scurvy, states, that the bilious fever of the West-Indies often attacks such as are highly predisposed to scurvy, as also those who are recovering from it; in both cases proving very fatal. And Rouppe mentions a man who died of yellow fever and scurvy, in the Island of Curacoa. Dr. Blane observes, that in the ship Alcides, while on a cruise in rainy weather, which increased the number of sick, those men chiefly were attacked with fever who were ill of the scurvy.‖

Such is the analogy, and such the affinity of scurvy to fever in general; besides which, it has many characteristic features of malignant fever.

In scurvy, the blood is preternaturally thin and fluid, as is manifest by its appearance when drawn, or flowing from the body; nor does it spontaneously coagulate. Such also is the condition of the blood in malignant fever.¶

In scorbutic patients effusions of blood take place under the cuticle, giving rise to the appearances of what are called pete-

* Alibert on Malig. Intermit. p. 257.

† Parerga Medica Conscripta. Quoted by Lind, p. 405.

‡ Lind on Scurvy, p. 274.

§ Lind on Fever and Infection, p. 8.

‖ Blane on the Dis. of Seamen, p. 57.

¶ Huxham on Fever; Shebbeare's Practice of Physic, p. 169; Lind on Seamen, p. 62; Schwenke, Hæmatolog. p. 90; Cleghorn, Dis. of Minor. p. 95; Fordyce on Put. Inflam. Fev. p. 60; Walker on Small-Pox, p. 109; Hunter on the Dis. of Jamaica, p. 171; Mitchell on the Yellow Fever of Virginia, in 1741; Rush on the Yellow Fever of Philadelphia, in 1793; Med. Inq. and Obs. vol. iii. p. 159, &c. &c.

chiæ, maculæ, and vibices. The same appearances constitute a striking feature of malignant fever, and especially of that form of it called plague.

In the plague and other malignant fevers, buboes, carbuncles, and mortifications are common occurrences. These effects are also sometimes produced in scurvy.

Patients labouring under plague are listless, averse to motion, affected with a remarkable degree of apathy,* and frequently expire when moved, or brought into the fresh air. These symptoms are no less remarkable in scurvy.

In both scurvy and malignant fever there is a great disposition to hæmorrhage, from a dissolution of the blood, a relaxed state of the blood-vessels, and of the body generally.

From all which it appears that there is an intimate relation between the two diseases. Where then, I would ask, is the propriety of that unnatural classification which separates diseases from each other that have the closest affinity; and which, with the hand of violence, brings together and associates others, as different and repugnant in their natures as a white man, in his complexion, form, constitution, feelings, and disposition, is from the black stinking Jalof of Africa? Wherein consists the resemblance between scurvy and plica Polonica? The former being characterized by a general disorder of the system, producing hæmorrhages, petechiæ, fœtid breath, dysentery, ulcerations, relaxation, &c.; whilst the latter is merely a local affection, originating from filth, and consisting in an agglutination of the festering hair. But according to the Cullenian classification, they are both cachectic diseases. Or what affinity is there between catarrh and dysentery? As well might we associate hydrophobia with the dry-belly-ache, or the itch with the plague. It is sincerely to be wished that the fetters of this erroneous classification may shortly be broken, and the different members of the family of diseases restored to their proper situations; or else be permitted to maintain an individual independence, free from the yoke of unnatural association.

Section 4.

Of the Cure of Scurvy.

From the foregoing doctrine of this disease, which teaches us that the proximate cause of scurvy consists in a redundance of alkali in the fluids of the body, the curative indication is very obvious, viz.

* Assalini on the Plague.

To correct this alkali by the use of acids and acescents, or to expel it by the employment of such remedies as excite and promote the excretions of the body, more particularly that of perspiration.

Of the acids, those belonging to the vegetable kingdom are found by universal experience to be best adapted to the cure of scurvy. Whether this is owing to their greater chemical affinity, to the morbific alkali in scorbutic patients, or to their power of promoting the excretions, or both, I will not take upon me to determine; being satisfied with the fact, that these acids, and particularly the citric, are the most effectual and speedy antidotes that can be employed for the cure of this disease. These acids possess the property of promoting the excretions of perspiration and urine in a very considerable degree; and in this respect, they are certainly superior to those of the mineral kingdom.

Mr. A. Baird, surgeon of the Hector ship of war, in a letter to Dr. Trotter, represents, in terms of the highest commendation, the use of lemon-juice as an effectual antiscorbutic: that, during a voyage to and from the East-Indies, notwithstanding the scurvy had become very prevalent, he did not lose a man. His observation is as follows: "When I consider the alarming progress which the scurvy was making among the Hector ship's company previous to the administration of lemon-juice as a preventive, the sudden check that disease met with afterwards, and the powerful effect of the acid in very bad cases, I think I shall not be accused of presumption, when I pronounce it, if properly administered, *a most infallible remedy*, both in the cure and prevention of scurvy."* It may be convenient for us to know, that, in case the lemon-juice cannot be obtained, the concrete citric acid may be substituted with equal benefit. Dr. Trotter informs us, that, from his own experience, he has found it completely successful, and in every respect to equal, if not to surpass, the usual effect of the fresh lemon or Seville orange-juice. In confirmation of its efficacy he remarks, "After Lord Bridport's squadron had been ten weeks at sea, it then appeared how much the safety of the men depended on the citric acid. There was not a case in which it was given, where it did not produce a cure in the space of a few days."† Dr. Lind, upon the same subject, speaks in the following terms: "I have remarked, that in seemingly the most desperate cases, the most quick and sensible relief was obtained from lemon-juice, by which I have relieved many

* Trotter's Medicin. Naut.
† Ibid. vol. i. p. 417.

hundred patients, labouring under the most intolerable pain and affliction from this disease, when no other remedy seemed to avail."* He elsewhere observes, that he has found the virtues of lemon-juice, in this disease, exceed those of green vegetables, and much superior to wine by itself.† Mr. Ives informs us, that the most powerful of all the remedies he knew, was the juice of oranges and lemons, "by the plentiful use of which" says he, "many thousand lives, in a large fleet, may be preserved in a voyage of moderate length, which, without this, would be lost."‡ Dr. Lind prefers the admixture of lemon-juice with wine and sugar, in the proportion of about four ounces and a half of juice and two ounces of sugar to a pint of wine, which the patient drinks in the course of twenty-four hours. He observes, that these draughts frequently prove gently diuretic, and will sometimes occasion profuse sweats; and that they are peculiarly serviceable when the latter effect is promoted by the drinking, while in bed, of warm balm-tea. This composition Dr. Lind esteems the most efficacious remedy for this disease, and greatly to exceed the simple lemon-juice, or any other method in which it may be given. Mr. Harris, in a letter to Dr. Lind, observes, that many of the men in the ship Southampton, at Quiberon-Bay, were affected with the scurvy; occasioned, as he supposed, by sloth, idleness, and a depression of spirits, from being pent up in a ship, without having any pleasant amusements, or variety. But having purchased a quantity of lemons, he daily distributed them to his scorbutic patients, "who were," continues he, "then to the number of ninety. They sucked the juice, and kept the pulp constantly applied to their gums. The effect was surprising: many, whose spongy and putrid gums wholly covered their teeth, and who could not rise from their beds without fainting, were in a few days able to walk the decks, and soon afterwards returned to their duty." Mr. Murray, in a letter to Dr. Lind, informs us of the infallible efficacy of oranges and lemons. And that, after his arrival at the Island of St. Thomas, he cured a hundred and twenty scorbutic patients in little more than twelve days, with limes alone.§ The report of Dr. Mead concerning the efficacy of lemons and oranges in the cure of scurvy, which prevailed in the fleet commanded by Sir Charles Wager, is equally favourable.‖ To those we might add the testimonies of Mr. Moubray and Mr. Malcolm,¶ as well as of many others equally liberal in their commendations.

* Lind on Scurvy,
† Ibid. Postscript, p. 522.
‡ Ibid. p. 543.
§ Lind on Scurvy, p. 155.
‖ Mead's Works; Disc. on Scurvy, p. 111.
¶ Lind on Scurvy, p. 166.

I can speak with decision concerning the efficacy of vegetable acids, having seen this disease among the soldiers in Louisiana, where I found the use of Seville oranges, which grow there in abundance, a complete and speedy antidote, in every instance, where the situation of the men enabled them to procure them.

Upon the subject of scorbutic ulcers, Dr. Blane takes notice of the great benefit derived from the use of lemon-juice as a topical remedy; which, he says, is the best detergent of any application that has been hitherto employed; and that nothing had such a happy effect in putting a sudden stop to their spreading, restoring a healthy appearance, and disposing them to heal. It was applied by lint wet with the juice, and laid upon the ulcer; juice sprinkled on the surface of a poultice, or by lotion: in the latter method it was diluted with two or three times its quantity of water; the pure juice being found too irritating, and apt to produce a fungous disposition.*

Dr. Lind says, that, next to oranges, cider had the best effect in the cure of scurvy.†

In Greenland, where the disease is extremely frequent, we are told by a gentleman who twice visited that country, (Hermanus Nicolai,) that the natives make use of scurvy-grass and sorrel together; and that these two herbs, put with barley or oats in broth made of fowls or the flesh of rein-deer, have the effect to recover the diseased most surprisingly in a short time, even after having lost the use of their limbs.

Agreeable to the general observation of the most experienced practitioners, summer-fruits of all sorts are here, in a manner, specific; viz. oranges, lemons, citrons, apples, peaches, &c. &c. For drink, cider, good sound beer, or claret wine, is to be prescribed.

We are informed by several authors, of an old custom practised in some parts of Norway. In the summer season they send such as are affected with the scurvy to a neighbouring desert island, where they live chiefly on *cloud berries*, (Fructus chamæmori;) and it is remarked, that by eating plentifully of these, together with the change of air, they are restored to perfect health in a very short time.

In short, where plenty of fruits and wholesome vegetables can be obtained, we have no reason to apprehend the appearance and prevalence of scurvy: for scurvy and acid and acescent vegetables are as direct opposites as fire and water. The experience of all nations proves the truth of this assertion.

* Blane on the Diseases of Seamen, p. 503.
† Lind on Scurvy, p. 150.

It will not be improper to notice in this place the erroneous opinion entertained by Dr. Brown, with respect to the cure of this disease; and the defects of his system, which aimed at conquering all diseases by evacuants or stimulants, according as the disorder happened to be either *sthenic* or *asthenic*. Speaking of scurvy, he delivers his sentiments in the following words: "The pretence of its cure being effected by greens, roots, sourcrout, and similar things, which have been so much commended lately, though they could not fail, by their debilitating operation, to aggravate the disease, is derived from a *noted blunder* among physicians, by which they are led to overlook *the most certain, simple, and evident facts*, and take up, in place of them, the greatest falsehoods, or such facts as have a very narrow foundation in truth."* *The most certain, simple, and evident facts* to which he here more particularly alludes, is the curing of scurvy by the use of *fresh meat, wine, gestation, and exercise*, which he had mentioned in the preceding sentence. The wine, gestation, and exercise are very proper, but when he substitutes animal food in the place of vegetables and fruits, he rejects the most important and efficacious remedies; and by sacrificing facts and universal experience to hypothetical delusion, makes himself guilty of that *noted blunder* which he so freely lays to the charge of other physicians.

Mr. D. Patterson, surgeon in the British navy, has published a treatise on the scurvy, wherein a new remedy is presented to the consideration of the medical world. This is what Mr. P. calls *nitrous vinegar*, prepared by dissolving four ounces of nitre in a quart of vinegar. From half an ounce to two ounces of this solution is exhibited twice, thrice, or four times a day. In this manner, according to Mr. P. the progress to recovery is very remarkable. The belly is kept gently lax; the discharge of urine is increased, and it is changed from the alkaline to a healthy nature; the skin becomes open and more agreeable to the touch; the chilliness is changed to a pleasing warmth; the pulse acquires steadiness, strength, &c. He informs us, that he was led to its employment, from observing that scorbutic patients had a great desire for acids; thereby inferring that these were pointed out by instinct, as antidotes to scurvy. By the use of this remedy, he remarks, that he lost but one man, besides three that were sent to the hospital, out of 180 scorbutics that came under his care, from October, 1793, to the middle of July, 1795; all the rest recovered on board, chiefly at sea, and under many disadvantages,

* Brown's Elem. of Med. vol. ii. part. iv. chap. i. p. 229.

without feeling any inconvenience from the want of lemons, and without the use of any kind of recent vegetable food.

Such is the account of Mr. Patterson: and from his report I am disposed to judge favourably of the medicine; which, if there be no mistake in the matter, is certainly a valuable acquisition to medical knowledge. I have employed a similar composition in fever with good effect: but future trials of other physicians must establish the truth of its efficacy in scurvy.

In place of vegetable acid juices, when these are not to be obtained, Dr. Lind substitutes cream of tartar. A drachm of which, for each man, is sufficient for a day.* The same author informs us, that the relief obtained by bathing the legs frequently in a day with warm vinegar, is quick and surprising.†

Mr. Brown, who went as surgeon of the British ships, Britannia and Speedy, on whaling voyages round the world, speaks of the efficacy of the muriatic acid in putrid fever and scurvy. Mr. Brown had first occasion to experience its effects in putrid fever, on a voyage to New-South-Wales, with 150 convicts, besides marines and ship's crew. He says, "We had not passed the Bay of Biscay, when a putrid fever made its appearance, and raged with pestilential fury. It was, under God, owing to this admirable medicine, that we lost only one man, and he was at the age of seventy-four." Of its utility in scurvy, he says, "I can speak with safety when I add, that, in the course of two voyages round the world, I am, every day, more and more convinced of its efficacy." His manner of using it is as follows: To a quart of spruce-beer, or the same quantity of treacle and water, add forty-six drops of the acid; shake them well together, and give a teacupful every six hours. On the second or third day, the purple spots will begin to assume a light yellow colour, and in less than five more, they will totally disappear.‡ We offer no comments; and only remark, that it is desirable to have the validity of the treatment here pursued attested by the experience of other physicians.

When these remedies cannot be procured, much benefit may be derived from the use of such means as promote the excretions of the body. Which leads to the consideration of the second part of the indication.

Such remedies as promote the urine and perspiration, are here particularly serviceable.

From the observations made upon cold and moisture, as remote causes of this disease, the utility and necessity of guarding against their influence must appear very obvious, in order

* Lind on the Dis. of Seamen, p. 36.
† Treatise on Scurvy, Postscript, p. 527.
‡ *Ibid.*

to insure a successful termination of the disease. It was observed that cold and moisture impeded perspiration; and whatever interrupts and diminishes this salutary excretion, aggravates the symptoms of scurvy. The process of perspiration is too important in its effects and in its relation to the healthy condition of the animal economy, to admit of the vicarious substitution of any other excretion; which, as Sanctorius observes, only takes away from the quantity, whilst it leaves the bad quality remaining; (Tollit copiam, sed reliquit malam qualitatem.)* To answer our purpose in this respect, therefore, the first object should be to procure, if possible, dry, warm, and comfortable accommodations. The Spaniards, it is said, are for the most part exempt from the itch and the scurvy, notwithstanding they indulge themselves in the daily use of pork, the least perspirable of all alimentary substances. And the reason assigned for this remarkable fact is, that the air of Spain is clear, thin, and serene; and the water, light, pure, and wholesome.†

"Sweat," says Dr. Lind, "is an evacuation, from which scorbutic patients find the greatest benefit, especially such as have dropsical swellings. It is what nature pointed out to the northern Indians, for the cure of this their winter disease, (L'Escabot,) and is found, by experience, to prove a most salutary evacuation in this distemper. It is practised with remarkable success by the surgeons at the Cape of Good-Hope, who have the greatest opportunity of treating scorbutic seamen; (Kolben's Account of the Cape of Good-Hope;) and is recommended by the first and best writers on this disease, (Albertus, Wierus, &c.); and seems to have been the most usual way of their giving the antiscorbutic juices."‡ Hulme, on the utility of sweat in scurvy, says, "Sudor enim vita scorbuticorum est, in omni cœlo, in omni ætate."

In short, any thing which promotes perspiration and urine, is serviceable in this disease. Upon this subject, Moellenbroeck, Ettmuller, Gmelin, &c. inform us, that the fashionable and domestic remedy employed by the inhabitants of those northern regions, where the scurvy is so prevalent, as in Sweden, Siberia, Canada, &c. is a decoction of fir-tops or spruce-beer; which is esteemed by them as a specific. In a treatise, written in 1744, by the Rev. Dr. George Berkeley, Lord Bishop of Cloyne, on the Virtues of Tar-Water, we are informed that the scurvy may be cured by the sole, regular, constant, and copious use of this remedy.§ And in Ellis' voy-

* Sanctor. Aphorism 191.
† Hoffman. Opera, tom. vi. p. 240.
‡ Lind on Scurvy, p. 200
§ Ibid. p. 421.

age to Hudson's-Bay, in the years 1746 and 1747, for discovering a north-west passage, we have another confirmation of its efficacy in the cure of this disease, in its most alarming form. He informs us, that those medicines, which, in other countries, are generally used with good effects, proved entirely ineffectual here: fresh provisions, he observes, when they could get them, did somewhat. But the only powerful and prevailing medicine was tar-water; by the steady use of which many were saved, even after the disease was far advanced, when all other medicines lost their efficacy, and were tried to no purpose. "As far as we could observe," continues he, "this salutary drink operated in no other way than by urine."

We are informed by Petræus, Eugalenus, and Sennertus, that the inhabitants of Norway cure this disease by the use of a reddish or blackish earth, dug up near Bergen. From half a drachm to a drachm of this substance is the dose; which operates by sweat, and cures the patient in a short time.

Dr. Lind mentions another method no less singular. He observes, that, in the year 1761, when the English fleet lay at Bellisle, on the coast of France, the men in his majesty's ships were preserved from the scurvy by the seasonable supply of greens, sent from England; but the seamen in the transports had not this benefit, and being utterly destitute of proper remedies, were carried on shore, and after being stript of their clothes, were buried in a pit dug in the earth, (the head being left above the ground,) their bodies were covered over with the earth, and permitted to remain thus interred for several hours, until a large and profuse sweat ensued. After undergoing this operation, many who had been carried on men's shoulders to those pits, were of themselves able to walk to their boats. "And what," he remarks, "was very extraordinary, two of the men who had been quite disabled by this disease, recovered so perfect a state of health, that they soon after embarked for the West-Indies, quite recovered, and in good spirits, without once tasting any vegetables."*

Onions being both diaphoretic and diuretic, are a wholesome article of food in this disease; and their use is particularly calculated to ward off the effects of damp and rainy weather to which men may be exposed.

From the facts which have been offered, with respect to the influence of animal food in producing scurvy, it will hardly be necessary to caution the physician to interdict its use in the cure of this disease. A strict and absolute abstinence from animal food should be enjoined in the cure of scurvy. The

* Lind on Scurvy, Postscript, p. 534.

observance of which restriction is no less useful, than the exclusive adherence to the opposite mode of treatment is necessary in the cure of diabetes; of which I shall have occasion to treat on another occasion, as being a disease directly the opposite of scurvy, in causes, nature, and cure.

Agreeable to the preceding theory of this disease, the employment of volatile alkaline medicines cannot fail of proving injurious. Upon this occasion, we are informed by Dr. Abraham Nitzsch, that, by the injudicious exhibition of volatile medicines in the scurvy of Wiburg, the bowels, the liver, and the spleen became indurated; upon which ensued either a dropsy, consumption, or flux, which constantly proved fatal.

As answering the purpose of promoting perspiration, regimen is also worthy of attention.

Cheerfulness and contentment of mind, exercise, and cleanliness are all important.*

Vander Mye, in his account of the siege of Breda, furnishes us with a remarkable example of the happy influence of faith and hope in the relief and cure of scorbutic patients. After giving a lamentable description of their situation and sufferings under this disease, from want of provisions and the use of bad food, he says, "On the 2d of May, 1625, when the Prince of Orange heard of their distress, and understood that the city was in danger of being delivered up to the enemy by the soldiers, he wrote letters addressed to the men, promising them the most speedy relief. These were accompanied with medicines against the scurvy, said to be of great price, but of still greater efficacy: many more were yet to be sent. Three small phials of medicine were given to each physician, not enough for the recovery of two patients. It was publicly given out that three drops were sufficient to impart a healing virtue to a gallon of liquor. They flocked about us in crowds, every one soliciting that part might be reserved for his use. *Cheerfulness* again appears on every countenance; and an *universal faith* prevails in the sovereign virtues of the remedy. The effect, however, of the delusion was really astonishing; for many were quickly and perfectly recovered."

The utility of exercise may be learned from the evil consequences which the neglect of it occasions. In illustration of this, we have a remarkable example related by Gmelin, of a ship's crew that wintered upon the coast of Siberia, in the year 1736, in the latitude of 71°. Of those unhappy persons, eight only had the good fortune to escape with life; whose preserva-

* "A merry heart doeth good like a medicine: but a broken spirit drieth the bones." PROVERBS xvii. 22.

tion was attributed to their being kept in habitual motion and exercise, by their constant employment of cutting down wood, warming the chambers, and attending and assisting the distressed; while the rest, remaining in a state of inactivity within their habitation, all perished with the scurvy.

When the indisposition is but beginning, and even when the gums have been pretty much affected, there are numerous instances of a perfect recovery, without having the benefit of fresh vegetables, provided the patient is able to use exercise. To the salutary effects of exercise must be ascribed the greater exemption of seamen, who are more actively engaged, than landsmen and marines, who lead a less active life, and are therefore more frequently affected with this disease.

Concerning the affections of the bowels, such as gripes, costiveness, diarrhœa, &c. it is not necessary to give any particular instructions; since all those are but symptomatic affections, which suddenly disappear by the diligent use of antiscorbutics; and should they prove more obstinate, the judgment of every practitioner will readily determine the appropriate remedy.

With respect to the choice of curing scorbutics on land or on ship-board, I readily agree with Dr. Trotter, that when the patient is much debilitated with the disease, it might be dangerous to attempt his removal; and in such cases, the cure ought to be performed on board. But where the condition of the patient will admit of it, I am of opinion that the land should be preferred, on account of its affording more comfortable accommodations to the sick. Dr. Lind is very explicit and judicious in his remarks upon the subject: "I have myself," says the Doctor, "seen many instances of patients brought into Haslar Hospital, who, by being only on shore for a few days, seemed surprisingly relieved. The joy of being landed after a long voyage; the pleasing prospect of speedy relief from distress; a change of air and weather; even the warmth of a comfortable dry bed, added to the efficacy of outward applications, seemed to act powerfully and surprisingly upon the disease. In the course of my experiments on patients in the scurvy, I have relieved some in such circumstances, by the most trifling prescriptions; and am persuaded, that entire credit may be given to the relation of cures similar to this published by Vander Mye and other authors of unquestionable veracity. Whether such relief was owing to the faith of the patients in the extolled efficacy of the prescription, to exercise, or an enlargement after being confined in a ship, prison, or bed of sickness; or to a removal from a cold damp place to a dry and warm habitation, and, in some instances, to a respite from hard labour and fatigue; or, lastly, to circumstances unknown

or unobserved, I cannot say. It is not improbable, that many of these operated jointly towards that effect."*

The representation which is made by Mons. Charpentier Cossigny, in his voyage to Canton, of a German soldier's dying suddenly upon coming in sight of the Island of Roderigo, seems to be altogether romantic; his death, in all probability, was owing to some other circumstance besides the land air. Were this to prove so destructive as here represented, a general mortality would commence among those unfortunate seamen affected with this disease, as soon as they inhaled the atmosphere from the shore. In opposition to this, we are informed by Dr. Mead, of its being a circumstance very well known, that, in the East-India ships returning home, the men afflicted with scurvy, upon their very approach to the island of St. Helena, are strangely relieved by the fresh air. And with respect to scorbutic patients losing all their strength on inspiring the land air, and dying while they were in the act of being conveyed to the hospital, we may just remark, that, had M. Cossigny been an accurate and extensive observer, he might have seen scorbutic patients *lose all their strength and die* while they were carried from the cabin or hold of the ship, to the decks, in their hammocks. Dr. Lind informs us, that he has read and heard many relations of men supposed to be dying of this malady, who were said to have been perfectly recovered by being carried on shore to feed on the grass, to smell the earth, and by such like means.

As to the prevention of this disease, it is not necessary to say much, since every thing which is requisite for this purpose will be suggested by a knowledge of the remote causes; and may be briefly comprised in the caution, to guard against cold and moisture, marsh miasmata, unwholesome and damaged provisions, the undue use of salted animal food, distilled spirits, inactivity of body, and dejection of mind.

Bisset affirms, that the same preservatives in West-India voyages, answer as well against malignant remittent, intermittent, and continued fevers, as against the scurvy.

* Treatise on Scurvy, Postscript, p. 535.

CHAPTER II.

An Account of the Pestilential Scurvy which prevailed in the Army, at Camp Terre-aux-Bœufs, during the Months of June, July, and August, of the Year 1809.

——— ἐνθάδ' ἔπειτα κατέκταθεν, ὅσσοι ἄριστοι;
——————————— τίς κεν ἐκεῖνα
Πάντα γὲ μυθήσαιτο καταθνητῶν ἀνθρώπων;
——————— ὅσα κῖθι παθον κακὰ.

Homer. Odys. lib. iii.

SOON after the troops arrived at the place of their new encampment, sickness began to make its appearance. At first, intermitting and mild remitting fevers were the most prevailing disorders. As the season advanced, and the heat became more intense, the fever increased in the severity of its symptoms; acquiring, by degrees, the more malignant aspect of bilious remitting, or yellow fever. In many instances, the fever was of an inflammatory character; in others, typhoid symptoms marked both its invasion and progress. In different patients, it was of different and uncertain duration, from one day to a week. It did not appear to observe any particular crisis; and in by far the majority of instances, death was the only termination to the disorder.

At length the men were affected with a most violent and fatal dysentery; such was the suddenness and severity of the invasion, that the sentinels upon duty were in a short time so much exhausted by its violence, as to be under the necessity of being carried to their quarters, where, after languishing one or two days in a miserable condition, they expired.

In this manner many patients were destroyed by the dysentery alone, without the symptoms of any other disease supervening: but such was the prevalence of this disorder, that, in whatever form the reigning disease made its appearance, dysentery was inseparably connected with the other symptoms of the epidemic.

Sometimes death was sudden and almost instantaneous, without being preceded by any signs of indisposition. In such cases the first and only symptom of the disease was, the person's falling down exanimate, and suddenly expiring. But some who were bled immediately upon falling recovered. A lad about fifteen years of age, who acted as waiter to one of

the officers, remarkable for his activity, faithfulness, and sobriety, one morning, whilst preparing breakfast, as he was running to the kitchen, fell down suddenly, as if he had stumbled; when he had, in some degree, recovered from his immediate state of stupefaction, an appearance of distraction marked the features of his countenance; and his eyes, wide open, glared with a vacant inexpressive wildness. He continued in this state about two days, without receiving any benefit from remedies employed, when inexorable death kindly closed the period of existence. The patients who survived this sudden attack, were afterwards affected with a violent fever.

Towards the end of July, the epidemic malady appeared among the troops in a new form, and of such an anomalous aspect, as, at first, to occasion doubts respecting its nature. At length, however, from an attentive observation of its general symptoms, and by comparing them with such as, by former authors, had been considered as constituting scurvy, the disease was generally admitted to be of the scorbutic character.

For some days previous to the appearance of the characteristic marks of this disease, the patients became dull, melancholy, inactive, and averse to motion; their countenances lost their usual vivacity; the features became sad and dejected; and the face assumed a sickly sallow hue. These affections became more conspicuous as the disease advanced. A stiffness impeded the action of the joints, and the tendons in the hams were rigid and contracted.

These symptoms were succeeded by pain in the parotid gland, attended with swelling and inflammation of the part, which sometimes, though rarely, proceeded to suppuration.

Besides the enlargement of the parotid glands, buboes were formed in the groin; and the maxillary, cervical, and axillary glands were also affected with swelling. Petechiæ and livid discolorations of the skin made their appearance in some patients.

In the advanced stage of the disease, motion was insupportable to the patients.

The gums became lax, spongy, enlarged, livid, and subject to bleeding; the teeth being deprived of their natural support, became loose, so that the patients would pick them from their mouths with their fingers, having no further occasion for their use; the ulceration, swelling, and mortification of the mouth and throat, depriving them of the power to receive nourishment.

Mortification at length attacked the inside of the cheek, and soon made its appearance on the outside, by a small, livid, or

purple spot. When the disease had advanced thus far, it became extremely rapid in its progress. The mortification continuing to spread, destroyed the whole inside of the mouth and cheeks in the space of twelve hours, and frequently in less than half that time; accompanied with a fetid breath, and an exhalation stinking and horrible in the extreme.

No sooner did mortification make its appearance, than the patient surrendered himself a victim to his approaching fate: despair sat depicted in his countenance; death was inevitable: and the unfortunate deserter, condemned, by exemplary severity, to expiate the offence of his unpatriotic and unmilitary conduct by the sacrifice of his life, kneeling on his coffin, awaiting, in awful suspense, the execution of his sentence, might, comparatively, be considered in a more hopeful situation than the unhappy victim of this fatal disorder.

Mortification was not confined to the cheek alone, but committed its ravages upon the throat and the whole inside of the mouth. One man in particular afforded a remarkable example of this kind, in whom the mortification had proceeded so far, that, taking hold of his tongue, he deliberately drew it from his mouth, and threw it upon the table, for the contemplation of his companions. The larger blood-vessels of the throat and neck being eroded by the progress of the mortification, profuse hæmorrhages occurred; and sometimes life was suddenly destroyed by a copious effusion of the vital fluid.

The jaws of several patients became carious; and, in some instances, the lower jaw was detached from its natural connexions by the spreading of the mortification, and fell from the head in a state of putrefaction. In some patients, the head swelled to an astonishing size, as if inflated by the putrid gases escaping from the decomposing matter. A diarrhœa or dysentery attended the progress of the other symptoms.

In some, the skin was smooth and shining, and affected with a degree of tumefaction; in others, small red and purple spots appeared upon the surface of the body. Many patients were affected with a scurfy and pustular eruption, bearing a resemblance to the itch in its most aggravated form. The fingers swelled, and being covered with scabs and pimples, were rendered rigid and inflexible.

The least scratch, excoriation, or bruise upon the body, degenerated into an ill-conditioned phagedenic ulcer, discharging a bloody purulent sanies.

Such was the commencement and progress of this destructive malady, by which, of 2000 troops that were encamped at Terre-aux-Bœufs, 1000 fell a sacrifice to its ravages. The place of their first encampment, however, was not the only

scene of their destruction: 150 were destroyed at Terre-aux-Bœufs; 250 upon their passage up the river to Washington; and about 600 after their arrival at the latter place. But, from a consideration of the several circumstances connected with the origin of this disease, it will appear evident, that the source of its mortality was derived from the place where the troops were first encamped.

In some patients there was a combination of scurvy with intermitting and remitting fever. If, then, the co-existence and simultaneous progress of two diseases in the same person can be considered as an argument of their similarity, as I am inclined to believe they ought to be, we have a pretty strong proof of such an analogy in the present instance. But I have already drawn a parallel of the resemblance between scurvy and fever in the preceding chapter, so that any further consideration of the subject is here unnecessary.

Some patients, at the commencement of the complaint, were found to labour under a degree of febrile affection; but when the disease had advanced to a state of inveteracy, and the gums had become swelled, and mortification had affected the parotid glands, &c. nothing of this was observable; but the pulse corresponding with the declining strength of the patient, became languid and feeble; while, at the same time, the temperature of the body declined below the natural standard. The principle of life became exhausted, by the excessive application of the causes that finally destroyed it. A general state of atony and relaxation deprived the sanguiferous system of the power of reaction. The relaxed and languid heart gave but a feeble impulse to the *vital fluid*, which, in its distribution, instead of imparting vigour to the different organs, carried the pestilential poison of destruction.

Although this disease, in its general symptoms, claims a near affinity to scurvy; yet, by a comparison, it will be found to bear a great resemblance to the eastern plague. Like that formidable disease, which ignorance, prejudice, and error, attribute to the mysterious source of unknown generation, this disorder was preceded by languor and depression of strength; whilst syncope and stupor were more remarkable in its progress. A fetor of the breath was also remarkable. As formerly observed, buboes appeared in the groin; and the parotid, maxillary, cervical, and axillary glands were also affected with swelling. Petechiæ and livid blotches likewise make their appearance in some patients. As in the plague, motion, in the advanced stage of the disease, was insupportable to the patient. Moving the patient from one situation to another, in the plague, has been known to induce syncope, and even death.

The analogy which the two diseases bear to each other, is remarkably exemplified in the malignant scurvy which happened in Breda, during the siege of that place in 1627, as related by Frederick Vander Mye; a few observations upon which will be subjoined at the conclusion.

With respect to the causes of this disease, those circumstances which have been mentioned by former authors as giving origin to scurvy, here existed in a more remarkable degree.

Terre-aux-Bœufs is about 15 miles below New-Orleans, on the eastern side of the river, from which it is distant about a quarter of a mile. Like the country generally bordering upon the lower part of the Missisippi, this situation is low and wet; and moreover surrounded with marshes and ponds of stagnating water, abounding with a luxuriant growth of weeds and other vegetable productions. The humidity was unusually great this year, from the excessive quantity of rain which fell early in the season, and which prevailed during the greater part of the time that the troops were encamped at this place.

The influence which marsh miasmata, moist and rainy weather, have in the production of the various grades of bilious fever, is, from extensive observation and experience, very satisfactorily ascertained; it is also pretty well determined, that the same circumstances, when operating in conjunction with the other causes to be presently mentioned, do also contribute to the production of scurvy.*

In addition to the inclemency of the weather, the situation of the soldiers was rendered still worse, by the fatigues and privations which they suffered. The place of their encampment was a woody and uncultivated forest; which rendered it requisite to cut away the trees and bushes, and clear the earth of its encumbrances, for their accommodation. Ditching and draining was necessary to diminish the quantity of water, with which they were incommoded; and the removal of the trees and other vegetables, exposed to the action of the atmosphere and solar heat an offensive mass of corruptible materials: exhaled from their repose by the decomposing influence of the sun, the elementary products of putrefaction tainted and infected the air with their pernicious pestilential virus.

* See Trotter's Medicina Naut. and Beddoes' Obs. on Scurvy.

I have formerly noticed the influence of moisture as a remote cause of scurvy; upon the present occasion I will just add one or two remarks on the effect of marsh miasmata. Stutgart, in Germany, was formerly noted for being a place where the scurvy raged much; but, upon drying up a large lake in the neighbourhood of the town, the disease has since quite disappeared. Along the banks of the Rhine, from Dourlach to Mentz, particularly to Philipsburg, scurvy often succeeds large inundations of that river. Lind on Scurvy, p. 79.

But what added still more to the influence of these causes, was the circumstance, that the troops consisted of new levies from different states, unaccustomed to the climate. In addition to which may be added, that the men, from the want of bars or screens, were not protected at night from the annoyance of the musquetoes, which swarmed in myriads around them. To all which may be added the damp, uncomfortable lodging of a tent.

We have hitherto considered the circumstances of climate, situation, season, and predisposition. It appears, however, that noxious exhalations alone, which were at this place very abundant, are not capable of causing scurvy; their ordinary effect being the production of fevers of various characters and types, diversified in symptoms, according to the particular quality and degree of virulence in the morbific effluvia. Such was the case at the commencement of the mortality among the troops of Terre-aux-Bœufs, when the fevers that are incidental to the climate chiefly prevailed, and by which few of the soldiers, comparatively speaking, were destroyed.

One of the principal causes of this pestilential disorder was, undoubtedly, the use of unwholesome provision. The pork, which constituted the principal part of the animal food with which the soldiers were supplied, was old and stinking: the little beef which they occasionally had, was lean and meagre in the extreme, and so saponaceous, glutinous, and adhesive, that it would stick to any substance with which it came in contact. Their flour was also in a spoiled condition: having been wet, then becoming mouldy, black, and full of worms; and so firmly agglutinated together, that when the barrel was separated from its contents, the cemented mass retained the shape given to it by the cask, and stood firmly erect like a block of wood; and such was its solidity, that an axe and other instruments were necessary to cut it up and pound it, so as to reduce it to a state of flour.

It is, in a great measure, to this unwholesome and putrescent quality of their food, that the diarrhœas and dysenteries with which the men were affected are to be ascribed. It has been remarked in England, that the dysentery is observed to be more frequent among the common people, in those parts where they live mostly on grain, when the preceding crop has been damaged in the rainy season, or kept in damp granaries. The plague at Delft, in the year 1557, is imputed, by Forestus, to the eating of mouldy grain, which had long been kept by the merchants in a time of scarcity.*

* Dr. Lind observes, that dry provisions, such as oatmeal, peas, and

This corrupt provision alone constituted the food of the soldiers. Green and fresh vegetables were not to be obtained. The consequence was, that the whole mass of fluids became vitiated in such as were confined to this aliment. Diarrhœas and dysenteries ensued, from which none were exempt, whatever their other disorders might be, whether intermitting, bilious, yellow fever, or scurvy.

The officers who lived on better provision, which they purchased from the neighbouring inhabitants at an extravagant price, entirely escaped the disease. Their exemption, however, might, in some degree, be ascribed to their being better lodged, and otherwise more comfortably accommodated.

In the last place, what contributed to aggravate the misfortunes of the situation of our soldiers was, the want of accommodations for the sick. The medical staff was not organized; neither was a hospital department established, nor hospital stores provided for the diseased; the supply of medicines was very imperfect; and the sick and the well were crowded together in the same tent; where, being destitute of remedies, nurses, and attendance, they lay, the hopeless subjects of misery and despair, without a ray of comfort to alleviate the horrors of their situation.

Subject as they were to an arduous duty, mounting and remaining on guard, and engaged in other laborious employments, under all the inclemencies of climate and situation; at one time soaked and chilled with the rain; at another scorched with the rays of a sun nearly vertical; enveloped in noxious exhalations; wading through mud and water; and by way of refreshment, after the toils and fatigues of duty, a repast of pork corrupt and putrid, bread of flour mouldy, hard, and full of worms and other vermin; without the use of vegetables, &c. &c.: from all these circumstances, we need not be surprised at the calamity with which the army was affected, nor at the fatal consequences which ensued.

To them the succession of night and day was but an uninterrupted continuance of their wretchedness and wo. The cheering sun, wont to gladden mortal sight with the serene effulgence of his morning beams, to them arose but to render the horrors of their situation more visible. The night rolling on in successive vicissitude, brought not the refreshment of

flour, are apt to be corrupted and spoiled by growing damp and mouldy, as also by weavels, maggots, &c. These destructive vermin, he observes, may be killed by the fumes of brimstone in a close place. But, even then, the weavels, when eaten, are found to be very unwholesome, and have such a corrosive quality, as, when applied to the skin in the form of a poultice, to raise blisters like Spanish flies. Lind on Scurvy, p. 193.

repose to the weary limbs of the soldier: damp, chilly, and infectious were the vapours of the evening air; and slow, melancholy, and uncomfortable were the nocturnal hours of the soldier's watch.

An inquiry was instituted in the House of Representatives, for the purpose of investigating the causes and circumstances of this strange calamity. Mr. Newton, from the committee appointed to make an inquiry concerning the mortality which prevailed in the detachment of the army ordered for the defence of New-Orleans, made a long report, accompanied with various propositions and other papers, concluding as follows:

"The committee, from a knowledge which they have acquired of the climate of New-Orleans, and of the country surrounding it, and from the facts detailed in the depositions, are of opinion that the mortality in the detachment ordered for the defence of New-Orleans, is to be ascribed to the following causes:

"I. The detachment consisting of new levies.

"II. The insalubrity of the climate; the summer and autumn of 1809 being unusually sickly.

"III. To the nature of the ground on which the detachment was encamped at Terre-aux-Bœufs, and the detention of it at that place during the whole of the summer, contrary, as the committee conceive, to the instructions contained in the letter of the Secretary of War, bearing date the 30th of April, 1809.

"IV. To the want of sound and wholesome provisions, and of vegetables; the want of an hospital, and of hospital-stores and medicines.

"V. The excessive fatigues to which the troops were subjected in clearing, ditching, and draining the ground on which they were encamped.

"VI. To the want of repose during the night, owing to the troops not being provided with bars or nets to protect them from the annoyance of musquetoes.

"VII. The want of cleanliness in the camp, the nature of the position rendering it almost impracticable to preserve it.

"VIII. The sick and well being confined to the same tents, which neither protected them sufficiently from the heat of the sun, nor kept them dry from dews and rains."

Such is the report of the committee, and which gives a concise statement of the several causes that we have considered.

In such a situation, but little could be done by the physician, deprived as he was of the means of acting to advantage.

The disease still continued to rage with increasing violence

and mortality, so that, towards the end of August, scarcely a well man was to be found amongst the survivors. At this time, perceiving that the total destruction of the army would be the inevitable consequence of remaining in that pestiferous situation, under existing circumstances, it was at length determined to abandon the devoted spot. Washington, on the Missisippi, was the place of destination. The men were accordingly embarked, but under circumstances not the most favourable to their condition. They were closely stowed in open boats, and most of them being both averse and unable to use exercise, or change their position, they lay in that confined and pent up situation, enveloped in an *idio-miasmatic atmosphere*, generated by their own putrefying and filthy bodies. It will readily be supposed that, under such a combination of evils, their situation was worse than at Terre-aux-Bœufs. Dozens died in a day; nor could the plague surpass the mortality of their disorder.

They were forty days in ascending the river, before they arrived at Washington. There, upon landing, they exhibited the most deplorable state of human wretchedness. The ground was strewed with the dying and the dead—objects the most pitiable and horrid. In the last stage of existence, on the verge of dissolution, nature, unable to support the load of accumulated misery, sunk under the oppressive burden; and the devoted fugitives, flying from a persecuting pestilential enemy, were doomed to take refuge in the arms of death.

Though Washington, at that time, afforded a healthy retreat, yet many of the soldiers had been so much exhausted by preceding sufferings, that no situation, however salubrious, nor medicines, however powerful, were of sufficient efficacy to rescue them from their impending fate. The mortality still continued with unabated force; so that, in a short time after their arrival, the names of 600 soldiers were added to the catalogue of death.

It is probable that this mortality was augmented by the injudicious exhibition of mercury, which was prescribed as a general remedy by the superintending physician. Its effects were certain and unequivocal to those who would give themselves the trouble of observing. A violent salivation immediately ensued; the gums became prodigiously enlarged, fungous, and putrid; the mortification rapidly increased; hæmorrhages returned with greater profusion than ever; and every symptom was rapidly and sensibly aggravated. A few doses of this medicine relieved the patient of his misery, and put an end to his earthly sufferings. Death, perhaps, was inevitable; and it is certain that the patients' sufferings were shortened by this mode of treatment. Whether this, therefore, was to be consi-

dered as an act of humanity consistent with the duties of a physician, I leave for others to judge.*

A wholesome atmosphere, change of diet, &c. at length put a stop to the ravages of this disease; and those who were not too far advanced in the disorder to be beyond the restorative power of nature and art, by proper treatment rapidly recovered.

At Washington, the surgeons, when not under the immediate direction of the hospital surgeon, would omit the use of mercury, and prescribe vegetable remedies. Of these, sorrel and wild-pepper-grass, which grew abundantly in the neigh-

* An anecdote is related of one of the soldiers labouring under this disease, whom the hospital surgeon, upon visiting the sick in the morning, observed stretched out in a corner of the room, with a quantity of sorrel and green herbs which he had procured, and of which he was eating: whereupon turning to the attending surgeon, he said, "Give this man the mercury; try the experiment; for I am persuaded it is the most effectual remedy that can be exhibited in this disease. The patient over heard the charge, and replied, "None of your experiments with mercury on me; I am doing well enough; and if you will let me alone, I shall get well." The surgeon, in good humour, granted his request, and the man recovered.

The surgeon to whom I allude in this place, is now beyond the reach of censure—reposing in his grave. Without any particular allusion, therefore, I take the present occasion to make a few remarks.

Were it not common, we should think it strange and wonderful, how far prejudice can delude the understanding against the demonstration of the senses, and the force of truth. But experience teaches us, that it is a second nature, entwined with every fibre of the heart, as fixed and irremoveable as marrow in the bones; and shows the necessity of judgment and circumspection in forming our opinions, lest, when once formed, their impression may be too strong for feeble reason to remove. We think we are unprejudiced and impartial; but prejudice, like love, is blind to the errors and imperfections of its darling object. No man will own that he is governed by it. There is more hope of a fool than of a man who is deluded by this hallucination. Set him down as irreclaimable. *None are so blind as those who will not see.*

Next to prejudice, and as nearly related to it as a mother to her offspring, is ignorance. Ignorance in a physician has sent thousands to their untimely graves. It may be said, he did as well as he knew how. It is granted: but it was his duty to know better. Suppose an unskilful surgeon should attempt an operation to which he was incompetent, and, through ignorance, sacrifice the patient; would he be acquitted of reproach and guilt by the plea, that he did as well as he was able? Man's life is too valuable in the estimation of its Creator to permit it to be made the sport of every blockhead. Remember the Sixth Commandment, "Thou shalt not kill."

Upon the subject of mercury in scurvy, we are informed by Sinopeus, speaking of the diseases of the imperial troops in Hungary, that 400 of the troops near Belgrade having taken mercury without his advice, the dreadful consequence was, they all died of salivation. *Lind on Scurvy*, p. 412. The first who is considered as having particularly noticed the bad effects of mercury in scurvy, is Hertman; whose observations have been repeated by many eminent physicians of later times, as Hoffman, Pringle, Huxham, Lind, Van Swieten, &c.

bouring fields, were eaten in great quantities, and proved highly beneficial.

At this place, in one patient whose jaw was affected with mortification, a poultice of bark seemed to put a stop to the progress of the malady, and the man recovered.

There can be little doubt that the other forms of disease originated from a combination of the same causes. The air was highly impregnated with noxious miasmata; but all were not equally exposed to them, or circumstances rendered them less subject to their influence. In those persons, therefore, who lived on unwholesome and corrupt provisions, and were not equally subject to the other circumstances rendering them liable to be immediately and violently affected by the morbific poison of the atmosphere, disease showed itself in the form of scurvy, frequently attended with some slight febrile affection at the commencement, which afterwards subsided; when, on the contrary, circumstances concurred to produce a sudden accumulation in the system of morbific matter, received from the atmosphere by respiration, the symptoms manifested themselves under the character of an invading fever, and that in its most aggravated form, by a sudden abolition of sense and motion in every portion of the system; whereby the patient fell down exanimate, and, unless relieved by immediate bleeding, suddenly expired. What proves that this was but the precursory symptom of a febrile affection is, that those patients who survived this sudden attack were afterwards affected with a violent fever.

It will not, perhaps, be considered improper or uninstructive to subjoin, by way of conclusion, a few analogical examples.

In a letter from Dr. John Cook, physician at Hamilton, giving an account of the scurvy in Russia, Tartary, &c. as quoted by Dr. Lind, we have the following remarkable passage: "The soil, for many miles about Riga, is sandy, and covered with morasses. The boors," he observes, "from having it in their power to procure better provisions, are not so subject to the scurvy as the soldiers. The garrison soldiers," continues he, "consisting of between six and seven thousand men, are most miserably lodged. The walls of their ill-constructed barracks are continually moist and warm. At Riga, in the years 1749 and 1750, but especially in the year 1751, the scurvy raged with the utmost violence. It broke out in the month of February in that year. Here I saw the most dreadful spectacles that I ever beheld. Their gums mortified, as also their lips, which dropped off; the mortification spread to their cheeks and lower jaw; and the jaw-bone, in some, fell down upon their breast. When the mortification first began, we tried the bark

to no purpose. Nothing but death rid the unhappy wretches of their frightful misery."

Dodonæus ascribes the origin of the scurvy in Brabant, anno 1556, to the use of some corrupted rye, brought from Prussia, during a scarcity of corn. *Rambert Dodonæi praxeos medic. lib.* ii. *cap.* 62. *Ejusdem medicinalium observationum exampl. rar. cap.* 33, *de scorbuto.*

See also an account of Don Sebastian Vizcaino's voyage, performed in the year 1602, to the western coast of California. After mentioning the ulcerations on the surface of the body, and other aggravated symptoms, he observes, " In many, the gums, both of the upper and lower jaws, are swelled, both within and without, to such a degree that the teeth cannot touch one another; and withall so loose and bare, that they shake with the least motion of the head; and some of the patients spit them out with the saliva. Thus they were unable to receive any food but liquids, as gruel, broth, milk of almonds, and the like. This gradually brought on such a weakness, that they died whilst talking with their friends." But, notwithstanding " they were helpless and sick, covered with ulcers, and their gums so swelled that they could neither speak nor eat, &c. in nineteen days all of them recovered their health and strength. Such salutary effects had the fresh provisions, fruits, &c. sent on board by the general."

I have already hinted at the scurvy in Breda, described by Frederick Vander Mye, as bearing a resemblance to the plague; we may here further remark, that it was preceded and followed by that distemper. " The disease was seldom accompanied with a fever, but frequently with a flux. When there was a fever, it was generally slow and irregular. We observed one or two of those fevers somewhat to resemble the plague." In many, the gums grew up to such a pitch as to bury the whole teeth; and sometimes part of the cheek-bone dropped off. Many, deprived of all motion, wasted away by peacemeal; and toothless and starved, from not being able to chew their food, they died in a most piteous condition. Hard, black, crusty abscesses appeared on the legs, the anguish of which often occasioned a pain, seldom a tumour in the groin. The blood drawn from the veins appeared livid, was fetid and thick, but did not coagulate. Pains in the bowels, and diarrhœa, attended the disease without proving critical. As to the origin of this disease, it was occasioned by a scarcity of fresh and wholesome provisions. He observes, that " Eating of old cheese which was rotten, as also of dogs and horse-flesh, but particularly the wetness of the season, contributed much to the production of the distemper; the air which the soldiers

breathed, and the houses where they lay, being extremely damp. They also lay together, and so received it by infection; for the disease proves infectious when persons use the same improper food, and breathe the same impure air."* He informs us, that the scurvy proved most fatal to the English soldiers who began very early to feed on dogs' flesh, were in want of their beloved tobacco, and lay in the most wet and damp barracks. The disease was much less frequent among the Waloons and Flemings, on account of their being more careful and particular in their diet, and being provided with better quarters and accommodations.†

Abraham Nitzsch, in his account of the scurvy in the Russian armies, speaking of that which prevailed at the Fortress of St. Anne, ascribes it to the following causes: The marshiness of the surrounding country; the inundation of the Don, bringing with it incredible numbers of fish, which are left upon the earth when the water recedes and dries up, and which were eaten by the men in immoderate quantities, badly dressed; the drinking of unwholesome stagnating water; the coldness and dampness of the nights, and the heat of the days, when noxious and offensive effluvia are exhaled from the mud and putrefying fish; and, lastly, the necessity which the soldiers were under of standing in the water up to their middles, to unload the wood for fuel and building.

Dr. Monro observes, that the reason of the frequency of the scurvy among the soldiers at Bremen was, the place being situated on a damp plain, and the soldiers quartered in very damp houses; at the same time no vegetables were to be bought in the market, and fresh meat and other fresh provisions being at so high a price, that the soldiers could not afford to buy them, but were obliged to live on salt meat and salted herrings during the winter; and expended what little money they had for spirituous liquors, which were sold cheap.‡

Baron Larrey gives an account of a scorbutic disease which prevailed among the French soldiers in Egypt, attacking also

* We would just caution the reader to observe the difference between infectious and contagious. An impure atmosphere, (whether occasioned by a mortifying limb, animal putrefaction, marsh miasmata, &c.) capable of producing disease in a person who breathes it, is infectious; and when disease is communicated from one sick person to another, through the medium of the atmosphere, or by contact, it is understood to be contagious; though, in both instances, the morbific matter producing disease may, with the strictest propriety, be called *infection*. The first is the infection of putrefaction, or infection from external causes; and the other, the infection of diseases.

† Lind on Scurvy, p. 343.

‡ Monro on the Diseases of the Army, vol. ii. p. 184.

the wounded and those affected with ophthalmia, as well as the native inhabitants. In this epidemic, as likewise in that observed by him in North-America, he distinguished three different stages. In the first stage, the soldier is uneasy, melancholy, averse to motion, and indifferent to objects of hope or fear; his appetite is impaired, sleep painful, and disturbed with frightful dreams; the countenance becomes pale, the eyes heavy and surrounded with a bluish circle; the gums, painful and pale, bleed upon the slightest pressure; pains affect the legs and lumbar region; respiration is laborious, the pulse slow and unequal; perspiration ceases, the skin is dry and rough, like the cutis anserina; the bowels are constipated, the urine is in small quantity, and earthy; the cutaneous veins are swelled, particularly those in the groin. The patient is affected with lassitude, and a stiffness in his limbs renders motion and walking difficult. In this stage the suppuration of wounds is diminished, and becomes sanguineous; the edges of the wound are discoloured, the flesh sinks, becomes bluish and painful, and bleeds upon the slightest touch. Sometimes the cicatrices ulcerate and fall into gangrene. The symptoms generally indicating loss of tone, and failure of the vital principle.

In the second stage, debility increases, the pains are more severe, and attack the head and loins; the patient remains motionless in his bed, in a state of stupor; his limbs are contracted, and his body bent. The face, lips, and eye-lids are livid; the breath fetid; the gums ulcerated; and the teeth covered with a blackish crust. Respiration is oppressed and difficult. The feet and legs are affected with swelling, more firm than œdoma, and unattended with pain on pressure. Blackish spots appear about the ancles, along the course of the tibia, and on the face and shoulders. The constipation increases, the abdomen swells; the patient experiences a burning heat at the præcordia, and heavy pains in the hypocondria; the pulse is accelerated, and there is an evening accession of fever, loss of sleep, and greater intensity of the pains. The gangrene of the wounds and cacatrices advances; hæmorrhage is more frequent, and the blood discharged is blackish, very fluid, and scarcely coagulable. The callus of fractures becomes soft, the bones disunited, and a species of moist caries attacks the fractured extremities, which lose their periosteum, and sometimes swell excessively.

In the last stage, a general prostration succeeds the febrile paroxysm, and the above symptoms. The swelling of the feet and legs increases, and they are covered with blackish spots, which, by their rapid progress, give an appearance of sphacelus to the whole limb. The tongue is covered with a brown vis-

cous fur; the ulceration of the gums extends towards the alveoli and the interior of the mouth, attacking the velum and palatine arch; the teeth become loose and drop out, giving rise to hæmorrhages that are stopped with difficulty. The eyes are sad, and the eye-lids swollen. A cold, watery, and offensive exudation covers the body, especially the abdomen and extremities, giving to the skin a shining and marbled appearance. The respiration becomes extremely oppressed; violent paroxysms of coughing succeed, with difficult expectoration of viscid matter, often tinged with black fetid blood. Life languishes, and the patient faints frequently. The black spots, or echymoses, become truly gangrenous; dropsy succeeds, and the vital functions cease.

He observes, that of 3500 scorbutics who were admitted into the hospitals of Alexandria, 262 died between the 1st of July and the 10th of October, 1801, when the troops embarked. As to the causes of this disease, he ascribes it to their eating salt rice, (being salted for exportation;) also great quantities of salted fish; and using the unwholesome putrescent water of the cisterns, which had been mixed with the brackish water of the lake, in consequence of the inundation of the latter; and to the want of vegetables and fresh provisions. What he considers as the principal predisposing cause of the disorder, was the continual moisture to which the soldiers were exposed after the overflowing of Lake Ma'dyeh. A large quantity of mephitic gas was produced, by the decomposition of a great number of vegetable and animal substances that were in Lake Mareotis. Add to this the effect of a number of cloacæ throughout Alexandria, and twenty-five or thirty hospitals that had been established in this city; and, finally, the saline air of the sea. A great part of the army and of the inhabitants were attacked by it at the same time; so that, on the 8th of August, 1801, there were from 1400 to 1500 scorbutics in the hospitals of Alexandria. He informs us, that there was a greater proportion of inhabitants than soldiers affected with the scurvy, and that, amongst the former the disease was more acute. They were often, he remarks, without potable water, and had no other aliment than bad rice. As the officers had better provisions than the soldiers, they were less obnoxious to the scurvy. "By washing the salt from the rice before it was ground," says he, "we improved our bread. By giving out vinegar, dates, molasses, and coffee to the soldiers, the disease was, in a manner, arrested; but, as we were entirely without fresh provisions, it returned, and assumed an epidemic character."*

* Larrey's Memoirs, vol. i. p. 384.

We have been more particular in noticing this disease, on account of its analogy in symptoms and causes to that of Terre-aux-Bœufs, and at the same time affording an interesting example of the affinity of fever and scorbutic diseases.

The use of damaged grain in diet, is reported by Geoffroy, in his Materia Medica, to occasion a singular affection of the extremities, called *dry gangrene*, in which the fingers and toes drop off.*

We are informed by Kramer, that the scurvy attacked only those who, after frequent relapses, and recovery from fevers, used a crude viscid diet. Hence not one officer was seized with it; nor even any of the common men among the dragoons, as their pay and living were better. It was always accompanied with remains of the fever in the pulse and urine. The disease occurs frequently in Germany, among such people as live altogether on boiled pulse, without eating any green vegetables or summer fruits.†

Occasional Reflections.

HOW long will our magistrates continue to be strangers to the cause of humanity, and blind to the nation's interest; when the safety and honour of the country are so intimately concerned, and so inseparably connected with the health and welfare of the soldier!

In vain are armies recruited and the public treasure expended, unless, by suitable measures, adequate provision is made for rendering the condition of the soldier as comfortable as his situation will admit.

The soldier's life is, at best, a scene of hardship and inconvenience, and a state of privation: cut off from the comforts of domestic life, he is frequently obliged to undergo fatiguing marches through wild and inhospitable deserts, and at night lies down with no other canopy than the heavens; and, at best, a single blanket to protect him from the dews and frost of the evening, to shelter him from the pelting shower, or defend him from the driving snow. These inconveniences, however, might be endured, were they not aggravated by the miserable food with which he is supplied; which, however disgusting to his appetite, he is obliged to eat, or choose the alternative, of starvation, which is sometimes the lesser evil.

* Robertson on the Atmosphere, vol. ii. p. 298.
† Geo. Krameri Dissertatio de Scorbuto.

This is a grievous evil, which requires efficient measures for its removal. Preventive means are always better than curative remedies: whilst, by the former, disease is guarded against, the latter are of doubtful utility, and frequently ineffectual in their operation. It is very evident, however, that this object can never be effected, so long as the provisioning of the army is made an object of speculation and emolument by private individuals.

It is a position as true as the Proverbs of Solomon, that the mind of man can be swayed but by one ruling passion at a time. The love of mammon and the virtue of patriotism can never exist together in the same bosom: the ignoble and sordid concupiscence of lucre counteracts, debases, chills, and extinguishes the warm, generous, ennobling, and patriotic feelings of the soul.

The individual who will supply provisions at the cheapest rate, is employed by Government as its agent for the public weal. He might have been a man of principle and patriotism before, but the temptation is too strong for the frailty of human nature to resist. His interest is concerned in buying provisions at the lowest price; and, as the cheapest is the poorest, it necessarily follows that the army is always supplied with bad provision. What does it concern the contractor, whether he dispenses the means of life, or distributes the pabulum of disease and death? No withered spectre! no cadaverous emaciated forms, with tongueless mouths, and jawless heads, and rotten visages, breathing the offensive pestilential vapour of corruption, and horrible with blood streaming from every orifice, rise from their graves, whither he has sent them, to haunt his pillow, and disturb the repose of his sleeping hours! Oh, no: he is quite contented and happy, and thrives and fattens on the public calamity!

Is there no remedy for this growing evil? Shall the lives of our citizens in arms continue to be made the sport of interest and fraud? In vain does the physician preside over the health of our armies; to little purpose does he exhibit his pills and his powders, when the principles of death are swallowed with every mouthful of provision which the soldier eats!

Wherein consists the economy of enlisting soldiers at an extravagant bounty, and with parsimonious frugality on the other hand, engaging a contractor to supply them with——what? Any thing but provision—poison! death!*

* Let me not be considered as unwarrantably severe in my reflections. What I affirm is founded on accurate observation and indisputable facts. Dr. Ross, late Hospital Surgeon, informs me, that the flour, issued for the use of the soldiers on the northern frontier, was abominably bad; worse,

Happy should I be, could I flatter myself that any thing I might say would serve, in any degree, to remedy and remove this grievous object of complaint.

Whether the receiving into public employment men of integrity of principle, and making certain regulations to prevent fraud and speculation, would be the best remedy, I leave for more competent judges to determine. One thing is clear, that an interested, speculating, private individual should never be intrusted with such an important duty. His ruling principle is interest, to which thousands of lives have already been sacrificed. I think the bounds of truth will warrant me in saying, that more men have been destroyed by the contractors than by the arms of our enemies.

A few words with respect to the Medical Staff of the Army, will not, perhaps, be considered improper on the present occasion.

It is a fact, that too little attention has been paid by Government to the rank and dignity of the medical officers. Their employment, say they, is the care of the sick; the hospital is their place of command: there let them exercise their authority, perform their duty, and discharge their functions. But, even here, their office is not secure from encroachment. How often has it not happened, that the lowest subaltern in a regiment has assumed the undelegated authority to enter the hospital, and order the invalid to clear out, and join the company to which he belongs? and this, in spite of the remonstrance of the surgeon to the contrary. Other instances of a similar nature might be mentioned, but my design admits not of prolixity.

Hence it happens, that being in a manner destitute of rank and authority, surgeons are considered as little better than a grade of servants; a sort of convenient necessary appendage to an army, like sutlers, nurses, &c. It is humiliating and revolting to the conscious dignity of superior worth, that those who, from their education, are particularly entitled to respect, should, in fact, receive the least. There is scarcely a subaltern officer in the regiment that does not consider himself upon an equality with the surgeon, and entitled, by his rank, to dictate, and to interfere with the medical department. This also is an evil which requires the application of a moral remedy. What is to be ex-

if possible, than that at Terre-aux-Bœufs. That it was black, putrid, and unfermentable: that, when mixed and baked for bread, it formed a muddy, black, heavy, slippery mass of poisonous filth, as incapable of affording nourishment as the stinking, slimy mud of a morass; and that sickness and death kept pace with the use of this pernicious article of diet. Dr. Mann, in his *Medical Sketches*, confirms nearly the same account; adding, moreover, that plaster (gypsum) was mixed in so great a proportion with the flour as to be detected by the eye. Medical Sketches, p. 64 and 73.

pected from the surgeon's best concerted plans, and most assiduous care and solicitude for the health and welfare of the soldier, when he himself is disregarded, and all his wishes, efforts, and designs disappointed and frustrated by the want of means, and the imprudent restraint and interference of the lineal and other officers?

This is a defect which does not exist in the constitution of the European armies. The surgeon of a regiment there, is invested with the rank, dignity, authority, and respect which pertain to a major in his respective department; and the other surgeons enjoy ranks proportionate to their different degrees and situations.

Until a reformation is effected, both in the manner of furnishing provision and in the Medical Staff of the army, pity may weep for suffering humanity, and deplore the devastations which sweep mankind from the stage of existence; but let not Government ascribe the calamity to the neglect and ignorance of the surgeon in the performance of his duty.

*O conditionem miseram, non modo administrandæ, verum etiam conservandæ!**

Whilst the bravery of the other officers is emblazoned in the public prints, and echoed with the united and reverberating acclamations of an applauding people, the preserver of life and restorer of health is deemed unworthy of being mentioned. What, say they, has he to do with the defeat of an enemy, the achievement of victory, and the acquisition of glory? And is it nothing, when he exposes his life in flying to the assistance of a bleeding soldier, and in performing the various services of his office? No, nothing: he only did his duty. And did the combatant more? Surely not. Is not the surgeon then also entitled to praise, honourable mention, and respectful thanks?

But whilst the laurel, bedewed and weeping with the tears of the widow and the orphan, mournfully encircles the conqueror's brow, the humanity of the physician may receive a secret satisfaction from the pleasing reflection, that his is the godlike office to restore comfort and health to his wounded and afflicted countrymen. Though his praise is not published in applauding acclamations by the trump of fame, or recorded on the eventful page of military glory, still the name of the benevolent physician shall live in the affectionate remembrance of the virtuous and the just, and descend with honour to posterity, as an imperishable relick of the benefactor of the human race.

When, from the ingratitude of others, he is treated with neglect, he may appropriate to himself, with a degree of plea-

* Cicero.

surable and becoming pride, the commendation of the ancient bard:

> Ἰητρὸς γὰρ ἀνὴρ πολλῶν ἀντάξιος ἄλλων,
> Ἰοὺς τ' ἐκτάμνειν, ἐπί τ' ἤπια φάρμακα πάσσειν.
>
> "A wise physician skill'd our wounds to heal,
> Is more than armies to the public weal."

Though a familiarity with scenes of distress and human sufferings may have nerved him against the pusillanimous horror of effeminate sensibility at the sight of misery, he still possesses the feelings of a man refined by philosophic benevolence of heart. Still he cherishes the tender sensibilities of sympathy,

> "Which, like the needle true,
> Turns at the touch of others' wo,
> And turning, trembles too."

How often does he not lend assistance to *his poor brother* in distress, expecting no return of worldly compensation? How often, from the disinterested principle of humanity, has he not been the means of affording relief to the agonized victim of disease, groaning under the pangs of accumulated sufferings, and of restoring health to those who were *ready to perish?*

Whilst others, inhumanly ingenious, invent fresh means for destruction, and explore new avenues for death, be his the more grateful and humane employment of administering the balm of comfort to the sick and the afflicted; and, through the blessing of Heaven, of rescuing the unhappy sufferer from the impending danger of a threatening grave.

CHAPTER III.

Of the Endemic Fever of Louisiana.

THERE are but few months in the year in which the inhabitants of this country are not subject to bilious diseases. These, however, are particularly severe in the summer season; at which time the fever frequently assumes the symptoms and character of the bilious yellow fever of tropical climates.

An abbreviated account of this disease is all that the limits which I have assigned to this performance will permit me to relate.

SECTION 1.

Of the Symptoms of the Endemic or Yellow Fever.

AT the commencement of the ordinary form of this fever the patient feels a listlessness, want of energy, and disinclination to motion; and exertion of every kind becomes laborious and irksome. This sensation of languor and lassitude increases to a degree of anxiety and uneasiness; the mind is easily fatigued by the slightest attention, and exercise is difficult and painful. An uneasy sense of stiffness is perceived in the motion of the eyes, a degree of tension is felt across the orbits, and a dull, heavy pain in the head. The joints feel stiff; an uneasy sensation of weariness takes place in the small of the back; a soreness affects the muscles of the legs; the animal functions are debilitated; and indescribable anxiety, at times, pervades the system.

For a short time he seems to stand tottering upon the isthmus between health and disease, flattering himself that his indisposition is slight, and that, in the course of a day or two, health will return without the interference of medical aid. By turns he thinks his disorder imaginary, and endeavours to partake in the passing amusements; he, however, soon finds himself fatigued, and so much indisposed as to be under the necessity of going to bed. If he is a person addicted to the use of spirituous liquors, he endeavours to dispel his languor by having recourse to his accustomed stimulus, which is but adding fuel to the dormant fire. In the mean time the disease has only been slumbering; the insidious enemy, by sure approaches, gathers strength by delay, and, at length, makes a sudden and violent attack upon the vital functions. This exacerbation generally takes place in the evening.

The disease is not unfrequently more sudden in its attack,

and more rapid in its progress. In both cases the febrile affection is commonly ushered in with more or less of a chill; pain in the back; small, frequent, and contracted pulse; anxiety, nausea, sighing, and impeded respiration. The nausea and sickness increase, and vomiting ensues; the contents of the stomach are first thrown up; and generally a quantity of dark coloured bilious matter is discharged by the subsequent efforts of vomiting: sometimes a retching takes place, in which nothing but viscid slime is brought up. Notwithstanding the stomach is entirely empty, the straining and efforts to vomit are almost incessant: and such is the irritability of this organ, that medicines and substances taken for its relief frequently increase the disorder.

The patient is harassed, and, at length, exhausted, from the violence of the straining; he faints, and becoming insensible, lies in a state of comatose stupor; is affected with a difficult stertorous breathing, gasps for breath, and mutters indistinctly; the extremities and surface of the body become cold, the pulse frequent, weak, and trembling; a cold, clammy sweat stands in drops upon the forehead, and bedews the surface of the body; low delirium continues: the muttering at length ceases; the pulse trembles, faulters, and intermits; and an expiring gasp closes the scene. And thus the patient is sometimes carried off almost at the very commencement of the fever, from the debilitating and exhausting effects of the vomiting alone.

When less severe, as is more frequently the case, the pain in the back and limbs diminishes, and is succeeded by a violent pain in the head, with a sense of tension, fulness, and throbbing over the eye-brows. The circulation is accelerated; the surface of the body becomes dry and parched; the respiration is short, frequent, anxious, and laborious; the patient frequently gasps, and, as it is emphatically said, *catches his breath*, appearing evidently in danger, and in the act of suffocation. The tongue, mouth, and fauces are robbed of their natural moisture, and partake of the general dryness and aridity of the surface.

The hot stage, after continuing for a longer or a shorter time, is succeeded by the sweating stage; during which, in favourable cases, the sweat flows copiously from every part of the body; and is succeeded in the morning by an evident abatement of the violence, and a remission of all the symptoms. In other instances, the fever continues with little abatement of its severity; a slight perspiration is, perhaps, perceived about the forehead, and on the superior parts of the body only; or the perspiration, though considerable, has not been effectual in procuring a corresponding remission of the symptoms.

Sometimes the febrile symptoms subside on the third or

fourth day, but without the salutary appearance of perspiration; the skin remaining dry, shrunk, and constricted, but cool; the tongue is moist, but becomes covered with a brown and sooty fur. A yellowness makes its appearance about the neck, the adnata of the eyes assumes a jaundice tinge, and a cadaverous sallowness overspreads the countenance; by degrees the yellowness increases, and every part of the body, at length, exhibits the appearance of a deep saffron dye; sometimes interspersed with livid and purple petechiæ. When the patient groans and mutters to himself, and answers indistinctly, whilst, at the same time, the eye appears dull, languid, watery, vacant, and staring, death may be considered as not far distant. Towards the fatal termination, the sensibility of the eye diminishes, and the patient lies with them half closed, in comatous state of insensibility. The cornea loses its brilliancy from the want of moisture, and appears dim, shrunk, and wrinkled. Life, for a time, seems to vanish; again the pulse becomes perceptible; the patient opens his eyes, and asks for something to drink. Sometimes he is sensible of his approaching death.

In some instances, towards the fatal termination of this disease, the absence of fever, and the coolness of the body, to those unacquainted with the disease, offered a deceitful prognosis. The patient, when spoken to, says, he is easier, and the attendants are flattered with the delusive hope of his recovery: a few hours convince them of their error; the patient occasionally discharges from the stomach, by eructation scarcely amounting to vomiting, a black coffee-coloured fluid; the pulse becomes weak, small, and intermitting; the extremities cold; low delirium comes on; and life imperceptibly vanishes, or a violent convulsion closes the scene.

The disease, when lighter in degree, frequently assumes the form of a double tertian, with similar paroxysms on alternate days; the lighter paroxysm comes on in the morning, about nine o'clock, and remits in the evening; the other and more considerable paroxysm comes on about one or two o'clock in the afternoon, and affords but little remission till the next morning. The patient is never entirely free from fever, and the paroxysms are frequently very severe. Sometimes, after an imperfect remission towards morning, it attacks in the early part of the day, with the symptoms of a distinct intermittent. The patient is seized with rigors, increasing to a violent degree of cold shivering, severe pain in the bones, and sickness at the stomach; towards the decline of the cold stage, a violent vomiting comes on, and often proves very distressing.

More frequently, however, in this form of the disease, after an imperfect remission, the paroxysm is renewed by a slight

rigor, succeeded by a vomiting of mucous and bilious matter; the hot stage runs high; the pulse is frequent, strong, and bounding; there is a great determination to the head, the arteries of which beat violently; the pain in the head is distressing; great anxiety prevails; the patient tosses his body about in different positions, unable to alleviate his sufferings in any situation; a distressing heat prevails over the surface of the body, and the mouth is dry and parched; an insatiable thirst prevails; the patient drinks incessantly; and frequently the stomach, from its irritability, rejects the fluid taken in, more especially when the drink is swallowed in any considerable quantity at a time. A clammy viscid saliva collects in the mouth, and obliges the patient to keep perpetually spitting.

The remissions, in this form of the disease, are seldom sufficient to permit the patient to leave his bed. About the fourth or fifth day a yellowness begins to overspread the surface of the body, at the same time appearing in the adnata of the eye. The yellowness increases, and assumes a light olive colour, or yellowish green. The tongue is covered with a moist, thick, purple or blackish fur. The body becomes greatly emaciated, and the general debility is extreme. The patient is, in this manner, sometimes worn out by the repetition of the paroxysms, or carried off at the earlier period by their violence. This form of the disease is apt to prove very obstinate and tedious.

There is still another form of this disease, with which strangers are sometimes affected. The patient is first attacked with pain in the head and back; the pulse is frequent and strong, and the tongue white and furred. A remission and exacerbation takes place on alternate days; the exacerbations are particularly severe in the evening. The skin is withered, dry, parched, and constricted. On the third or fourth day, the tongue assumes a brown or black colour; sometimes the blackness extends in two parallel lines, about the width of the finger, on each side of the tongue. The pulse becomes more frequent and tense, the countenance sallow, the eye languid, the hearing obtuse, and the intellect deranged.

If the patient survives, he frequently loses the exercise of his intellectual faculties; and is almost incessantly harassed with a cough, which is more particularly excited upon expiration, and seems to proceed from an affection of the stomach. This symptom, and the loss of intellect, are more common with women than men. The understanding commonly returns upon the removal of the fever; though the cough is apt to remain for some months afterwards. The stomach sometimes ulcerates, and corrupted and bloody matter is discharged by vomiting. This affection of the stomach rarely proves fatal; it is

apt, however, to produce an inordinate and voracious appetite, which, if indulged, is sure to aggravate the symptoms. The latter affection is best treated by abstinence, a vegetable diet, tonics, as columbo and carbonate of iron, and mucilaginous substances.

I might here, in conformity to general custom, expatiate on the causes of this disease, and enter upon the discussion of the contested subject of contagion; but these topics themselves are sufficient to fill a volume, and are, therefore, incompatible with the brevity of my present design. I am unwilling to touch upon a subject, without doing it the justice of a patient investigation, and of a faithful inquiry.

Section 2.

Of the Causes of Yellow Fever.

As to the causes of this disease, there is no great necessity for saying much after the view which we have taken of the physical condition of the country. A constitution unaccustomed to the climate is the predisposing cause; marsh miasmata, the remote cause; and a fit of intoxication, or exposure, the exciting cause.

But, independent of any peculiarity of predisposition or constitutional susceptibility, and, without the aid of intemperance, the miasmata themselves are frequently sufficient to occasion serious attacks of fever.

It is a circumstance worthy of observation, that this disease is more frequent among the Americans than the French. This is, no doubt, owing to the difference in their manner of life, and habits of temperance and sobriety. The French drink little or no spirituous liquors; in place of which they substitute the small acidulous wines, particularly claret. The Americans, on the other hand, influenced by taste, strangely and erroneously imagine, that the use of distilled spirits is necessary to preserve them against the fogs, damps, and sickly vapours of the climate: a fatal opinion, and a destructive practice, which has committed greater ravages than the sword, and sent more victims to the shades of death, than ever the arms of war sacrificed at the shrine of ambition, rapine, cruelty, or injustice. So far is distilled liquor from being a necessary part of a soldier's ration, that, in my humble opinion, poison, disease, and the principles of death are dealt out to them in every gill of whisky they receive. But of this hereafter.

The undue use of animal food, particularly if in an unsound condition, is another remote cause of this disease.

As to contagion, it is not my intention to say much. But that the reader may not be altogether ignorant of my sentiments upon this subject, I will just observe, that I never saw an instance wherein I had the least suspicion of the disease being communicated from one person to another. In thus stating the result of my observation, I know that I speak in conformity to the opinion of some of the most eminent, and express the sentiments of the majority of those whose observation and experience entitle their judgment to belief. Whilst to such persons we offer the voluntary tribute of respect, we disregard, as the breath of ignorance, and like *the baseless fabrick of a vision*, the speculative vapouring of men, who, destitute of those essential requisites of correct opinion, arrogantly pretend to dictate, in their drowsy lucubrations, from their sequestered retirement in the closet.*

With respect to the nature of this disease, my belief is, that it is only a more aggravated degree of intermitting and remitting fever; and that the plague is the grand climax of malignity, analogous in its origin and nature, and standing at the top of the same scale. Briefly, my opinion is, that the intermitting, remitting, yellow fever, and plague, are only gradations and modifications of the same disease; that they all arise from similar causes, differing only in degree of force and concentration, and that the proximate cause of each is the same. The prosecution and investigation of the subject, and the arrangement of facts in support of this opinion, I shall, for the present, omit. I will just remark, however, that he who sees intermitting, remitting, and yellow fever prevailing at the same time and place, and changing and interchanging their forms with each other; that which is now intermittent suddenly assuming the character of the yellow fever, and the latter divesting itself of its malignancy, and taking on the livery and cha-

* I allude to such men as Haygarth and other English gentlemen of the same fraternity, who assume the high prerogative of passing judgment on the immutable laws of Nature. If human opinion could influence the established operations of creation, we should really stand in great fear of their presumption: but, as it is, we do not apprehend any serious consequences from the tremendous and awful sentence of those congregated sages. Let them decide that the moon is a snow-ball; who is there amongst the ignorant to contradict or disprove it? The voice of the majority predominates. Who then are right—the few or the many? Ask the history of our progenitors—it will answer: If they believe not those who have had the greatest opportunity for information, we may consider them as beyond the reach of conviction, past hope, and irreclaimable. And though, in other things, we may allow them the precedence of their barbarous abetters in opinion, the Turks and Egyptians, in this particular, we must consider them infinitely more blind; wilfully blind, shutting their eyes against the light with which they are surrounded; preferring obscurity, and groping in darkness amidst the splendour of noon.

racteristics of intermitting fever—he who has been witness to these occurrences, as I and others have been, and still doubts the identity of the nature of these diseases, must be a skeptic in physics, and a disbeliever in the demonstrative evidence of his own senses.

Section 3.

Of the Cure of Yellow Fever.

Respecting the cure of this disease, I scarcely ever found any difficulty in removing it, provided the patient applied in time. During the forming stage of the complaint, before much commotion has been excited in the system, and where irritability of the stomach does not exist, I have always found the best and most certain effect from the exhibition of an emetico-cathartic, consisting of tartarized antimony, or ipecacuanha, calomel, and jalap, in suitable proportions. By this remedy, assisted with plentiful diluting drinks, the morbific biliary colluvies in the primæ viæ are evacuated, the disease is cut short in its progress, and the system speedily restored to a healthy condition. When the patient is affected with rigors, pain in the back and loins, a small weak pulse, anxious respiration, and a cold constricted skin, I exhibit a dose of nitrous æther and spirits of ammonia, and assist their operations by warm drinks. When this stage has passed, and the pulse rises and becomes strong, attended with an increase of heat, I have immediate recourse to bleeding. In the early period of the first and third forms of this disease, the arterial action was sufficiently strong and quick to authorize the employment of this remedy, which I always found productive of the best effect. The pulse thereby becomes softer; the pain of the head abates; the eye and the countenance are rendered placid; the general distress is relieved; the skin, from being hot and constricted, becomes soft and moist; and a free perspiration often ensues. The persons affected with this disease being frequently those of strong and robust constitutions, I have generally made use of liberal evacuations of blood, to the extent of sixteen or twenty ounces; and when resorted to in the early period of the disease, I never had occasion to repent of its employment. The operation should be repeated in the course of twelve or eighteen hours, if the symptoms seem to require it. When, however, the remedy has been neglected till the third or fourth day, the period at which it might be employed with safety and advantage is past, and the operation then becomes doubtful and hazardous.

When the irritability of the stomach does not prohibit its ex-

hibition, I have found the use of nitrous æther, assisted in its operation by the plentiful use of warm elder-flower, or other herb-teas, a serviceable remedy.

It frequently happens, however, that the irritability of the stomach is so great as to reject the blandest substances, as well as the most cordial anodynes. In these cases, flannel clothes, wet with hot brandy, and impregnated with laudanum and camphor, and applied to the region of the stomach, are found serviceable. But the most effectual remedy, is an injection of a hundred drops of laudanum with some mucilaginous liquid.

Cooling acidulous drinks, as lemon juice and water, and sucking the juice of ripe fruits, are highly refreshing and serviceable in this disease.

But I have found it especially necessary to attend to the state of the bowels. Such was the disposition to the generation and accumulation of bile, that, unless removed by frequent purging, the powers of life became oppressed, and nature rapidly declined. The patient would complain of great weight, anxiety, and oppression about the epigastrium; colic and dysenteric pains would ensue, with ineffectual, bloody, and slimy discharges. A cathartic, which it was frequently necessary to give in large doses, on account of the constipated state of the bowels, speedily removed these symptoms, and always insured a respite to the disease. The evacuations procured in this manner, were very copious, of a dark green or black colour, and extremely offensive. When the patient was too much debilitated to bear the operation of a brisk cathartic, injections of Glauber's salt, with molasses and water, were substituted with the greatest benefit. These injections frequently become necessary to assist the operation of the cathartics taken by the mouth; they might be employed two or three times a day with advantage; they were speedy, mild, and gentle in their operation, and free from the debilitating effects which sometimes followed the exhibition of cathartics. The debility produced by purgative medicines, however, was only momentary, and the ease and composure which they afterwards afforded to the body, satisfied the patient of their necessity and usefulness. According to the strength of the person, and the degree of constipation, I used calomel and jalap, Glauber's salt, or cream of tartar; the latter, in the quantity of one or two table-spoonfuls, with just enough water to admit of its being swallowed, was mild, and generally effectual in its operation, and in affording relief. This medicine, when given in a state of solution, is apt to run off by the other excretions, without affecting the bowels: in proportion as they were kept free from the accumulation of biliary matter, so was the yellow colour of the skin prevented or removed.

The efficacy of calomel, as a remedy in this disease, has been much extolled. Influenced by the torrent of fashion, I was once an advocate for the liberal exhibition of this medicine; but experience, at length, taught me never to prescribe it with the view of producing salivation; though I have seen this effect sometimes occasioned by it, when given in the ordinary doses, as a febrifuge, in combination with other medicines: but, even in those cases, I have known the disease to continue, and in some instances prove fatal. When the fever was slight, the skin soft and moist, and the pulse yielding and free from tension, as the mouth became gently affected, the symptoms subsided. But this was no indication of its utility; it only evinced a mitigation of the disease, which permitted the mercury to show its specific effects: for, when high inflammatory symptoms prevailed, or when the circulation was languid, and the skin cool and dry, it was either impossible to produce a salivation, or, when effected, it afforded no relief; and the patient died, notwithstanding the appearance of this promising and wished for symptom; or a slow and difficult recovery confined him for a long time to a sick bed.

The employment of mercury is altogether empyrical; the object which the sticklers for this medicine have in view is, a salivation; supposing that, when this effect is produced, the safety of the patient is secured: but, had they the candour to make the confession, it would appear that, in this, they are frequently disappointed. In many instances, notwithstanding the salivation, death follows with unabated celerity: sometimes a salivation cannot be produced, notwithstanding the most earnest endeavours of the physician to effect it; yet, in spite of the Doctor's labours to the contrary, the patient recovers.

This medicine was first brought into popular fashion, as *a sovereign remedy*, by Dr. Clark; and the practice was afterwards improved, and introduced into more general use, by the extravagant encomiums profusely lavished in praise of its efficacy by Dr. Chisholm. This gentleman, by his exaggerated eulogiums in favour of a medicine, at best, of doubtful utility, and frequently pernicious and fatal in its operation, has, in this manner, I may venture to say, made himself the destructive agent of fatality, from which the shafts of death have been thrown in every direction. The sad consequences of the practice were particularly exemplified at New-Orleans, in the year 1812. Three companies of the 1st Regiment of Artillery were then stationed at the barracks in that city, of whom a great portion died with the yellow fever, and from the effects of mercury. Agreeable to custom, they were treated upon the mercurial plan, and with as much liberality as ever Dr. Chisholm himself

could have desired. This *Sampson* of the *Materia Medica* was not prescribed by the weight and measurement of grains; that would have been feeble and insignificant, and unworthy the characteristic liberality and boldness of its great advocate and supporter. It was given to the patient in a cup; and he was directed to eat it by the spoonful, like so much sugar. A fatal surfeit! few survived to tell the mournful story. It is said, that mercury was not so effectual this season as it had been on many other occasions: I should rather say, that, in some instances, it had not proved so destructive. I am happy to add, that, in such a work of death, I never participated.

As to *cold bathing*, I have frequently used it in bilious fever, and was never sensible of any injurious effects from its employment; at the same time, I cannot say much in favour of its efficacy. When the skin was hot, dry, and parched; the circulation rapid, and the pulse strong, with a throbbing of the temporal arteries; cold bathing, (which I employed by affusion) to the extent of from twelve to twenty buckets of water in succession, gave, at least, a temporary coolness and refreshment. After the affusion, the patient was conveyed to bed, was covered with blankets, and took a dose of nitrous æther in some warm tea. For a short time he continued cool and composed; the pulse then rose by degrees; the heat increased; and the symptoms seemed to be established in nearly their former violence, and so continued till a perspiration broke out, and after continuing some time, procured an imperfect remission.

Analogous to cold bathing, I have frequently experienced very good effects from a copious draught of cold water, taken in the height of the hot stage: it cools the body, relaxes the surface, and expedites and facilitates the appearance of a free perspiration.

For the purpose of moderating the distressing heat with which the patient is affected, and which is particularly felt in the head, palms of the hands, and soles of the feet, in place of cold affusions, I have applied to these parts, linen cloths wet with cold vinegar and water; they relieve the heat and pain in the head, and abate, in some degree, the temperature of the body generally. Sponging the body with cold vinegar, nitre, and water, is both refreshing and conducive to cleanliness, so necessary to be observed in this disease.

The patient's room should be well ventilated; all excrementitious matters speedily removed; the floor occasionally scrubbed, and frequently sprinkled with vinegar.

I have employed the nitrous acid in this disease with good effect: when properly diluted, and softened with sugar, it forms

a pleasant drink, and has a tendency to correct the alkaline disposition of the fluids.

In the advanced stage of the more mild remitting form of bilious fever, when the remissions were pretty distinct, I have employed the bark with advantage. It is taken at the period of the greatest remission, in as large quantity as the stomach will bear. The ensuing exacerbation frequently runs high, and is aggravated in degree, in consequence of the exhibition; but we have the pleasure to find the paroxysm terminate in a complete intermission: at which time a few doses of the bark prevent the recurrence of the disease, and establish a state of convalescence.

The convalescence, however, is slow; the patient is liable to frequent relapses upon the least fatigue, or exposure to the sun. Against these occurrences, nothing can secure him but the strictest temperance and care, and the daily use of Peruvian bark, until his strength shall be established; which is rarely effected before the cold weather commences. In general, convalescence is much slower in Louisiana than in the northern states, owing to the relaxed and debilitated condition of the system previous to the attack of the disease. During this period, I direct a tea-spoonful of bark to be taken in the morning, upon the patient's rising out of bed, with a glass of wine. Provided the invalid is faithful in the observance of this practice, he is pretty secure against the danger of relapse.

In every form of this disease, the pulp of ripe fruits is highly serviceable. These substances are refreshing, deobstruent, gently aperient, correctors of the acrimony of the bile and of the alkaline condition of the fluids, and not unfrequently produce a diuretic and diaphoretic operation.

CHAPTER IV.

Of Dysentery.

THIS is a disease which prevails chiefly, and with the greatest malignancy, in the most unhealthy situations, and during the most sickly seasons of the year, at the same time that bilious fevers make their appearance. It is a disease very common to camps and armies; and it is there that it commits the greatest ravages, and exhibits itself in its true character.

SECTION 1.

Of the Symptoms of Dysentery.

THIS disease makes its invasion with nearly the same symptoms as pathognomonic fever. The patient, at first, experiences a degree of lassitude, which is succeeded by slight chills, alternating with sensations of heat; he feels a sickness at the stomach, and is troubled with flatulence and colic pains. The fever increases; the skin is dry; the mouth parched; the patient complains of thirst; and is affected with violent tormina in the bowels, griping, and tenesmus. A free and copious evacuation of liquid, excrementitious, and slimy matter relieves his present distress, and affords a temporary respite to his sufferings.

Sometimes the bowels are constipated, and the patient is harassed with frequent and ineffectual straining, by which nothing is voided. In this case, the fever runs high; the face is flushed; the heat of the body is much increased above its natural temperature; the skin is dry and parched; the pulse is quick, strong, and hard; the mouth and fauces are dry; the tongue is covered with white fur, or is dry and shining; great thirst prevails; and unexpressible anguish pervades the body. The patient compares the sensation in the bowels to that produced by fire, or scalding water. This *dry dysentery*, as it may be called, is the most dangerous and distressing form of the complaint; and, unless relieved, proves fatal about the fifth or seventh day.

In some cases, the constitutional derangement is, at first, inconsiderable; the griping and tenesmus are the most conspicuous symptoms; and, as these affections become more frequent and violent, the fever increases.

European writers make mention of the appearance of scybala; but, although I have frequently noticed the evacuations,

this appearance has never fallen under my observation. At first, the discharges are bilious, watery, excrementitious, or mucous, or consist of these matters mixed in different proportions, and exhibiting different appearances. Blood is rarely evacuated at first, but, after a day or two, is found mixed in streaks with the other matters. The most common appearance is a mixture of bile and mucus in the form of a yellowish green gelatinous mass. Sometimes the evacuations consist of a whitish semi-pellucid gelly; in other instances, nothing but water, tinged with bile and excrementitious matter, is evacuated, to the extent of several quarts, or even gallons, in the course of twenty-four hours. As the disease advances, blood is mixed in greater quantity and proportion with the other matters; and, at length, the discharges, in some instances, have the appearance of pure blood. I have known patients void this bloody dark coloured fluid to the quantity of a pint at a single evacuation. The blood discharged in this way does not coagulate. This is a dangerous symptom, and indicates great relaxation, erosion, and ulceration of the intestines, and a dissolved state of the fluids. In those cases, the intestines have frequently lost their tone, and the blood comes away almost without the person's knowledge, and is unattended by griping and tenesmus.

The urine is high coloured, and its evacuation is sometimes attended with a scalding and stranguary. Some patients are also affected with prolapsus ani.

In the progress of the disease, the evacuations assume a dark brown or olive colour, and exhale an intolerable fetid and cadaverous stench. Sometimes these dejections are nearly black, or of the colour of molasses.

Towards the fatal termination, the pulse loses its energy of action, and becomes weak, tremulous, and easily compressible. The heat of the body is diminished, and sinks below its natural temperature; or a caustic acrimony, similar to what has been observed in typhus, is perceived upon applying the hand to the surface of the body. The patient complains of a burning sensation in his bowels; moans and mutters indistinctly; lies upon his back, with his eyes half closed; and is affected with a sterterous breathing. When roused from his lethargic slumber, he appears sensible, and answers distinctly; again he sinks into a state of stupour, breathes hard, now and then fetches a deep groan or suspires a heavy sigh. The eyes half closed, lose their brilliancy, appear glassy, dry, withered, and wrinkled; black sordes collect about his mouth; his countenance falls, his nose and features are sharpened; the extremities become cold, and a cold sweat appears upon the body; the contents of the bowels

run from him involuntarily; the pulse grows weaker, flutters, and then stops for ever; and the patient sighs his last; or a general convulsion closes the period of existence.

It frequently happens, that after the acute symptoms have continued a certain time without proving fatal, the fever subsides, or becomes much less acute; the pulse continues frequent, though it has lost much of its tension and strength; the body returns to nearly its natural temperature; and the appetite is, in some degree, restored. The patient, however, is still harassed with griping and tenesmus, and occasionally discharges bloody and frothy, or dark coloured mucous and bilious matter. This is the chronic stage of dysentery, which frequently continues for several months.

We may, therefore, properly and usefully distinguish three stages in this complaint: 1st, The incipient; 2d, The confirmed or acute; 3d, The chronic.

In opposition to the acute, or inflammatory stage, another division might, perhaps, be made, viz. the *typhous*. Such, to be sure, is the latter stage of every acute febrile disorder; but in the present instance, when this is any other than the chronic stage above mentioned, and merely the consequence of violent previous excitement, attended with the precursory symptoms of approaching death, it is beyond the reach of physic, and therefore needs not to be recognised in practice.

I have already noticed the appearance of dysenteric symptoms in patients labouring under the endemic fever, and have only to add, that it was a common occurrence for intermitting and remitting fever to terminate in dysentery; and, on the contrary, for the dysentery to assume the form of a tertian or remittent.

Section 2.

Appearances on Dissection.

In my notes upon the dissection of a subject who had died with the full marked character of this disease, I have the following observations: The omentum was in a state of inseparable adhesion to the peritoneum; the membrane itself appeared thickened, and of a reddish colour. The left lobe of the lungs was of a purple hue, and full of grumous blood; the right was of a lighter colour, and more natural in its appearance; no adhesions were formed between the lungs and the pleura. In the right ventricle of the heart there was a large polypus concretion, extending into the right auricle and pulmonary vessels; the left auricle contained but little blood, and no polypus. The

intestines were distended with air, and of a reddish colour externally. The spleen was very large, being near twelve inches in length, seven or eight in width, and four or five in thickness; the anterior surface of the spleen, next to the parietes of the abdomen, presented a remarkable appearance; it was white and shining, but did not adhere to the peritoneum: upon being cut into, this covering was found to be of a cartilaginous hardness, and about the eighth of an inch in thickness. The liver was of a dark brown colour, interspersed with lighter spots upon the surface, resembling a piece of fine mahogany. The gall-bladder was nearly natural in its appearance; and, upon opening it, a quantity of black fluid bile issued from it. The small intestines presented the appearance of universal inflammation throughout their inner surface, and were nearly black towards their lower extremity. In the large intestines, the appearance was different; in the upper portion of the colon, the villous lining was very much eroded, and that which remained was considerably thickened; this morbid state increased in proportion to its nearness to the extremity of the rectum: in some places, these erosions, or ulcerations, extended nearly through the coats of the intestines, so that they were easily torn asunder. This erosion presented an irregular appearance of pits, holes, and furrows, or sinuses: the bottoms of these ulcerated depressions were rough; the inner surface of the intervening uneroded portion of the intestines was smooth and white. The internal surface of the rectum was covered with a bloody dark coloured mucus; the lower portion of this intestine was contracted in its diameter, and greatly thickened and indurated in its substance; its coats upon the back part were nearly three quarters of an inch in thickness. The pancreas and kidneys appeared sound. The urinary bladder was extremely small, and the sides lay nearly in contact; in its cavity there was a small quantity of whitish turbid urine. It may be remarked, that nearly the same appearances of the biliary organs were observable in this instance as in bilious yellow fever. The fever had been higher, and the inflammatory symptoms more considerable in this patient, than is usually the case in this disease; though local inflammation, and erosion or ulceration of the intestines, as here described, were appearances common to all that came under my observation. In this subject, the erosion of the intestines was particularly striking. The adhesion of the omentum to the peritoneum appears to have been the consequence of high inflammation; which explains also the thickening and cartilaginous hardness of the membrane covering the outward portion of the spleen; as, likewise, the polypus concretion in the right ventricle of the heart. Ge-

nerally, the fat of the omentum was much wasted, and the membrane itself shrunk and contracted in size. In those subjects who had been worn out by a long continuance of this disease, I have observed the bile in the gall-bladder to be of a light orange tinge, or nearly the colour and consistence of liquid honey. This change in the appearance of the bile, from a dark to a light colour, was observed by Bontius; who, in the dissection of a dysenteric patient, remarked, "What was most extraordinary, his gall-bladder was full and distended with a viscid white humour, like the pap made of starch, which the women in Holland call *stuffle*."*

With respect to the prognosis of this disease, a curious circumstance is mentioned by Zimmerman, that, in an epidemic in France, it was remarked, that such as had an eruption of a great number of watery bladders on the whole surface of the skin, recovered: the same good effects, he continues, were observed in Switzerland, when a miliary eruption appeared, and continued till the seventh day, if, at the same time, tumours appeared here and there on the skin, together with an erysipelas.†

Section 3.

Of the Causes and Nature of Dysentery.

The causes of this disease are the same as those which produce intermitting and remitting fever: the predisposing, such as induce debility and exhaustion in the body generally, and in the intestines in particular, together with such as vitiate the fluids of the body; the exciting, such as suppress the perspiration, as exercise and fatigue to the degree of producing a copious sweat, and the subsequent application of cold and moisture suppressing the perspirable matters; which are consequently determined to the bowels. I agree with Sydenham, that this is an introverted fever. *Febrem eam esse, in intestina introversam.*

* Bontius' Diseases of India, p. 104.

† Zimmerman on Dysentery, p. 166. A circumstance somewhat similar, though unattended with the same effects, is mentioned by Dr. Blane: "I have seen," says he, "in some cases of old dysentery, small, round, ill-conditioned ulcers break out on the surface of the body, which seemed to proceed from the same general habit that produced those of the intestines. There was something peculiar in the appearance of these external sores, being like small round pits, as if a part of the skin had been removed by caustic, and with little or no discharge. In a case of this kind, which proved fatal, I found the whole surface of the great intestines beset with small ulcers, not unlike those on the skin." *Blane on the Diseases of Seamen*, p. 438.

The immediate cause of dysentery appears to be a vitiated condition of the fluids. Were other circumstances insufficient to establish the truth of this opinion, it would receive abundant confirmation from the well known fact, that it is frequently communicated to the fœtus in utero; in illustration of which Zimmerman mentions a striking example, as follows: "The fœtus was naturally infected in our dysentery, when the mother lay sick of it herself: a woman in the city of Frawenfield, that was troubled with this disorder a fortnight before and after she was delivered, brought her child into the world likewise infected with the same, and it died three days after."*

This vitiation may be partly the effect of improper food, but is principally produced by noxious miasmata, conveyed into the system through the medium of the lungs in respiration.

That these miasmata are received by the lungs, and not through the medium of the stomach and bowels, we infer, from the improbability that a sufficient quantity could be absorbed by the saliva, and in this manner conveyed into the stomach, there to produce this effect: from the known facts, that the infection of the lues venerea and small-pox have been swallowed in considerable quantity without producing disease:† from the circumstance of very offensive things being taken into the stomach as articles of food, or otherwise, either with impunity, or, at most, the production of a diarrhœa: from the observation, that the seeds of a fever have been received by seamen, from sleeping on shore in unhealthy places, which did not ripen into disease till after the vessel had been two or three weeks at sea;‡ surely we cannot reasonably suppose, that the semina of disorder could have lain all this time in the stomach without previously disordering the functions of health: from the numerous instances which are recorded by different authors, of fever having been suddenly produced in consequence of a few minutes exposure to virulent and concentrated febrile miasmata;§ during which time, it is highly improbable that a sufficient quantity could have been taken into the stomach to produce such sudden and violent commotions: besides, these

* Zimmerman on Dysentery, p. 19.

† Bell on the Venereal, and the Med. Repos. Dr. Rush observes, that, in Maryland, the negroes eat, with safety, the flesh of hogs that have perished from the bite of mad dogs; and that he has heard of the milk of cows, at Chestertown, in the same state, having been used, without any inconvenience, by a whole family, on the very day in which she was affected by this disease, and which killed her in a few hours. In confirmation of similar facts, he quotes the authority of Dr. Baumgarten in the Med. Comment. who observes, that the flesh and milk of rabid animals have been eaten with perfect impunity. *Rush, Inq. and Obs.* vol. ii. p. 326.

‡ Lind on Hot Climates.

§ Lancissi, Lind, &c.

miasmata are aeriform substances; and we all know, that carbonic acid gas, an aerial fluid the most destructive to animal life, when received into the lungs by respiration, is perfectly innocent, and even salutary, when taken into the stomach: from the fact, that offending substances, taken into the stomach and bowels, *effectuate their own expulsion, by exciting commotions* in these organs, in consequence of which health is again restored to the body. Such is the case with the various kinds of emetics and cathartics in common use. But was a cathartic ever known to occasion dysentery? All that is effected by it is, the production of diarrhœa, which ceases when the offending matter is expelled.

Let us now turn our attention to the consideration of the more particular nature of this disease. In the first place, I beg leave to remark, and to lay it down as a position, that *there is nothing specific in the infection of dysentery.* By *specific* is understood, that peculiarity of morbific matter which influences it to produce a disease of a particular kind only, that is always characterized by the same pathognomonic symptoms: as the lues venerea, small-pox, measles, &c.

A mortified limb has been known to produce dysentery in persons confined in a ship, and in the wards of an hospital; and so has also the smell of putrid blood.* The same effect has also taken place from the handling of meat in a spoiled condition, and breathing the putrid effluvia proceeding therefrom: as also, from exposure to the offensive emanations of a jakes, unavoidable in the removal of excrementitious accumulations.†

Dysentery has alternately assumed the form of intermitting and remitting fever, and *vice versa.* In confirmation of which many cases have fallen under my particular notice; and numerous authors have made similar observations.

Dr. Saunders found the existence of an analogical affinity between bilious yellow fever, intermitting fever, and dysentery.‡

Dr. Clark says, "The dysentery depends upon the same remote causes as the intermittent; and, in unhealthy seasons, is generally, at the same time, epidemic."§

Dysentery is considered by Dr. John Miller, only as a more malignant remittent fever.‖

Upon the same subject, Dr. Rollo observes, that, when dysentery prevails, intermitting and remitting fevers frequently appear, and generally assume one or other of these forms,

* Pringle on the Diseases of the Army, p. 255 and 288.
† Medical Repository.
‡ Med. Comment. vol. vi. p. 11.
§ Clark on Long Voyages, p. 217.
‖ *Bird on the Army, p. 285.*

more commonly of the latter; and they are, in their symptoms, similar, except in the difference of such as are peculiarly dysenteric.*

Roederer, speaking of the relation existing between intermitting fever and dysentery, mentions, in a note, striking examples of their combination. "Memorabilis est observatio hæc trahenda, quod hoc anno multi febre intermittente et dysenteria simul laborarint, sive vera intermittente."†

The observing and experimental Dr. Firth, whose auspicious bloom of early genius promised a rich increase of intellectual worth, in his observations on a voyage to Batavia, remarks, that "The fever alternated with dysentery; when the weather was bad, the latter prevailed; when good, the former. In some cases, the fever would attack the dysenteric patients; but more frequently the patients who were affected with the fever would be seized with the dysentery. Cases occurred of persons being seized with the fever, upon which the dysentery would supervene, and, after continuing a few days, cease, and the primary disease again recur—thus alternating one with the other."‡

Dr. Morton, who practised physic in London, gives an account of the dysentery, as it appeared in that place from 1660 to 1672. He observed it to prevail at the usual time of the year that intermittents had formerly done. He expressly declared, that, from its affinity to that disease, he had treated it accordingly, and with success.

Dr Zimmerman, upon this subject, remarks, that "Sydenham's noted observation on the close connexion between epidemical disorders of the same year, was fully verified here, (in Switzerland.) After an astonishing number of putrid fevers, followed the dysentery, attended likewise with putrid fever."§ He further observes, (page 11,) "The analogy of our dysentery, with the preceding epidemical putrid fever, appeared from the resemblance of the symptoms in each disorder, of the method of cure that was most successful in both, and even of the effects that followed the errors therein committed." To the same effect he adds, (page 151,) "When hospitals are filled with dysenteric people, some of the assistants are attacked only with the dysentery, and others with the jail or hospital fever, that ends in bloody and gangrenous stools."

Dr. Balfour defines dysentery to be a *putrid intestinal remittent, with local affection;* and cured it in the same manner as that

* Rollo on Acute Dysentery, p. 15.
† Roederer de Morbo Mucoso, 4to, p. 20.
‡ Cox's Philad. Med. Mus. vol. ii. p. 133.
§ Zimmerman on Dysenter. p. 6.

unattended by any local affection, " without any other addition than that of keeping the whole body, and especially the parts affected, better defended from cold; and of using other means to produce and support a gentle perspiration."*

The opinion of Dr. Curtis is of a similar kind. " The flux," he observes, " frequently precedes the accession of fever, or the latter only appears occasionally, or transiently, according to the degree of acrimony and accumulation of disordered secretions in the stomach and upper part of the intestinal canal. The fever never remains a day after the local disorder is corrected, but, for the most part, terminates sooner, or is only occasionally renewed and lighted up by the renewal of fresh accumulations." He supposes that fever and flux are produced by a superabundant and vitiated condition of the bilious secretion.†

The authority of Dr. Davis may be adduced to the same effect. " I may be permitted to remark," says he, " that a predisposition to dysentery must have been imparted from that concurrence of causes which combined to produce the fever itself."‡

Dr. Blane observes, " It sometimes happens, in the same ship, that both fever and dysentery prevail equally, though the men are using the same diet, and breathing the same air." " The two diseases, therefore," says he, " may be considered as vicarious; the one substituting itself for the other, according to particular accidents; and both proceeding from the same general causes."§

On the subject of this disease, Dr. Pringle remarks, " The dysentery was never general, but not uncommon; and it was observable, that those who were seized with it usually escaped the fever; or, if any man had both, it was alternately; so that, when the flux began, his fever ceased, and when the fever was stopped, the other returned: hence it appeared, that though the two distempers were of a different form, yet they proceeded from a like cause."‖

Merli, in his account of the malignant epidemic fever of Naples, in 1764, has the following observation: " This mischief, contagion, or poison, or by whatever name you please to call it, produces in some a *malignant continued fever;* in others, a malignant double tertian, or a malignant bloody flux. It sometimes attacks the head; at others, seats itself in the breast,

* Put. Intes. Remit. p. 132.
† Curtis' Account of the Diseases of Ind. p. 118.
‡ Davis on the Fever of Walcheren, p. 124.
§ Blane, Diseases of Seamen, p. 487.
‖ Pringle, Diseases of the Army, p. 210.

in the kidneys, *or in some of the bowels;* and, wherever seated, produces the most violent and malignant symptoms."

Dr. Cleghorn says, "Sometimes a tertian is changed into a dysentery, or a dysentery becomes a tertian; and when one of these diseases is suppressed, the other often ensues; nor is it uncommon for dysenteric fevers to put on the form of tertians; and for the fits of tertians to be regularly accompanied with gripes and stools."*

It was remarked by Dr. Barnwell, that "Dysentery and remittent fevers appear to be nearly allied, especially those which occur in warm climates. This appears evidently, from their both attacking at the same time of the year, and their being often produced by the same causes, and from their often interchanging from one to the other."†

And Assalini, speaking of this disease, says, that if proper means for checking its progress were neglected, it very soon became a true bilious fever.‡

Instances and quotations of a similar kind might be multiplied, but I trust the above are sufficient to satisfy any reasonable person, that there is nothing specific in the infection of dysentery, as has been maintained by some: since it has been abundantly shown, that the same cause is capable of producing either an intermitting or remitting fever, or dysentery: nay, further, that the immediate causes and natures of these diseases are identically the same; as is evinced by their alternating and changing forms with each other. If, therefore, they are so inseparably allied in their nature and origin, where is the propriety of their nosological division? A division originating in ignorance and error, and sanctioned by time, authority, and fashion.

It may be said, that the dysentery is, in a manner, a disease peculiar to soldiers; who are also, generally, more subject to malignant disorders, and the diseases of the climate, than private citizens. This is, no doubt, owing to the soldiers' manner of life, and the exposures to which they are subject. Their fare is commonly of the coarsest kind. The duties of their situation necessarily produce irregularity of life as to sleeping, waking, and eating; this irregularity produces carelessness and indifference to personal conveniences. When free from duty, they are at a loss for employment. They frequently expose themselves voluntarily to the inclemencies of the weather, careless of consequences, and unapprehensive of danger. To

* Cleghorn on the Diseases of Minorca, p. 77.
† Barnwell's Physical Inves. and Deduct. p. 248
‡ Assalini on the Plague, p. 107.

gratify their love of spirituous liquors, they will run the greatest hazard of detection, and the consequent infliction of punishment: for it they will sacrifice every necessary comfort, and endure every privation. Health to them seems to be an object of little consequence or consideration. They will dispose of an article of clothing, or even a blanket, for a delicious draught of intoxicating whisky. I have often had occasion to lament the vitious habits contracted, and the disorders produced, by the habitual allowance of this pernicious liquor as a part of a soldier's ration. Often have my efforts been frustrated by the clandestine use of this destructive poison; which, from a hopeful state of convalescence, has suddenly precipitated the patient into a dangerous relapse; and sometimes plunged him into the jaws of death. It is a fact confirmed by my own experience, as well as that of every other physician of observation, that men have universally been more healthy in proportion as they have been destitute and deprived of this pernicious article; the corrupter of morals, and the bane of society; the prolific source of wretchedness, disease, and death.

The principal subsistence of a soldier is animal food, and that frequently in a tainted condition. Food of this description must necessarily vitiate the fluids of the body; which effect is still further increased by the drinking of distilled spirits, in the manner already described when speaking of scurvy, to which this disease is nearly allied. Besides, the occasional excesses which are committed in the indulgence of the latter article, frequently act as the exciting cause of the disease.

From a certain concurrence of the preceding circumstances, the production of disease, in almost any form, may be easily accounted for. Should men be exposed to the damp air of the night, they will be particularly liable to be affected with dysentery. It frequently happened at Plaquemine, that the men who were sent upon picket-guard at night, returned in the morning affected with dysentery or fever. Their station was about half a mile from the fort, on the margin of the bayou, a place which was extremely low, wet, and marshy. Upon my suggestion, a large barge was floated down the bayou, and moored in the stream; on board of this the men were more comfortably protected from the unwholesome damps and vapours of the night; whereby disease was prevented. Under exposure to the damp and chilling vapours of the night, the perspiration is suppressed, and the determination of the excrementitious fluids is frequently directed towards the intestines. But, should the perspiration be suppressed from any other circumstance, or, should the bowels be particularly debilitated, this disorder would be most apt to show itself. Briefly, the perspi-

ration may be suppressed by cold and moisture; the stomach and bowels are debilitated by the ingurgitation of spirituous liquors; the blood is vitiated by marsh miasmata and putrid exhalations, and by the use of ardent spirits and animal food.

Dr. Cullen was of opinion, that the proximate cause of this disease consisted in a preternatural constriction of the colon, and the consequent retention of indurated fæces in its cavity, "occasioning, at the same time, those spasmodic efforts which are felt in severe griping; and which efforts propagated downwards to the rectum, occasion there the frequent mucous stools and tenesmus." From this opinion I beg leave to differ; because not oftener than in one case out of a hundred have these scybala, of which the Doctor speaks, been observed by me, nor by other physicians who have seen this disease, in all its degrees and modifications, in the East and West-Indies. It is certain that the lodgment of hardened fæces in the colon may produce a spasmodic constriction of the intestine, and thus give rise to colic; but colic is quite a different thing from dysentery, notwithstanding the opinion of the Rev. Mr. Townsend to the contrary, who associates the latter with the hooping-cough, water-brash, and colic, in the class Neuroses, order Spasmi.* But the colic is a local spasmodic disease, and, as such, may be cured in five minutes, as I have done in a hundred instances, agreeable to the method pointed out in my *Observations on Tetanus*.†

I am induced to believe that, in the origin of this disease, the excrementitious fluids are determined to the bowels, and pass off by the intestines as the only permeable outlet. These fluids being of an acrid irritating quality, excite the intestines into preternatural and irregular action, giving rise to spasm, and an increase of the peristaltic motion; and, finally, producing inflammation, erosion, and ulceration. As in dysentery, the cutaneous vessels are impervious to the perspirable matter; this fluid, consisting of the grosser and excrementitious substances of the blood, passes off in considerable quantity by the intestines, on account of their exhalent arteries being more yielding than those of the skin. The vessels of the intestines being distributed through a soft and delicate substance, are rendered liable to dilatation and rupture from the increased force of the circulation; whilst those on the surface of the body, from being distributed through a more dense membrane, are never sufficiently dilated to pour forth blood, except in an extremely relaxed and debilitated condition of the body, such as exists in malignant fever; where effusions under the cuticle, in the form of petechiæ, &c. are liable to take place from those

* Guide to Health, p. 274. † Med. Repos. N. S. vol. iii. No. 3.

cutaneous vessels. In dysentery the skin seems to be permanently constricted, so that the excrementitious fluids, which should pass by this emunctory, are thrown upon the intestines; where inflammation taking place, dilatation and rupture of the vessels are produced, and erosion and ulceration of the bowels follow in the train of consequences. This inflammation, with the irritation, &c. also accounts for the mucous, slimy, and purulent appearance of the stools.

As dysentery seems to be connected with a deranged state of the biliary system, it is probable that the bile has a great share in its production: which is further proved from the dysenteric symptoms which are produced in bilious diseases by the accumulation of bile in the intestines, as well as from the bilious evacuations of dysenteric patients in the early stage of the disease. In stating this opinion, it is not my intention to derogate from the importance of the bile in the animal economy. I even admit the possibility that, in the fœtal state, the liver may possess the high prerogative which Dr. Rush has attributed to it, viz. that of assisting in the formation of chyle;* but, at the same time, I must be permitted to maintain, that, even in its most healthy condition, the bile is, to a considerable degree, excrementitious; and much more so when the body is affected with disease. A full discussion of this subject, however interesting, cannot be comprised within the limits of the present inquiry. But, can we suppose that, in cholera, the bile is not the cause of the commotions excited? or that, in yellow fever, where a redundance of this fluid exists, it is not produced by the same morbific cause that gives rise to the fever itself?

Chemical experiments prove that the bile abounds with a considerable quantity of alkali; and, as the bile is the excretion of the body in which this substance is particularly observable, we infer that the use of the biliary system in the animal economy is, in a great measure, to free the body from the accumulation of alkali. Hence it follows, that, in proportion to the quantity of alkali existing in the body, will an increase in the secretion of bile become necessary, in order to prevent a morbid accumulation in the system. There is probably no secretion subject to greater changes than the bile. These changes in the quantity, and in the proportion of its proximate principles, I conceive to be generally occasioned by the vitiation to which the blood itself is liable, and not by any alteration in the glandular action of the liver; or, if any change does take place in the secretory action of this organ, it is only to be considered as the effect of the unnatural irritation which is produced in it by

* Cox's Philad. Med. Mus. vol. iii. p. 26.

the vitiated condition of the blood. It may be asked, why is the liver more particularly affected by this vitiation of the blood than the other glands of the body? To this I answer, from the nature of its constitution, and the destination of its function in the animal economy, whereby it is furnished with a peculiar sensibility and a power of secerning those matters, which it is its particular office to separate from the mass of blood; in the same manner as the kidneys are adapted to the secretion of urine, the lachrymal glands of tears, the skin of perspiration, &c.

The quality of the blood by which the liver or the biliary secretion is more particularly affected, I conceive to be alkaline; in as much as it is this principle that the liver is more especially designed to separate from the mass of circulating fluids. We have already noticed, in our *Observations on Scurvy*, the tendency of distilled spirits and animal food to produce an alkaline state of the fluids of the body. Dr. Darwin gives an instance of a woman who was habitually subject to jaundice and bilious colic, occasioned by the exclusive use of animal food, from the erroneous notion that such a diet was best adapted to her constitution; but, upon being prevailed on by the Doctor to discontinue it, and to substitute a vegetable diet, her health was restored, and she afterwards remained free from her former complaints.* It is a circumstance of frequent observation, that horses are affected in the winter time with what is called the *yellow water*, a bilious disease occasioned by the want of fresh grass, in consequence of the alkalescency to which the body is naturally disposed, unless counteracted and prevented by a suitable diet. Cattle are also subject to bilious disorders during the same season, which they speedily get the better of in the spring, by feeding upon fresh pasture. Hence we perceive the reason why we so often observe jaundice and diseased liver among *hard drinkers*, as they are called. In these instances the liver is stimulated to excess from the undue application of its peculiar stimulus, which occasions it to be enlarged in its dimensions, for the purpose of adapting it to the performance of the increase of duty with which it is incumbered. Comparative anatomy teaches us, that the elephant, the deer, and many other herbivorous animals, are not furnished with gall-bladders: and, why? because their vegetable diet does not give occasion to the generation of bile in sufficient quantity to render this receptacle necessary. But there is no carnivorous animal that is not furnished with a gall-bladder.

* Zoonomia, vol. ii.

This alkaline condition of the blood seems to be produced by the remote causes of dysentery, such as animal food, distilled spirits, and the infectious miasmata of putrefying animal and vegetable substances.

From what I have seen in this disease, of its attacking with purging, and sometimes with vomiting of bile; and from what has been observed by other authors, I am persuaded that it is essentially connected with a deranged state of the biliary system, and an excessive secretion of bile. Dr. Curtis, on the Diseases of India, has the following observation: "Fluxes we found to be so constant attendants, in this country, upon a diseased state of the liver, that, after a little experience, whenever they resisted, even for a short time, the ordinary methods of cure, we became immediately suspicious of the state of that organ—that it was affected either with inflammation, or ulcerated, or in a state of inflammatory obstruction."* He supposes that both fever and flux are produced by a superabundant and vitiated condition of the bilious secretion. As an indication of this condition in the flux, he observes, (p. 127,) that "there was constantly a greenish colour, varying from a dark and dusky yellow to a dark and dirty black. The last predominates during the febrile period." Mr. J. Macgregor, in his Account of the Diseases of the 88th Regiment, during their passage to India, and at Bombay, from December, 1798, until June, 1800, observes, that "so large a proportion as sixteen out of twenty-two cases of dysentery and hepatitis, taken together, having, on dissection, evident marks of diseased liver; the natural conclusion is, that dysentery is almost always connected with a disease of the liver as a cause. In a majority of those having diseased livers, the gall-bladder was found turgid with bile; and, in one case, a concretion, of the size of a ground-nut, was found in the gall-bladder."† It is well known that the cholera sometimes terminates in dysentery. Dr. Zimmerman observes, that the dysentery was ushered in with a bilious vomiting; that in "putrid fever, the expectorated matter was tinged with gall, and, at times, with blood; the stools were yellow, green, dark brown, of a putrid, intolerably stinking, and sometimes cadaverous smell: the same happened in dysentery."‡

Let it not be supposed, however, from what I have said, that it is my intention to ascribe the production of dysentery to the redundance of bile. My object was to establish the certainty of the latter circumstance, as depending on the same

* Curtis' Account of the Diseases of India, p. 95.
† Duncan's Ann. Med. vol. vi. p. 353.
‡ Zimmerman on Dysentery, p. 13.

causes that give rise to the disease. The redundance of bile is only a secondary effect of the vitiated state of the fluids, primarily produced by the morbific miasmata, which I suppose to be of an alkaline quality. All that I intend to maintain is, that dysentery and a deranged state of the biliary secretion are connected as cause and effect; that this vitiated condition and redundance of bile contribute to aggravate the disease; and that this condition of the bile is produced by the alkaline state of the blood itself. Be not startled, gentle reader, when I speak of the alkaline state of the blood in dysentery. Many truths which, at their first promulgation, from their novelty, appeared unfounded, ridiculous, and absurd, have, upon a maturer investigation, and a more rational inquiry of the incredulous, conquered the prejudices of age and education. Time, custom, and familiarity of acquaintance, transform the unseemly, deformed, and unbecoming aspect of novelty, into the graces of fashion, elegance, and taste. Dysentery is a common attendant on scurvy, in which the fluids are manifestly alkaline. Dr. Whyte found that the use of alkalies aggravated, and even gave rise to the symptoms of dysentery.*

Upon the subject of contagion little need be said: it is the same in this disease as in fever. I do not deny that it is absolutely uncontagious; and am willing to admit that, when a patient is confined in the infected atmosphere of in a close pent up room, where the sickly miasms are continually escaping from his body, and accumulating in the apartment, that, under such circumstances, there might be more danger of taking the disease than in the open air. But, as the patient is seldom placed in such a situation, so, likewise, is the disease seldom communicated by contagion; so rarely, indeed, that, in several hundred cases, I could never trace a single instance to this source. In support of the opinion of the uncontagious nature of dysentery, I could mention a variety of authors, as eminent for their good sense and learning, as for the accuracy of their observation; and, amongst others, the names of Huxham, Sydenham, Stoll, Richter, Hunter, Willan, Baker, Akenside, Willis, Macgregor, Hillary, Curtis, Milne, Cleghorn, Moseley, Clark, Christie.

* Medical and Physical Journal, vol. iii. p. 232.

Section 4.

Of the Cure of Dysentery.

Agreeable to the preceding theory will be the indications of cure. To restore the suppressed perspiration; to evacuate and correct the morbific matter; and to allay the spasmodic action of the bowels.

In the first place, I generally premise a dose of castor-oil, for the purpose of cleansing the bowels. I give castor-oil the preference over every other purgative, because I have experienced it to be most beneficial; for whilst it evacuates the bowels, it serves to sheath them against the acrimony of the fluids which are constantly excreted into them.

Should the febrile symptoms be considerable, bleeding will be proper; in general, however, this is not necessary.

After the operation of the purge, the patient should go to bed and take a vomit of tartar emetic or ipecac.; which, assisted in its operation by some warm chamomile-tea, plenty of covering, and the application of external warmth to the body, is generally sufficient to produce a perspiration; which should be afterwards continued by the exhibition of Dover's powders and the use of warm tea. When, by those means, the perspiration has been restored, the patient experiences instant relief from the griping and tenesmus. And it generally happens, after the sweat has continued for the space of twenty-four hours, that the patient finds himself quite well. Should the dysenteric symptoms return, a dose of Ol. Ricini should be again exhibited, and the Dover's powders at night, with the employment of other diaphoretic remedies; as teas of mint, balm, &c.

The superior efficacy of perspiration, in the cure of dysentery, is attested by many of the best authors and the most experienced practitioners in this disease; as Huxham, Friend, Richter, Moseley, Blane, Thomas Clark, &c. as well as by many physicians of considerable eminence in our own country: and, as I conceive, it is only by promoting perspiration that antimonials and ipecacuanha prove serviceable. This I infer from my own experience, and from the observations of the above mentioned authors. This is an important consideration to be kept in view in the exhibition of ipecacuanha; for, unless its diaphoretic operation be assisted by suitable drinks and an appropriate regimen, we shall reap no benefit from its employment; but, on the contrary, rather aggravate the disease, by keeping up a distressing nausea, and a frequent and troublesome tenesmus: and it is from inattention to this circumstance, that

so many authors complain of the want of success in the employment of this boasted remedy. It is surprising how soon the delirium, tremors, griping, tenesmus, and other bad and distressing symptoms, cease upon the appearance of a free diaphoresis on the surface of the body.

When the patient has neglected his disorder at the commencement, and after it has existed for some time, the febrile symptoms subside, and the disease runs into the chronic stage; which seems to be continued principally by the influence of habit and the constricted state of the skin. In this stage the bowels should be evacuated with ol. ricin. and a bolus of opium and camphor exhibited at night, and occasionally repeated as the urgency of the symptoms may require. But, even at this period, diaphoretics will prove essentially advantageous, and surprisingly effectual.

I have always found opiates highly beneficial in the advanced stage of dysentery, after the inflammatory symptoms have subsided. I was particularly struck with their efficacy upon first entering the army, when this disease was entirely new to me. Amongst many others, I had a patient, a young man, who had been affected with chronic dysentery for nearly a year; he was emaciated, pale, and debilitated, and it was scarcely expected that he could survive three days: he was constantly harassed with distressing gripes, tormina, and tenesmus. I gave him a bolus, composed of five grains of camphor and two of opium, and directed him some warm tea. The next day I was agreeably surprised to find him entirely relieved of his distress. I then prescribed a decoction of serpentaria, gentian, and seneca; repeating the anodyne occasionally. By this treatment, in a short time, from a state of wretchedness and despair, he was restored to health, and returned to duty.

In many patients, who had destroyed the tone of their bowels by the immoderate use of spirituous liquors, I frequently found opium alone insufficient; in which cases, I combined it, in the proportion of about a grain and a half or two grains, with two or three grains of sugar of lead in a pill; repeating it occasionally, according to the urgency of the symptoms. Exhibited in this way, I never found any bad effects from the acetite of lead, except in one instance, wherein the disease was previously desperate: and hundreds are now living monuments of its efficacy.

By diligent care and observation, I at length became so completely master of this disease, that, for many months, and out of several hundred patients, not a man was lost.

The application of blisters on the legs, just above the ankles, was of great use in the chronic stage of dysentery. It was one

of my most usual prescriptions; and a very good test, in doubtful cases, whether a man was really sick. Rather than submit to the pain of blistering a second time, unless absolutely diseased, he would prefer going to duty. Those who had tried it once were careful to avoid a repetition of the imposture: so that, whether a man was actually sick, or only feignedly ill, blistering was an excellent remedy.

It is very beneficial, in this disease, to keep the body warm, and in a perspirable state, by wearing flannel next the skin. Several folds of flannel may be wrapped round the abdomen with much benefit. It is a matter of very great importance, in dysentery, to prevent the abdomen from getting cold; and much advantage, in addition to the use of flannel, will also be derived from embrocations with the volatile liniment. I have discovered, upon dissection, that, in this disease, the omentum is almost entirely obliterated, nothing but a little thin transparent membrane, of three or four fingers' breadth, remaining. Hence it follows, that the bowels are much more liable to be affected by cold, from being deprived of this warm enveloping covering, which, when replenished with fat, (a bad conductor of heat,) seems to have been intended by nature to protect them against the changes of temperature. To supply the deficiency, therefore, we should substitute an artificial omentum on the outside, by the use of flannel.

In the chronic stage, vegetable tonics are excellent remedies in restoring tone to the bowels.

During the cure of this disease, the patient should avoid the use of animal food and spirituous liquors. I have known relapses frequently occasioned by the indulgence of a single meal of animal food. The practical observations of Dr. Pringle may be quoted to the same effect. He observes, that, in the advanced or convalescent stage, he allowed meat, spirits, and wine to the sick; but, from further experience, was convinced that, at this period of the disease, the cures would be both more frequent and speedy, could patients be prevailed upon to abstain altogether from animal food, and from vinous and spirituous liquors; "for, when no astringents have availed," continues he, "I have frequently known the cure obtained by a milk and vegetable diet, without them." Dr. Zimmerman speaks from experience to the same purpose.* The diet of dysenteric patients should be entirely vegetable, or vegetables and milk. I have found boiled rice an excellent article of diet; sago and arrow-root are also proper.

But the greatest advantage is derived from fresh culinary

* Zimmerman on Dysentery, p. 45.

vegetables and ripe fruits. So far is the vulgar prejudice against these articles, as tending to produce dysentery, from being true, that I have always found them the best remedies both in its prevention and cure. Universal experience teaches us, that they are the most effectual remedies that can be exhibited in scorbutic dysentery; between which and the idiopathic disease there is but a slight shade of difference. It is true, that the eating of an unreasonable quantity of fruit, particularly if immature, hard, sour, and indigestible, will sometimes produce flatulency, colic pains, and diarrhœa: a diarrhœa produced by fruit, however, never degenerates into dysentery; but is, in fact, one of the best preventives both of this and of the other summer and autumnal diseases. Sir J. Pringle observes, that the worst flux began in June, when no fruit was to be obtained by the soldiers; and that the same distemper ceased when the grapes were ripe, and so plentiful in open vineyards, that the men ate what quantity they pleased.* Both Hoffman and Degnerus observed the dysentery to be often epidemic previous to the ripening of fruit; and that in those years when fruit existed in the greatest abundance, it frequently happened that there was no appearance of dysentery. So far was Degnerus from believing in the common prejudice, that, during the prevalence of the epidemic dysentery in 1736, he used fruit as a preventive. And the same author elsewhere informs us, that when the dysentery raged violently, grapes and must were found to be excellent remedies; by the use of which many were cured, after other means had been tried unsuccessfully.† Tralian also informs us of persons who were cured of dysentery by eating plums and grapes.‡ Bontius, speaking of the dysentery, observes, that those fruits which we call mangos, and are commonly pickled, are highly useful in this disease, on account of their acidity and astringency.§ Dr. Curtis, on the subject of dysentery, says, "In the secondary stages we never forbade the use of fruits, especially such as were astringent—as the mango, and guavo or pomegranate; and we always directed a part of the rind to be eaten along with them. They were grateful and useful antiseptics; only much of the pomegranate rind was too strongly astringent to be used indiscriminately." In a note he adds, "The author of those observations was reduced to as low a state, by bilious flux, as ever any European in India. The first turn towards recovery was found at the hospitable tables of

* Diseases of the Army, p. 19, &c.
† N. Degneri, Histor. Med. Dysenter. &c. anno 1736, p. 165.
‡ Tralian, Lib. viii.
§ Bontius' Diseases of India, p. 17.

Vizagapatam, where all the tropical fruits were in plenty. Nature and appetite prompted strongly; and the fullest indulgence was followed not only with impunity, but manifest advantage."* Dr. Rush remarks, that, in bilious diarrhœa, attended with impaired appetite and digestion, he has known cures effected by the exclusive use of vegetables, after purges and the most powerful astringents had been used to no purpose.† The use of fruits in dysentery is highly commended by Zimmerman. He mentions the cases of a child and a man who were recovered from a desperate state of this disease by the use of grapes; which, although for a while they occasioned a tumult in the bowels, and increased the frequency of the evacuations, yet afterwards afforded permanent relief; and, it is worthy of remark, that their operation was not attended with pain, tenesmus, or any other indisposition.‡ He observes, (p. 215,) that, in an epidemic dysentery, he found the greatest benefit from grapes; that, in many slow and obstinate cases of recovery, this fruit being permitted, without the patient's laying aside his other medicines, at first produced a purging, afterwards diminished the stools by degrees, and finally restored him to perfect health. "Those who were getting well," says he, (p. 45,) "I allowed as much boiled fruit as they chose, with lemons and lime-juice." He also informs us, (p. 247,) that Professor Vater saw a malignant dysentery cured with raw prunes. He says, (p. 203,) "With regard to acids in dysentery, the force of truth, even in former times, broke now and then through the clouds of prejudice. Dolæus, a writer of experience, who, according to the error of the age he lived in, ascribed the cause of dysentery to an acid, had, however, sincerity enough to recommend strongly a mixture of lemon-juice and oil; and confesses that, with this medicine, he cured above a hundred people of the dysentery." Agreeable to his observation, acids were of great use in this disease, (p. 61.) As a laxative, he employed cream of tartar and tamarinds, which, he says, not only occasion no pain, but very much diminish it, provided they prove sufficiently purgative. When, after the unsuccessful exhibition of an emetic, the symptoms increased, they suddenly vanished on purging the patient with tamarinds, (p. 54.) Towards the end of the disease, he found rhubarb, exhibited in liberal quantity, of singular service, (p. 61.) Assalini, surgeon to the French army in Egypt, speaking of dysentery, observes, that oranges and pomegranates, which are very plentiful in that country during the season this disorder prevails, were very

* Curtis' Account of the Diseases of India, p. 145.
† Cox's Philad. Med. Mus. vol. iii. p. 26.
‡ Zimmerman on Dysentery, p. 88.

useful; as also a fruit employed by the physicians of Cairo, brought from Sannar, called *hao-bab*, or the *monkey fruit;* the rind of which, powdered and taken in small and frequently repeated doses, as well as the substance adhering to the seeds, which has a sourish-sweet agreeable taste, is extolled as a specific in the dysentery of Egypt. "I myself," says he, "made use of it at Cairo, in several cases, with advantage; and I found in the sweet powder of the hao-bab, an antiseptic as well as an astringent quality."* On the subject of the beneficial effects of fruits in dysentery, Dr. Tissot makes some excellent observations in his valuable book, entitled, *Avis au Peuple.* I should lessen their interest and importance by an abridgment, and shall therefore state his remarks in his own words, as follows: "One pernicious prejudice which still generally prevails is, that fruits are noxious in dysentery, and that they even cause it; and this, perhaps, is an extremely ill grounded one. In truth, bad fruits, and such as have not ripened well in unseasonable years, may really occasion colics, a looseness, though oftener costiveness, and disorders of the nerves and skin, but can never produce an epidemical dysentery or flux. Ripe fruits, of whatever species, and especially summer fruits, are the real preservatives from this disease; the greatest mischief they can occasion, must result from their thinning and washing down the humours, especially the thick glutinous bile; good ripe fruits being the true dissolvents of such, whereby they may, indeed, bring on a purging, but such a one as is rather a guard against dysentery."

"We had a great and extraordinary abundance of fruit in 1759 and 1760, but scarcely any dysenteries. It has even been observed, to be more rare and less dangerous than formerly; and if the fact is certain, it cannot be attributed to any thing more probable than to the very numerous plantations of trees, which have rendered fruit very plenty, cheap, and common. *Whenever* I have seen *dysenteries prevail*, I have made it a rule to *eat less flesh*, and *plenty* of *fruit*. *I have never had the slightest attack of one; and several physicians use* the *same caution with equal success.* I have seen eleven patients in one house, of whom nine were very tractable: *they ate fruit and recovered.* The grandmother, and one child, whom she loved more than the rest, were carried off. She managed the child after her own fashion, with burnt wine, oil, and some spices, *but no fruit;* she treated herself in the very same manner: and they both died. In a country-seat near Berne, in the year 1751, when these fluxes made great havock, and people were seriously

* Assalini on the Plague, &c. p. 113.

cautioned against the use of fruits, out of eleven persons in the family, ten ate plentifully of prunes, and not one of them was seized with it; the poor coachman alone rigidly observed that abstinence from fruit enjoined by his prejudice, and took a terrible dysentery.

"This same distemper had nearly destroyed a Swiss regiment in the south of France. The captains purchased the whole crop of several acres of vineyard; there the sick soldiers were conveyed, and the grapes gathered for such as could not bear being carried into the vineyard; those who were well eating nothing else. After this no more died, nor were any even attacked with the dysentery.

"A clergyman was seized with dysentery, which was not in the least mitigated by any medicines he took. By mere chance he saw some red currants; he longed for them, and ate three pounds of them between seven and nine o'clock in the morning: that very day he became better, and was entirely well on the next.

"I could greatly enlarge the number of such instances, but these may suffice to convince the most incredulous, whom I thought it might be of some importance to convince. Far from forbidding good fruits when dysenteries prevail, the patients should be encouraged to eat them freely: and the directors of the police, instead of prohibiting, ought to see the markets well provided with them. Persons who have carefully informed themselves, do not, in the least, doubt the utility of this advice; experience demonstrates it, and it is founded in reason, as good fruit acts in opposition to all the causes of dysentery."*

Such is the evidence in support of the utility of fruits in dysentery, against the common prejudice.

Besides those which I have mentioned, various other remedies have been employed in this disease. Dr. Davis observes, that, "Of tonics, when admissible, he found nitric acid the best."†

From the high commendations that had been bestowed upon mercury as a remedy in dysentery, I was induced to give it a trial; and, after repeated experiments, I had the disappointment to find, that in no form was it of the least advantage. When given by itself, it manifestly aggravated the symptoms; and when in combination with opium, it diminished the efficacy of the latter.

* Translation of Tissot's *Avis au Peuple*, p. 341, &c.
† Davis on the Walcheren Fever.

CHAPTER V.

Account of a Malignant Pneumonia which prevailed at New-Orleans and Fort St. Philip, in April and May, 1814.

PREVIOUS to the appearance of this disorder, vernal intermittents and remittents had prevailed. These fevers were frequently attended with cough and affection of the chest, which were easily removed by bleeding, blistering, and the usual febrifuge remedies.

About the middle of April, a disease of a new and unknown character in this part of the country, made its appearance among the troops. After the common precursory symptoms of fever, as languor, lassitude, chill, sickness, &c. the patient was seized with pain in the chest, great difficulty of breathing, and a cough. The matter expectorated was tinged with blood, appearing of a yellowish or reddish hue.

The disease thus characterized, was commonly very insidious in its attack; the patient frequently complained of pain in the chest, want of appetite, sickness, and lassitude for some days before the complete symptoms of fever appeared. During this stage he was not so unwell as to be confined to his bed, but, for the most part, was able to walk about. The tongue, even in this early period, was sometimes as smooth as glass in the middle, with a white fur upon the edges. After these precursory symptoms had continued for a longer or shorter time, the lungs, in most instances, seemed to become the principal seat of the disease. Sometimes the disorder was more rapid in its attack—the patient becoming suddenly and violently affected.

In some cases, the pain in the chest was very inconsiderable, and the patient only complained of occasional stitches in his side; in others, a violent pain in the left side was particularly distressing.

The pulse was commonly very small, somewhat contracted, and frequent: sometimes, when the attack was sudden, the pulse was frequent and strong. The skin, in most cases, was dry and constricted, or bedewed with a clammy sweat.

In some, the tongue was moist and covered with a whitish fur, as in inflammatory fever; in others, the sides only exhibited this appearance; whilst the middle and tip were of a crimson red, dry, smooth, and shining, as if varnished.

The stomach was extremely irritable in most instances, rejecting the smallest quantity of medicine that could be exhibited. Sometimes a quantity of dark coloured bile was discharged by vomiting. The patient frequently complained of

thirst, and of a burning sensation in his stomach, which was increased by taking any thing warm. A diarrhœa, with the evacuation of dark coloured bilious matter, was not uncommon. As the disease advanced, the irritability of the stomach diminished, and the patient was able to retain the substances received. This was more particularly the case after hickup had come on; for then the stomach seemed to have lost the power of ejecting its contents.

The eye remained clear, and possessed its sensibility to the last. The intellect was seldom deranged; and the patient generally retained the lively exercise of his reason to the latest moment of existence.

Sometimes, with the difficulty of breathing, which was the most distressing symptom, a great degree of restlessness came on, so that the person kept constantly changing his position. The patients generally lay upon their backs, with their heads raised, to facilitate breathing.

Towards the fatal termination of the disease, the countenance fell; the nose became sharp, the alæ nasi were alternately elevated and depressed, like a pair of bellows; the skin became cold; a clammy sweat appeared first on the forehead, and extended, by degrees, to every part of the body: when the skin was touched, it gave a slippery sensation to the fingers, as if covered with mucilage. At the same time that the body became cold, and a clammy sweat appeared upon the surface, the tongue also became moist; sometimes still retaining its smooth crimson and shining appearance; in others, it was covered with a moist white fur.

A sense of weakness, with little or no pain, attended by hickup, were the symptoms of approaching death. The difficulty of breathing went on increasing, accompanied with a rattling in the throat; and the patient, at length, seemed to die of suffocation.

Immediately after death, purple spots and blotches, of various sizes, appeared upon the surface of the body; more especially upon the trunk, which they nearly covered. The abdomen was sometimes very hard and distended.

Upon dissection, the bowels, from being greatly distended with air, protruded from the smallest opening of the integuments; the cells of the mesentery were also inflated, and gave a crackling noise when pressed with the fingers. The lungs appeared enlarged, as if from congestion of blood; and felt hard and inelastic; when cut into, they presented, in colour and consistence, the appearance of liver: their air-cells were entirely obliterated; they had completely lost their sponginess and elasticity, and seemed to be converted into

a solid parenchymatous substance. Sometimes a quantity of limpid water was found in one or both cavities of the thorax, which had the effect of preventing adhesion on that side, while the other would be firmly united to the pleura and diaphragm. This was particularly the case in one subject. The right side, on which he had been blistered, was united to the pleura so firmly as not to be separated without lacerating the lungs; it was also united to the liver through the intervention of the diaphragm. In another, the left lobe of the lungs was almost entirely destroyed, and seemed like a membranous bag, containing a quantity of fluid dark coloured blood. The upper part of the lungs was least diseased; a small portion of the anterior angle of which was still spongy, elastic, and pervious to the air. In one subject, a considerable quantity of blood was found extravasated into the cavity of the thorax. The pericardium contained a small quantity of fluid. The heart appeared sound, but upon handling it, was found preternaturally tender. The coronary vessels were enlarged and distended with blood. Polypi, as large as the little finger, were found in the ventricles, adhering to the fleshy columnæ, and extending up the aorta and pulmonary arteries, and into the smaller ramifications of the blood-vessels. The portion of the polypus contained within the ventricles, was composed of the coagulable lymph; while the ramifications that extended into the smaller vessels consisted principally of crassamentum. These polypi were surrounded with grumous blood.

The stomach, about the cardia and pylorus, was found considerably inflamed: the upper orifice was most affected, and of a dark red or livid colour on the internal surface. The duodenum also had some inflamed spots upon it. The remaining portion of the alimentary canal seemed free from inflammatory appearances. The intestines were, in some cases, inflated; in others, collapsed, and contained a quantity of bilious matter.

The liver was found enlarged, and of its natural colour, but tender in its texture. The gall-bladder was full of bile, and stained the adjacent parts of a green colour. As the bile ran from the cyst it appeared perfectly black, and was of a viscid consistence; when taken up and diffused over the surface of the knife, it appeared green.

The spleen was of a livid colour externally; it was sometimes enlarged, and felt soft and flaccid: when cut into, it appeared almost black, and was so tender as to be lacerated with the least force applied to it.

The urinary bladder was very much thickened, and contained a flaky matter resembling pus: the upper and back part exhibited traces of previous inflammation.

From these appearances we are led to conclude, that the difficulty of breathing proceeded from the affection of the lungs and the congestion which had taken place in them; that the diminution of expectoration, which occurred in the advanced stage of the disease, was occasioned by their obstructed and impervious condition; that the smallness and hardness of the pulse was owing to the congestion in the lungs, and the consequent obstruction to the circulation; and that the diarrhœa was occasioned by the redundance of bile. The effusions which took place in this disease, appear to have been the effect of torpor and relaxation in the extreme vessels, and of the attenuated condition of the blood.

We are next led to inquire what could be the cause of this disease, which, in many respects, bore a resemblance to the winter spotted fever of the northern states. It could not be owing to the coldness of the weather, for the mild temperature of spring had restored a gentle warmth to the atmosphere. In fact, the weather was frequently uncomfortably warm. As the disease was confined to the soldiers, I am disposed to attribute it to their manner of life, together with a certain condition of the atmosphere; which, of itself, however, was not sufficient to produce disease, but required the concurrence of a strong predisposition. This predisposition I conceive to have been a scorbutic habit of body, produced by the undue use of animal food and spirituous liquors. Several cases of scurvy were observed previous to the appearance of this disease. Is not much of the fatality of the spotted fever in the northern states to be ascribed to the same causes? As far as my observation has extended, I have remarked it to prove particularly fatal to persons addicted to the liberal use of ardent spirits; and the experience of others renders the remark general in its application. Of what incalculable advantage would it have been to mankind had this pernicious poison never been tortured into being? But anathemas are useless. When the vice of sensual indulgence becomes general, it is morally impracticable to effect a reformation.

I know that Dr. Wilson has attempted to prove, that the spotted fever is produced by the intensity and frequency of the changes in the temperature of the weather; and that this disease is only a higher degree of catarrh. But, upon this theory, how will the Doctor account for the prevalence of the disease, after the cold weather has ceased, in the months of May and June? surely the extremes of heat and cold cannot, then, be considered sufficient to account for the effect. May not this disease be owing to a particular condition of the atmosphere independent of its temperature? and may not the greater mor-

tality of the disease, in cold weather, be owing to a greater degree of concentration in the *materia morbi?* We are persuaded that small-pox, chicken-pox, measles, scarlet-fever, influenza, &c. depend upon a certain unknown condition of the atmosphere; and may we not suppose that the greater fatality of the small-pox, in the winter season, is owing to the same cause that increases the malignancy of the spotted-fever? and that cold weather only favours its propagation, as hot weather favours the production of yellow-fever?

With respect to the disease at New-Orleans, when proper remedies were employed at the beginning, the symptoms abated, and the complaint disappeared with a gentle moisture on the surface of the body. But, when the disorder was completely formed, no crisis was observable; and the fever, after continuing for three or four days, generally terminated in the death of the patient.

Notwithstanding the traces of local inflammation, which appeared upon dissection, blood-letting seemed to be of doubtful advantage, or rather injurious after the disease was completely formed; but, if employed at the first intimation of the disease, it was sometimes serviceable in facilitating the cure. If, at this early period, the disease was attended to, and an emetic and cathartic were exhibited, and the patient put upon the sudorific treatment, the symptoms were removed in a few days. When, however, the lungs became violently affected, medical interference seemed to be of little avail. Large blisters applied to the chest, and to different parts of the body, seemed to alleviate the symptoms in a few instances, and, together with the use of diaphoretics, contributed to recovery in some desperate cases.

I was inclined to consider this as a kind of scorbutic pneumonia, and, therefore, at Plaquemine, advised the substitution of a wholesome vegetable diet: which, by the aid and liberality of the officers, soon put a stop to the disease.

Dr. Mann, in his *Medical Sketches*, takes notice of a disease which occurred in the army upon the northern frontier, bearing a resemblance to the one under consideration, with a similar liver-like appearance of the lungs. The peripneumonia notha described by Mr. John Bell, in his System of Anatomy, also very much resembles the one at New-Orleans, both in the symptoms and the appearance of the lungs. "In the peripneumonia notha, (as he terms it,) there is not merely an inflammation of the pleura, as the name expresses, but of the lungs themselves; and it is not from inflammation, pain, fever, or acute suffering that they die, but because the lungs are entirely crammed with blood; the heart can no longer move; they are not sensible of their dangerous state, but are suffocated in a

moment, and die without a groan. It seems more frequent in other countries than in this, (i. e. Great-Britain,) although no country is exempted. When this disease comes upon a place, it comes with all the frequency and destruction of an epidemic disease; and the sudden and unexpected deaths are terrible."

"In this disease," says Mr. Bell, "the pulse is weak; the cough slight; the difficulty of breathing more anxious than painful, arising from inability to inhale the air; the face is sunk in the features, and flushed, or rather of a lurid colour, except when cadaverous, pale, and sallow; the suffocation is sudden; *the lungs have a liver-like solid consistence;* they have no longer the cellular appearance of lungs, for their bronchiæ are crammed with blood; their common cellular texture is also full of exuded blood; they are dense, solid, heavy, black, and they sink in water like the lungs of a fœtus. The heart is so curbed in its action, that it gives but a small, feeble, trembling pulse; and, even in a few days, the heart is wonderfully dilated and enlarged, and filled with fluid grumous blood."* Dr. Davis also mentions a combination of pneumonia with the primary fever, forming conjunctly a disease almost precisely the same, in difficulty of breathing, purple spots upon the body, and liver-like lungs.† Morgagni notices a pneumonic fever with a similar condition of the pulmonary organs. Hoffman likewise describes a disease very analogous in symptoms and appearances on dissection.‡ Dr. Chisholm mentions a similar malady. These authors also agree in the representation of the unusual fatality of the disorder.

I before observed that this disease was analogous to the spotted fever which has proved so destructive in the northern states; and concerning the treatment of which, physicians are so much divided in opinion. Those, however, who have been most conversant and successful in the disease, agree as to the pernicious influence of bleeding after the symptoms have formally declared themselves. What, indeed, but death could be expected from the operation, in a disease marked with the greatest prostration of strength, and torpor of the system?

The most successful method of treating this disorder has been the sweating regimen. I had seen many cases, in West-Chester County, successfully treated in this manner; and knew of many others that terminated fatally by bleeding, and the mercurial practice; and yet, blood-letting and the employment of mercury are still insisted upon, by some, as the only refuges of hope and safety. Pursue not their steps. Like Siren

* Bell's Anatomy, vol. ii. p. 221.
† Davis on the Fever of Walcheren.
‡ Hoffman, de Feb. Pulmon. Obs. 1.

notes, they lead unto destruction. Avoid their practice, as you would shun the threatening danger of Scylla and Charybdis. Of those who recommend the free use of bleeding and mercury in that typhous and scorbutic state of the system, attended with prostration of strength and torpor, a weak pulse, and petechial blotches; of such I would just observe, it is well for their reputation, that the silence of those who have fallen a sacrifice to their misguided and preposterous conduct, conceals the dreadful ravages of their practice from the knowledge of a censorious world: but, could the tomb-stones of those unhappy victims, and the eventful history of their last calamity, speak for them, posterity might listen with instruction to the mournful tale!

CHAPTER VI.

Miscellaneous Observations.

BESIDES those diseases which have hitherto occupied our attention, there were other morbid affections to which the soldiers were especially liable; viz. general dropsies; œdematous and inflammatory affections of the feet and legs; diarrhœa; jaundice; enlargment of the liver and spleen; inflammation and ulceration of the liver; eruptive disorders, as the itch, and boils; ulcers; white swelling; rheumatism; colic; catarrh; asthma; pneumonia; consumption; ophthalmia, and temporary blindness; and epilepsy.

Dropsy was a rare disease, and seldom affected any others than old debilitated persons, who had previously been reduced by fevers, and in whom obstructions and enlargment of the viscera contributed to its production.

The *œdematous affections of the feet and legs* were generally of a passive nature, unattended with pain or inflammation. These affections frequently took place upon the cessation of diarrhœa or dysentery; or succeeded a protracted fever, by which the patient had been much debilitated. These complaints were generally removed without any difficulty, by cold affusion on the part, two or three times a day; or by the stimulating wash of the mineral solution; and when there existed much debility, by the internal use of bark and vegetable bitters.

In other instances, these swellings were attended with a considerable degree of pain in the feet and ankles: in many cases the patients were affected with violent pain in the feet and toes; which continued to increase as the swelling of the legs diminished; in some instances, it would affect the knee, ankle, and the whole of the foot at the same time; and, as the inflammation abated, the pain would first depart from the higher joints, while the toes were the last to suffer, and often remained stiff for a considerable time. At the commencement of this affection, the patient would complain of a sense of burning, numbness, or want of feeling. As the inflammation subsided, they compared their sensation to that produced by the pricking of pins. These symptoms were sometimes the consequence of fevers; though the latter were not in every instance necessary to their production; for, in many cases, they appeared independent of any preceding disease; nor did œdematous affections always accompany them. These complaints were cured by the use of cathartics and the cold affusion.

New recruits and persons unaccustomed to the climate are particularly liable to diarrhœa. The water, which is bad, has this effect to a greater or less degree: even the water of the Missisippi, which is the best, is not entirely free from this purgative quality; it becomes more pure and salubrious, however, by allowing it to stand for some hours in suitable vessels, so that the mud may subside: it is then as pleasant as river water in general. The soldiers, especially, are disposed to diarrhœa, from the nature of their diet, which consists principally of animal food; a considerable portion of it being pork, and that in a rancid condition. By enjoining abstinence from animal food, and the substitution of a vegetable diet, when this is practicable, the disease yields without any difficulty. Should it prove more obstinate, a cathartic is necessary, followed by the use of anodynes, astringents, and tonics.

Jaundice sometimes happened as a consequence of fever, sometimes as an idiopathic disease produced by a redundance of bile. It was cured by emetics, cathartics, nitrous acid, and vegetable bitters in the form of tincture, rendered more cordial by the addition of a little spirits of lavender and peppermint. I found the *elix. proprietat.* an excellent remedy in this complaint, by removing the flatulence and pains of the stomach and bowels, keeping them regular, and acting as a tonic at the same time.

The enlargment of the liver and spleen, the latter of which was very common, was frequently difficult and obstinate of cure. The most effectual remedy I could find was the protracted use of cathartics, exhibited every other day, and keeping the body well protected against the weather by the wearing of flannel and warm clothing. When the affection of the liver proceeded to suppuration, as it sometimes did, it was necessary to open the abscess, to support the patient's strength with tonics and bitters, and to wash the ulcer with stimulating detergent injections. This complaint, though not fatal, was sometimes difficult to cure.

Ulcers on the legs were very common, and affected those mostly who were addicted to the intemperate potation of whisky. A prohibition of this article, and the application of proper dressings, speedily completed the cure. Though the affection of ulcers was one of the most common complaints, they were not malignant, like those which we read of as prevailing on ship-board, and in the East and West-Indies, which end in mortification, and destroy great numbers of *his majesty's subjects.*

White swelling, as a consequence of rheumatism, occurred in some old, lean, and withered habits. I found the best effect

from enveloping the whole joint in a warm stimulating gum-plaster, to which was added camphor, opium, and a small quantity of tart. emet. For rheumatism of the passive kind, I prescribed tinct. guaiac. and frictions with volatile liniment. Acute rheumatism did not often occur; when it did, the usual antiphlogistics were necessary.

Colic was very frequent, particularly at night in cool weather. It was removed by the exhibition of sixty drops of laudanum and spirit of ammonia each, with a few drops of the oil of peppermint, repeating and increasing the dose according to the violence of the symptoms, or should they not yield in the course of five minutes. I never found the least difficulty in subduing the most violent symptoms. I have sometimes given laudanum to the extent of seven or eight hundred drops, and even more, in less than one hour. In colic I have found a good dose of laudanum operate in five minutes, or less; and rarely knew it necessary to exhibit it more than two or three times. A cathartic should be afterwards given to remove the offending cause.

Catarrh was very common in the winter season. I frequently found it proper to have recourse to bleeding in small quantity, following it by an emetic or cathartic, mucilaginous expectorants, and diluents.

Asthma sometimes occurred, though it was not a frequent disease. I have seen the best effects from smoking the dried leaves of the *datura stramonium* at night, and during the paroxysms. The leaves are preferable to any other part of the plant, as being stronger and more sensible in their operation.

Pneumonia was frequent during the cold weather. It required copious bleeding, blistering, and the usual antiphlogistic remedies.

Consumption, though not common in Louisiana, was sometimes observed among the soldiers, in whom it was occasioned by exposure. I knew it induced in one man by the lodgment of the wadding of a gun in his chest. A temporary recovery took place; but fever, cough, hectic, and purulent expectoration came on, and soon put an end to a painful existence.

Ophthalmia was a frequent occurrence at Mobile Point, (Fort Boyer,) owing to the intense reflection of light and heat from the white burning sand, which every where dazzles and fatigues the eye. This inflammation of the eyes, unless early relieved, sometimes terminated in blindness: from the latter affection, however, the patient generally recovered by proper treatment. Should the inflammation be considerable, bleeding is required, which should be followed by a cathartic, and emollient applications to the eyes. In most cases, however, at the

commencement of the complaint, the simple application of lead-water was sufficient to effect a cure.

Epilepsy is a disease which is not uncommon among soldiers; but in most cases it is only the effect of the intemperate use of spirituous liquors; the retrenchment of which, and the exhibition of a cathartic, followed by the subsequent use of tonics, will generally prevent it for a time, until again brought on by a relapse into former habits.

CHAPTER VII.

Observations on the Operation and Effects of Spirituous Liquors.

THOUGH the practice of drinking ardent spirits to excess is not peculiar to Louisiana, yet, as it is here more prevalent and pernicious than in any other part of the United States, and being, at the same time, the prolific parent of a numerous progeny of diseases, there can be no impropriety in associating the vice with its offspring and companions.

When vice prevails, and intemperance is sweeping our countrymen to their graves with the besom of destruction, the alarm should be sounded, repeated, and re-echoed, that others may take warning, and avoid the fatal danger.

A brief investigation of the more striking operations and effects of spirituous liquors is all that will here be attempted. I have already noticed their influence as a remote cause of the diseases which are treated of in the preceding pages.

Their general operation may be divided into two kinds: 1st. On the nervous system; 2d. On the vascular system. Their operation upon each of these may also be divided into two varieties: 1st. That of excitement; 2d. That of collapse.

In speaking of their operation under these different heads, we will consider the relative force and phenomena of their action upon either system.

1. The primary and immediate operation of distilled spirits is upon the nervous system; as is shown by the excitement therein produced, and by their giving rise to agreeable sensations. This excitement of the nervous energy increases the strength and force of voluntary action. A certain degree of excitement above the natural standard gives rise to pleasurable feelings, gaiety of spirits, loquacity, sprightliness, wit, and humour. When the potation has been sufficient to produce a higher degree of excitement, it is probable that the sensation becomes painful; resembling herein the operation of other stimuli, caloric, for instance; which, when of a certain temperature, feels agreeable; but, beyond this, its excessive operation on the body becomes painful. It is in the latter state that the inebriate becomes quarrelsome, turbulent, and outrageous.

This state of excitement is of longer or shorter duration, according to its violence, depending upon the quantity of stimulus that has been received, or according to the quantity of nervous energy to be expended. As the vis nervosa becomes exhausted, from the preternatural violence of the excitement, the faculties of the senses and voluntary motion are impaired;

the voice becomes tremulous and indistinct, vision obscured, and hearing obtuse; the muscles of voluntary motion are relaxed, and the person can no longer direct the movements of the body with his former precision and accuracy, in consequence of the remaining energy not being sufficient to carry into effect the commands of volition. At length the nervous energy is so much exhausted, that the inebriate is rendered insensible, and either falls or lays himself down in a state of lethargic stupor; in which condition he continues until the *vis nervosa* is in some degree restored, by the secernment of the inebriating liquor, the repose of the senses, and functions of voluntary motion. Besides the immediate operation on the nervous system, the state of excitement, and collapse of the body generally, is, in a considerable degree, owing to their secondary and subsequent operation on the vascular system.

The stimulating liquor passes the pylorus into the duodenum, is taken up by the lacteals, and conveyed into the mass of circulating fluids; upon which the heart and arteries are excited into preternatural action, and contracting with greater frequency and force, propel the blood into the minutest ramifications of the sanguiferous system; the face is flushed and tumid; the eyes red and glaring; a febrile diathesis prevails in the body, and every vessel and gland is stimulated and excited to excess. This preternatural action of the vascular concurring with the undue excitement of the nervous system, produces the height of the paroxysm of intoxication. The ignoble coward, who was wont to shrink back, shudder, and grow pale, from the voice of indignation and the sight of danger, suddenly loses the base-born disposition which nature gave him, and feels his heart dilate, and his bosom expand, with all the animation of intrepid confidence and presumptuous bravery. The cold elements of phlegm and snow-broth which curdled in his veins and congealed around his heart, are heated, rarefied, and put in motion, by the quickening influence of the potent liquor. The fuming vapour mounts to the head, and dissipates every idea of care, anxiety, and fear. The whole man is on fire, and every nerve, fibre, and vessel is roused and excited into preternatural animation. In this high state of excitement of the nervous and vascular systems, the person is apt to be affected with convulsions, hysteria, or apoplexy.

As the nervous system is the first to be affected, so, likewise, is it the soonest exhausted of its energy: and whilst, from this nervous exhaustion, the patient is sinking into a state of lethargy, the heart and arteries still continue to be preternaturally excited. A febrile commotion prevails: strange phantoms, imaginary forms, and fearful apparitions, haunt the disturbed

slumbers of the drunkard: appalled fancy surrounds him with impending dangers, and agonizing *incubus* weighs upon his heart.

After the paroxysm has subsided, a general debility and tremor enervate the body and agitate the limbs: he is sick, dispirited, and oppressed; and is not unfrequently affected with head-ache and palpitation of the heart.

The effects of intoxication upon the animal functions, are well represented by Dr. Armstrong, in the following poetical description:

> "Struck by the powerful charm, the gloom dissolves
> In empty air; *Elyseum* opens round.
> A *pleasing phrenzy* buoys the lighten'd soul,
> And *sanguine hopes* dispel your fleeting care;
> And what are difficult, and what was dire,
> Yield to your prowess and superior stars:
> The happiest you, of all that e'er were mad,
> Or are, or shall be, could this folly last.
> But *soon your heaven is gone;* a *heavier gloom*
> Shuts o'er your head: and, as the thundering stream,
> Swoln o'er its banks with sudden mountain rain,
> Sinks from its tumult to a silent brook;
> So, when the *frantic raptures* in your breast
> Subside, you *languish into mortal man;*
> You sleep; and waking, find yourself *undone.*
> For, prodigal of life, in one rash night
> You lavish more than might support three days.
> A heavy morning comes; your cares return
> With tenfold rage."——

Besides this disorder of the body generally, there are certain parts which are more particularly subject to the injurious effects of the violent commotion that has been excited in the system. These are, 1st. The parts to which the spirituous liquors are more immediately applied—as the mouth, fauces, œsophagus, and stomach; 2dly. The parts whereof the vessels are more delicate in their structure, and more feeble in their operation—as in the liver, spleen, pancreas, &c. 3dly. Those which, from their greater exposure to the vicissitudes of temperature, and from their pendent position, are more liable to become disordered in their functions—as in the lower extremities.

The operation of distilled spirits upon the mouth, is to diminish the sensibility of the organ of taste; resembling, in this, the effect of tobacco. Hence we see the habit of drinking and the use of tobacco frequently established in the same person.

Their operation upon the œsophagus is probably the occasion of those strictures of this passage, which, when they happen,

commonly prove fatal, by consigning the patient to involuntary starvation.

Upon the stomach their operation is various; sometimes giving rise to that most distressing and loathsome disease, cancer of the pylorus; besides a long train of dyspeptic complaints, the constant companions of the intemperate. Such is their debilitating operation in producing atony in this important organ, the condition of which so sympathetically affects every other part of the body. Besides which, they lay the foundation, and give occasion to inflammation of the stomach.

2. Under the second head of this division we shall consider the parts, the vessels of which may be supposed to be more delicate in their structure, and more feeble in their operation, viz. those of the liver, spleen, pancreas, &c.

In the soft and spongy texture of the parenchymatous substance of the liver and spleen, the vessels, from the delicacy of their structure in such situations, and from their mazy convolutions, are liable to become enlarged and distended upon every preternatural increase in the action of the sanguiferous system, whereby debility and derangement of their functions ultimately ensue. Without, therefore, supposing any thing peculiar in the operation of spirituous liquors, by which they may be particularly disposed to affect the biliary organs, the enlargment to which these parts are liable from the use of those liquors may be accounted for, on the supposition, that the structure of these organs is not able to resist the violent impulse given to the blood, during the febrile paroxysm of intoxication: but if, at the same time, we conclude that the liver and spleen are affected in a degree proportionate to the quantity of biliary matter existing in the circulating fluids, and that spirituous liquors have a tendency to produce such accumulation, we shall perceive that, in this way, those liquors have a secondary influence, besides that of producing a temporary excitement in the sanguiferous system. In this manner, from frequent congestions, and the inordinate stimulus applied to them, these glandular organs, at length, become preternaturally enlarged and scirrhous in their substance, and debilitated and paralyzed in their action. Commonly but one of them is considerably affected at the same time, the congestion which takes place in one, relieving or preventing that of the other. If the temporary effects of excitement of the heart and arteries were alone sufficient to produce disease in the biliary organs, it might be supposed that the brain, which is more delicate in its structure, would be equally as liable to morbid affections as the liver and spleen. But, although these viscera are the principal sufferers, they are by no means the only parts that experience the pernicious operation

of spirituous liquors. There is not a gland, viscus, or vessel of the body that is not injured in a greater or less degree, from their protracted and habitual use. Hence, by their debilitating and *atonising* influence upon the body generally and particularly, they lay the foundation for gastritis, phrenitis, ophthalmia, pleuritis, splenitis, hepatitis, nephritis, and diabetes. At the same time they produce a state of torpor and paralysis of the lacteal and lymphatic systems; the mesenteric glands become torpid, inflamed, obstructed, and proceed to suppuration: hence the chyle is prevented from passing into the circulation, and atrophia and tabes follow. From the enlargement and induration of the liver and spleen, and from the general debilitated state of the sanguiferous and lymphatic systems, dropsy is apt to ensue; whilst the abundant secretion of bile gives rise to jaundice, biliary concretions, colic, and cholera. Their enervating influence occasions palpitation, syncope, tetanus, palsy, impotency, premature decay, decrepitude, and old age. Their operation on the brain and nervous system produces melancholy, mania, and fatuity. They also give occasion to inflammation and obstruction in the lymphatics and conglobate glands of the lungs, and impair the function of these vital organs.

I lately* assisted at the dissection of a subject who died a victim to the intemperate use of spirituous liquors. The spleen was preternaturally enlarged and hardened, and *the pancreas and mesenteric glands in a state of suppuration.* For a long time previous to his death, his stomach had been extremely irritable, so as to reject almost every thing that was taken into it; yet, upon dissection, no traces of inflammation appeared in this organ: which shows the relation that exists between debility and irritability.

3. We are to consider the operation of spirituous liquors upon the parts, which, from the greater exposure to vicissitudes of temperature, and from their depending position, are thereby more liable to be disordered in their function, viz. those of the feet and legs. As the veins of the lower extremities, in returning the circulating fluids to the heart, have to oppose the incumbent column of blood, this is, therefore, liable to be impeded in its circulation through them; which effect may be still further increased by accidental debility induced from exposure to cold. We know that the extremities are particularly and unequally affected in a general exposure of the body to a reduced temperature, partly from the lesser size and distance of these parts from the centre of the body, where heat is generated; on which account they are incapable of participating in a

* Written at Mobile, Nov. 1813.

community of temperature with the rest of the system, and also from the languor of the circulation in the extremities, produced by their depending position. So, in a state of general and chronic debility, the lower extremities are particularly and unequally affected. This is observable in the advanced stage of pulmonary consumption, when œdematous swellings are produced in the feet and legs, in the same manner that they take place in those of drunkards. But there is another, and a worse effect produced by the excessive potation of spirituous liquors, of which the debility thereby induced affords the predisposition, which is ulcers on the legs. The relation existing between fever and dysentery has been already noticed; and it has been also remarked, that a similar state of the fluids was the efficient cause of each; and the tendency of ardent spirits to produce such a state, has been also noticed. It is as well by the vitiation of the fluids, induced by the habitual use of spirituous liquors, as by the chronic debility which they occasion, that they affect the legs with ulcerations. It is this same condition of the body and vitiation of the blood which produce ulcers, that also give occasion to carbuncles and other eruptive disorders incidental to drunkards. There can be no doubt that the blood of these animals abounds with a large quantity of hydrogen, (one of the constituents of alkali,) from the fœtor of the breath. It even appears that hydrogen is evolved from the blood of drunkards in a disengaged state, and in such a degree of purity as sometimes to take fire upon the approach of a candle to their breath. The quantity of hydrogen existing in the blood occasions an abundant secretion of black and viscid bile; giving rise to violent vomitings and purgings of this offending fluid; which commotions are sometimes preceded by head-ache, delirium, and other symptoms of febrile affection. The relaxation of the solids, and the dissolved state of the fluids, give occasion to hæmorrhages from the liver, intestines, &c.

I have no hesitation in saying, that spirituous liquors are not naturally of any service to a man in health; their use establishes a habit which unpampered nature never requires; and which, when established, is the fruitful source of wretchedness and disease. Their use impairs the vigour of the body; the stomach is rendered preternaturally weak and irritable; and solid animal food becomes ungrateful and disgusting to the taste and the digestive organs. Hence the man accustomed to the intemperate potation of distilled spirits, finds his stomach, in the morning, sick and nauseated, rejecting the slime and mucus that has collected in it, and sometimes discharging blood itself in considerable quantity; he is unable to raise his head from

the pillow, and calls for a stimulating dose of brandy, seasoned with peppermint, to settle his stomach and quiet its heavings. He is still unable to receive any food, and breakfast is either omitted or sparingly tasted; and it is not till he has taken the second or third dose that he begins to feel himself a man.

The excessive use of spirituous liquors, from the quantity of hydrogen which enters into their composition, renders the adipous substance of the body preternaturally thin and liquid, and the whole body more inflammable; and hence the spontaneous human combustions that sometimes happen.

Such is their physical operation on the constitution; but when we turn to view their moral effects upon individuals, families, and society, what a melancholy and lamentable spectacle do we there behold! The personal wretchedness and brutality of the drunkard; a disconsolate wife, groaning with the pangs of mortification and distress; a family of miserable children, forlorn and comfortless; a house and property loaded with mortgages, and going to destruction, through the devouring vortex of the drunkard's throat. Virtue blushes for the depravity of human nature; and pity, participating in the feelings of suffering innocence, sheds the sympathising tear of sorrow.

My conclusion is, that ardent spirits is the greatest evil that was ever invented to afflict mankind. And the most pernicious act of ill-judged kindness that ever gratified man's vitiated taste is, the daily allowance of this destructive liquor to the soldier. Its retrenchment would produce a greater reformation in the morals, discipline, and health of the army, than any other means is capable of effecting. Cider is a wholesome liquor, which our country produces in abundance, and might be substituted with the greatest benefit. Next to this, molasses deserves the highest consideration. If, in the place of a gill of whisky, so much molasses was substituted, instead of swallowing the pabulum of disease, the soldier would receive one of the best preservatives of health. This he might either mix with water for drink, or use with his dry bread, for the purpose of rendering it more palatable. I have always found soldiers very fond of molasses; and the advantages that would result from its substitution are incalculable. It is not too late to effect a reformation; but the longer the evil is suffered to continue, the more difficult will be the application of the remedy. In this very article, however trifling, *a priori*, it may appear, immense advantages are involved, which need but the test of experiment to afford satisfactory demonstration to all. Were this mere speculation, instead of serious consideration, it would be entitled to ridicule; but being conscious that I speak the words of sober truth, I cannot be too strenuous in enforcing their importance.

It is a fact confirmed by universal experience, that the health of the men has always been best when there was the greatest scarcity, or total absence, of spirituous liquors.

Vinegar and water is a wholesome beverage. With such a drink the Roman soldier, though loaded with sixty pounds of armour, was enabled to endure fatiguing marches over desert regions, and inhospitable wastes of burning sand. But remember, it was only in the days of temperance, when correct habits and virtuous morals ensured vigour of constitution, alacrity of mind, patience, resolution, and undaunted bravery, that the prowess of the Roman arms was victorious and triumphant.

As to the cure of this disease I shall say but little. In the first place, because it is easily prevented; and, in the second, because it is the voluntary indulgence of a darling vice, which, when established, is deep rooted, and its removal hazardous. So firmly is this vicious habit associated with the diseased constitution of the inebriate, that, by forcibly eradicating it, we often break the feeble thread of existence. Something, however, may be done during the paroxysm of intoxication; and, in this state, the best remedy I have found, is cold bathing by affusion. Ten, fifteen, or twenty buckets of cold water, poured, from a little height, upon the naked head and shoulders of the drunken man, has a wonderful effect in cooling the body and restoring the senses. In numerous trials I never knew any injury result from this practice. To use a common expression, there is no danger of the patient's *taking cold:* he is weather and water proof.

In bringing the present performance to a close, I take this opportunity of tendering my most respectful acknowledgments to such individuals as I consider myself under particular obligations to, either on the grounds of friendship or of justice.

Every consideration induces me to make mention of Dr. Felix Pascalis with particular sentiments of esteem. To the merit of unassuming worth we may offer the voluntary tribute of deserving praise, without disgusting the delicacy of feeling, by the nauseating profusion of fictitious compliments, and fulsome adulation. His character, as a promoter of medical science, is well known to the literary world; whilst in the circle of domestic life, unaffected urbanity, candour, benevolence, the generous sincerity of friendship, and private worth, are added to the scientific accomplishments of the philosopher and scholar. Much is the world, and particularly our country, indebted to this gentleman for the cultivation and diffusion

of medical information; which, through him, together with his learned colleagues, has rescued from the oblivion which had otherwise buried them, many of the most valuable facts and lessons of instruction that have enriched the science of medicine. To these gentlemen, as an expression of friendship and respect, my best wishes are offered for the success of their valuable work, the Repository and store-house of useful knowledge: which has witnessed the birth, maturity, and decline, of so many ephemeral generations of periodical publications; and still survives, as a towering monument, overlooking the scene of surrounding dissolution. May reward always be the handmaid and inseparable attendant of merit; crowning the votaries of science, the sons of genius, and the men of worth, with prosperity, happiness, and honour!

I should do injustice to the dictates of duty and of friendship, were I to omit making mention of Professor Hamersley; a gentleman whose literary attainments, and generous exertions for the public good, are rendered more meritorious and amiable by the virtues of incorruptible integrity, probity, and honour. Acts of friendship, and the professional respect which I have received from him in our consulting practice, require this tribute of public acknowledgment, and my unreserved expression of esteem.

I likewise take this opportunity to express my acknowledgments for the civilities I have received from Dr. Kerr, Hospital Surgeon at New-Orleans; as also for the information for which I am indebted to the friendship of Dr. Goodlett, formerly Surgeon to the Seventh Regiment of Infantry: Mr. Darby likewise has my respectful thanks; whilst the officers of the Second Regiment, from our long habits of intimacy, and community of dangers and privations, I shall always remember with sentiments of friendship and regard. Nor would I be unmindful of the Professors of our growing school of medical science, the College of Physicians and Surgeons of the University of the State of New-York; which, from its promising greatness, I trust one day to see without a rival, either in the eastern or the western world. Let but the zeal of laudable ambition awaken the slumbering genius of the free-born sons of Columbia, and we shall soon see them pre-eminent over every other portion of the human race.

POSTSCRIPT.

THE writer of these pages has in contemplation the publication of a full and complete System of the Theory and Practice of Physic, in four volumes octavo. Having for some years turned his attention to this subject, he has already collected a principal part of the materials for the purpose.

This work will embrace all the valuable acquisitions which the healing art has received from the latest discoveries and improvements in physics and medical science. From an attentive consideration of the diseases of the American continent, this system will be more especially adapted to the practice of physic in the United States. Such a work has long been a desideratum in America, where physicians have no systematic guides but European authors; who, at best, are but imperfectly acquainted with the peculiarity, nature, and causes of the various diseases incidental to our extensive country.

It may with truth be said, that, in general, we are too distrustful of our own abilities and resources. Deriving much of our instruction from European learning, by imperceptible degrees we early acquire a predilection and prejudice for the mother country, and think that no literary performance can be really great, which does not owe its generation to the propitious fostering of the transatlantic clime. We should recollect, however, that fruit is more excellent and perfect, from transplantation to a different soil, and from being engrafted on a foreign stock. Many of us have too long been led astray by the delusion of Britannic greatness. Nature is there exhibited but on a slender scale. To use an observation of the learned Dr. Mitchill, if we wish to see any thing great, new, wonderful, excellent, or strange, we must turn our backs upon the European world, and direct our attention to the contemplation of our own country. It is here that the physician, especially, should seek for information. It is here that he will find a greater variety of disorders, with their characteristic features more strongly marked, than in any other country. Nothing but an unpardonable distrust of ourselves, and an inglorious deference for others, have prevented us from duly appreciating our own superior advantages. Though it is difficult to divest ourselves of prejudice, or to deviate from the beaten path which habit makes familiar, truth tells us, in spite of our forbearance, that there is greater originality of genius, a more ample scope for observation, and a more extensive and better field for improvement in the United States, than in any

other portion of the world. If young physicians, instead of crossing the Atlantic, to complete their education in the European schools, would but take the same pains to visit, with an attentive eye, the different parts of our extensive Republic, I am inclined to think, they would be much better qualified for the exercise of their profession. What chance have they, in the metropolis of France or Great-Britain, of forming an acquaintance with the diseases of *our country*, which they intend to make the future scene of their professional career? There is a propriety in European physicians visiting the United States for the acquisition of knowledge on the subject of diseases; where they may gain much information, from the instructions of judicious practitioners, and from their own personal observation: but I am inclined to think, that our countrymen lose more than they acquire by crossing to the eastern side of the Atlantic. It is in those schools that they are in danger of imbibing those prejudices which warp their judgment, and blind their understanding; whilst, at the same time, they misapply the time and opportunity of becoming practically acquainted with the diseases of their own country.

Though the deficiency of vernacular systems of medical science is, in some degree, supplied by notes and commentaries in the American editions of European productions, still, no labour of this kind, however useful in itself, can compensate for the want of an original work. A judicious author is always the best commentator on his own writings; and, as it is desireable to have a literary work in a connected form, with a just arrangement, proportion, and distribution of its several parts, combining unity of design with utility in the execution, it must be obvious that such a performance, when of moderate extent, can be best executed by a single individual.

It is not my intention to undervalue the popular work of Dr. Thomas. He has given us a volume of practical information, in many instances, of valuable importance: but it wants the connecting medium of theoretical argument, just inferences, and systematic principles. The Doctor, for the most part, has no opinion of his own; and, after stating those of others, leaves us in uncertainty and conjecture. Besides, in relation to the fevers and other diseases of the United States, in a practical point of view, he is also greatly defective and erroneous. There are probably but few who have not realized the truth of this position, in the application of his prescriptions to the test of experience. Dr. Wilson, also, who has written a copious treatise on *Febrile Diseases*, appears to have been but imperfectly acquainted with the subject. I may be accused of rashness, in the liberty I have taken to call in question the

merit and utility of such respected authors: but error should have no sanctity to clothe and protect it with the surreptitious panoply of perfection: and the writer has the satisfaction to know, that he is not alone in the observations which he has taken the freedom to express.

The work announced to the public, the author presumes, will contain, at least, as much interesting information and practical instruction, as have, at any time, been comprised in a performance of equal extent. That it may contribute to the practical and scientific improvement of medical knowledge, particularly in our own country, no pains will be spared in the execution.

THE END.

X

Extra mark

63536 — mxd —

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