# An address delivered before the Medical Society of North Carolina: at its second annual meeting in Raleigh, May 1851 / by Charles E. Johnson.

### **Contributors**

Johnson, Charles E. 1812-1876. Medical Society of the State of North Carolina. National Library of Medicine (U.S.)

#### **Publication/Creation**

Raleigh: Printed at the office of the Southern weekly post, 1854.

### **Persistent URL**

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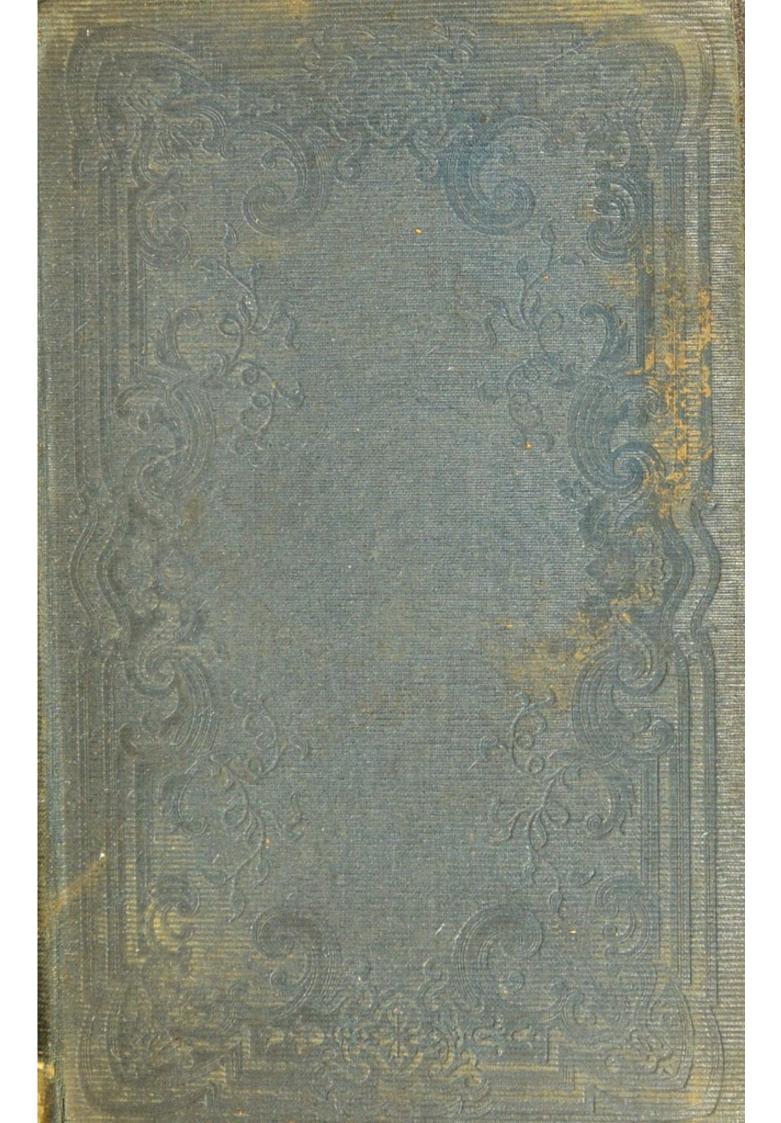
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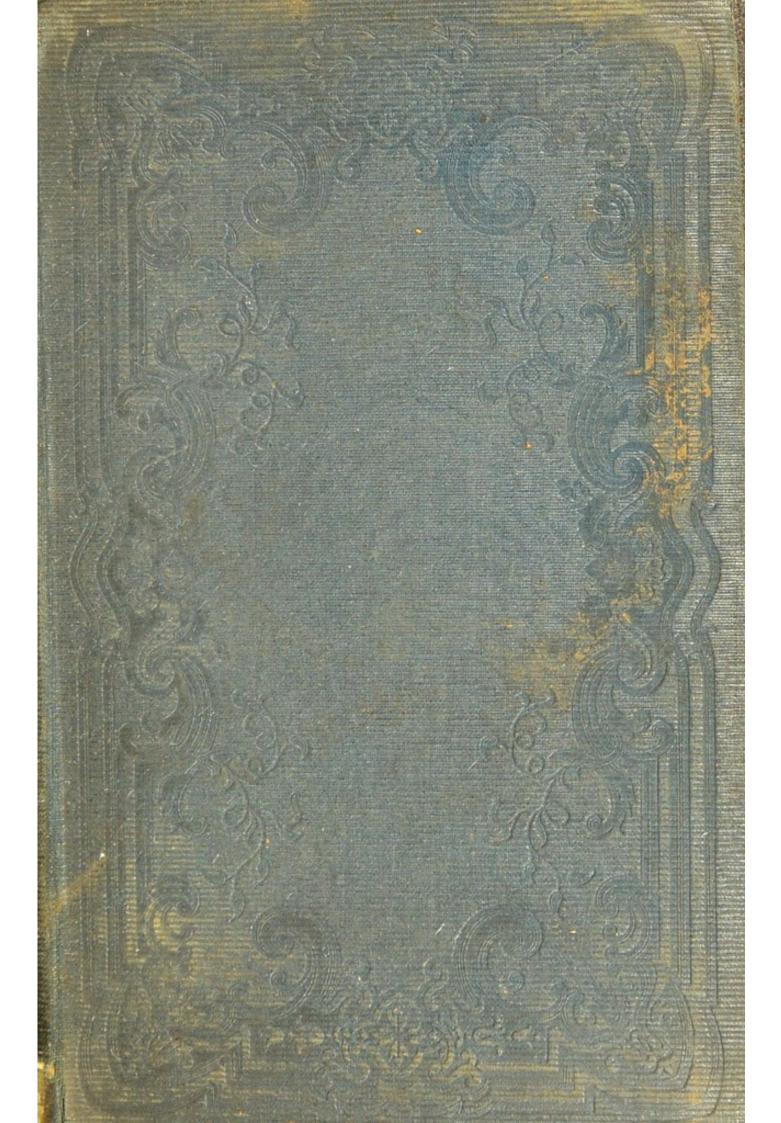
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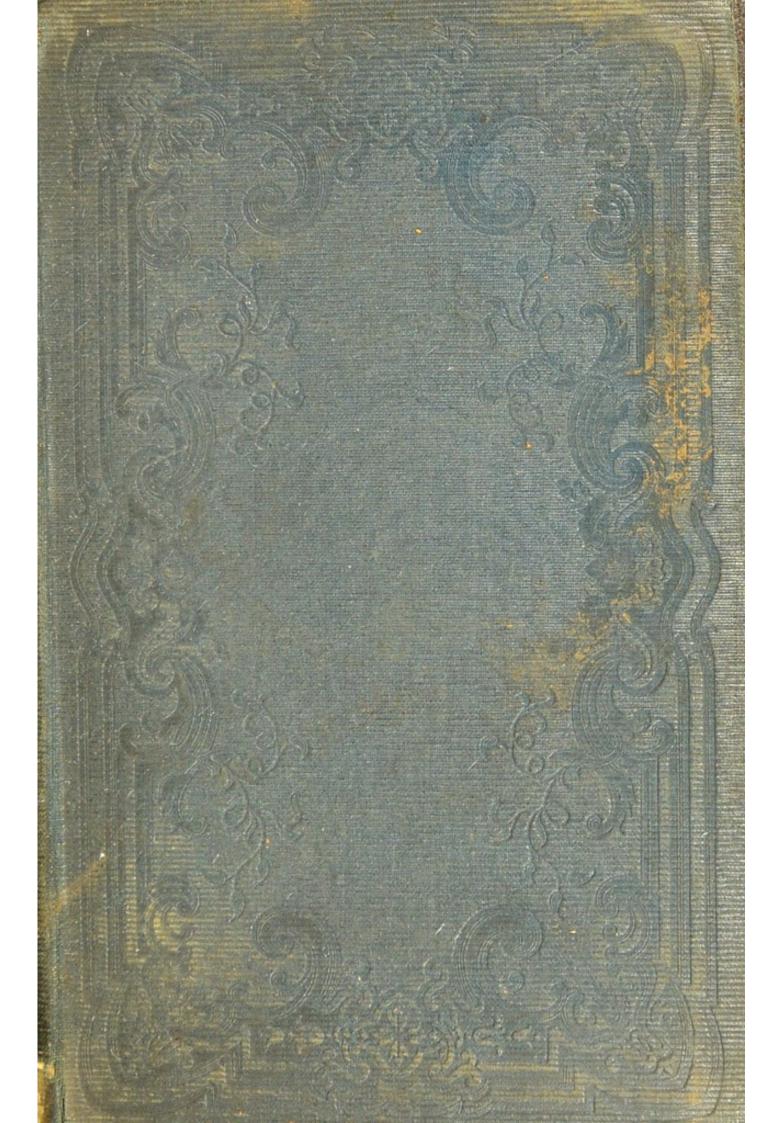
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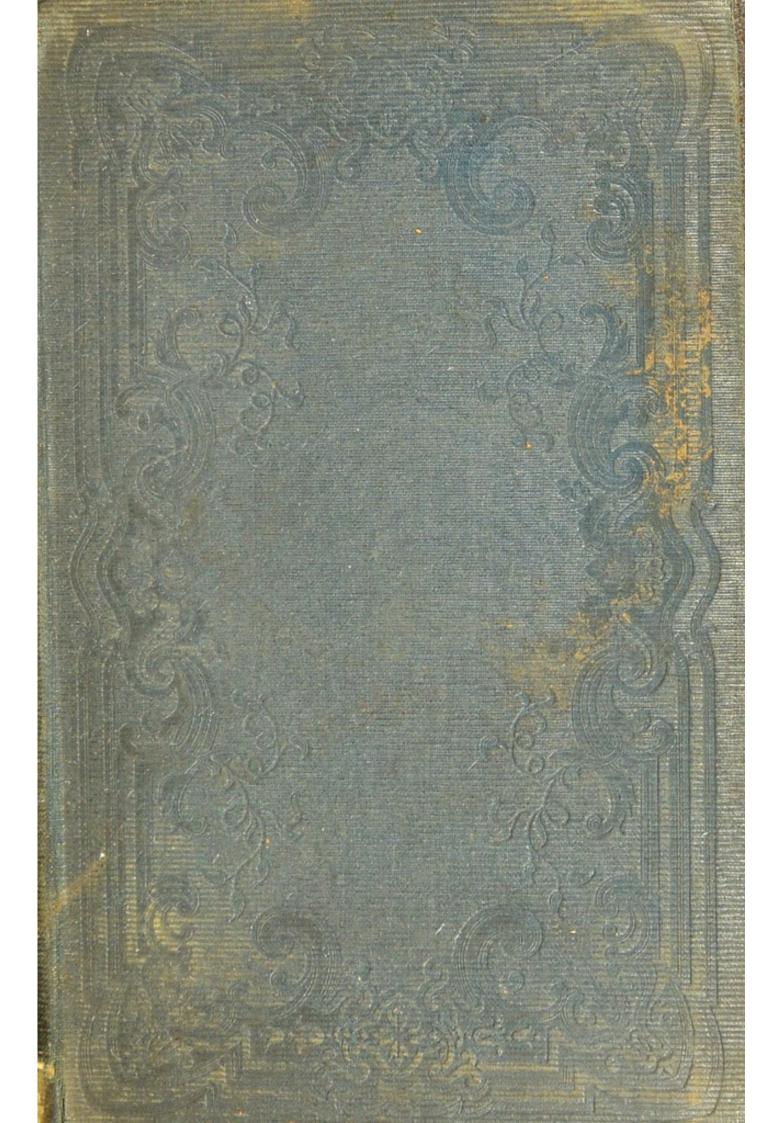


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## WILLIAM C. WARREN, M. D.,

OF EDENTON, NORTH CAROLINA.

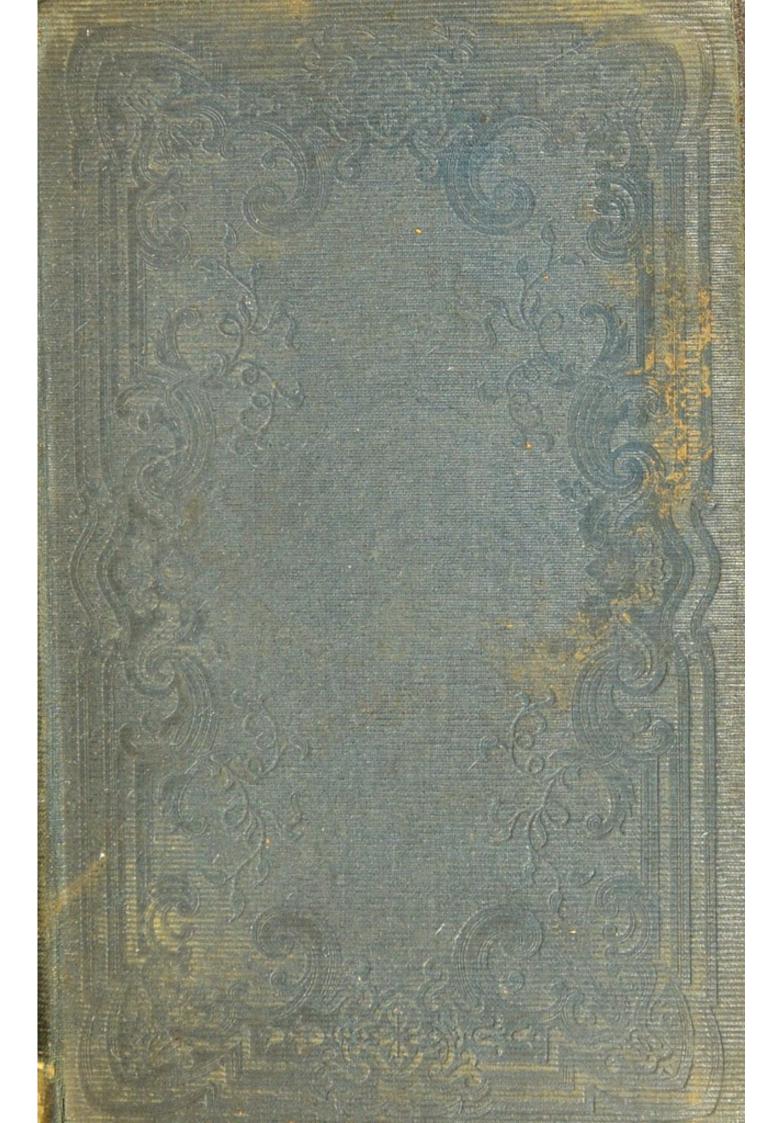
My Dear Sir:

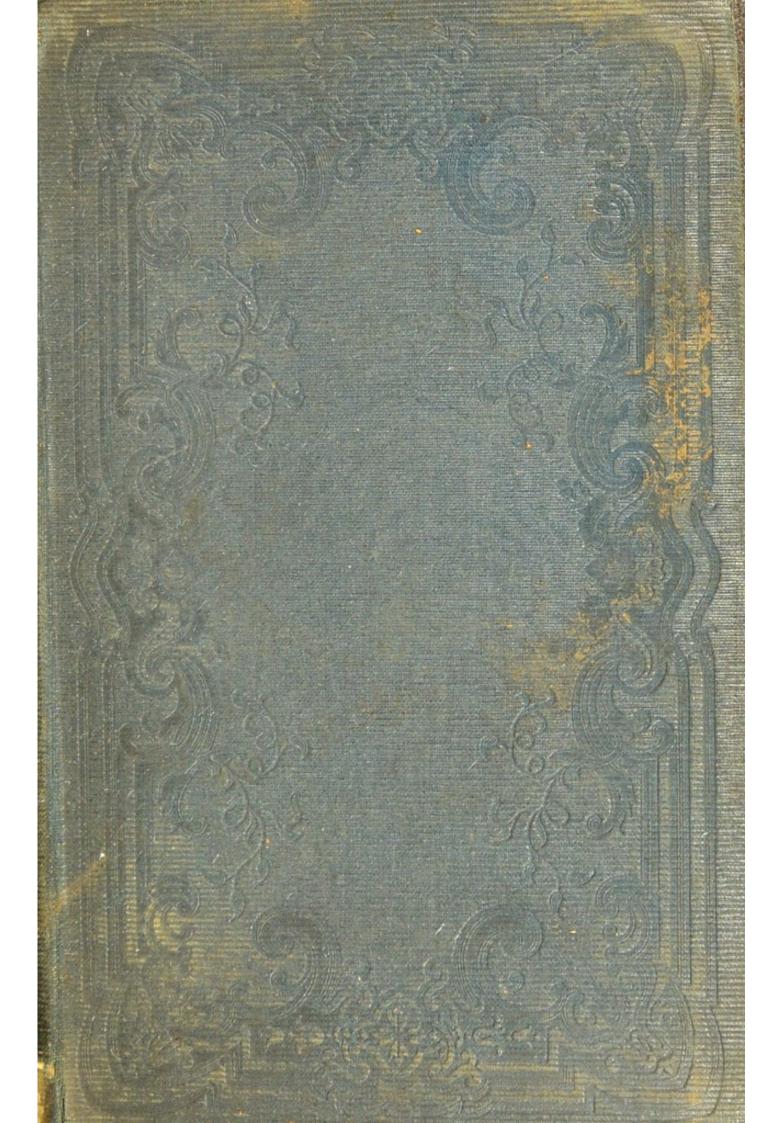
I venture to inscribe these pages to you, not from their worth, for I have not the vanity to believe they deserve it on that account, but as a testimonial of respect for the talents and industry which have raised you to the front rank of your profession in our State; of esteem for the social virtues which have made you a bright ornament of society; and of acknowledgment for repeated instances of disinterested friendship and uzsolicited favors.

Therefore, with every kindest wish to you and yours, believe me, my dear Dr. Warren, your obliged faithful friend.

CHARLES E. JOHNSON.

Ralrigh, North Carolina, December, 1854.

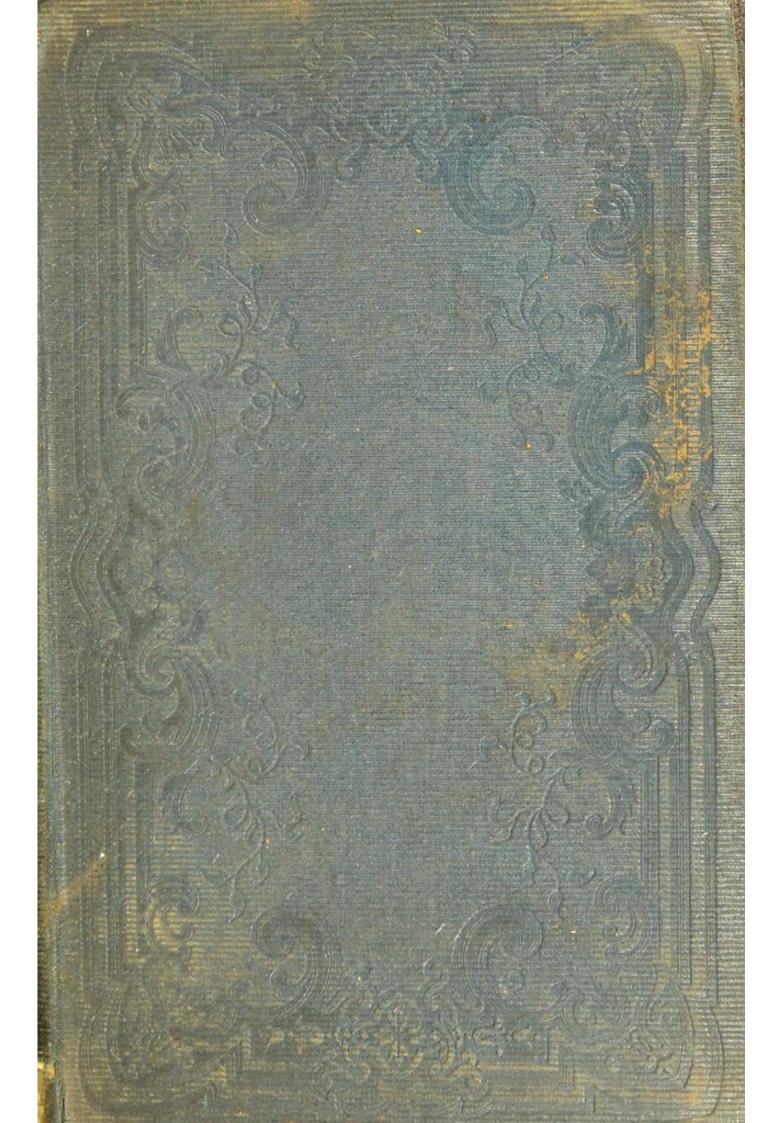


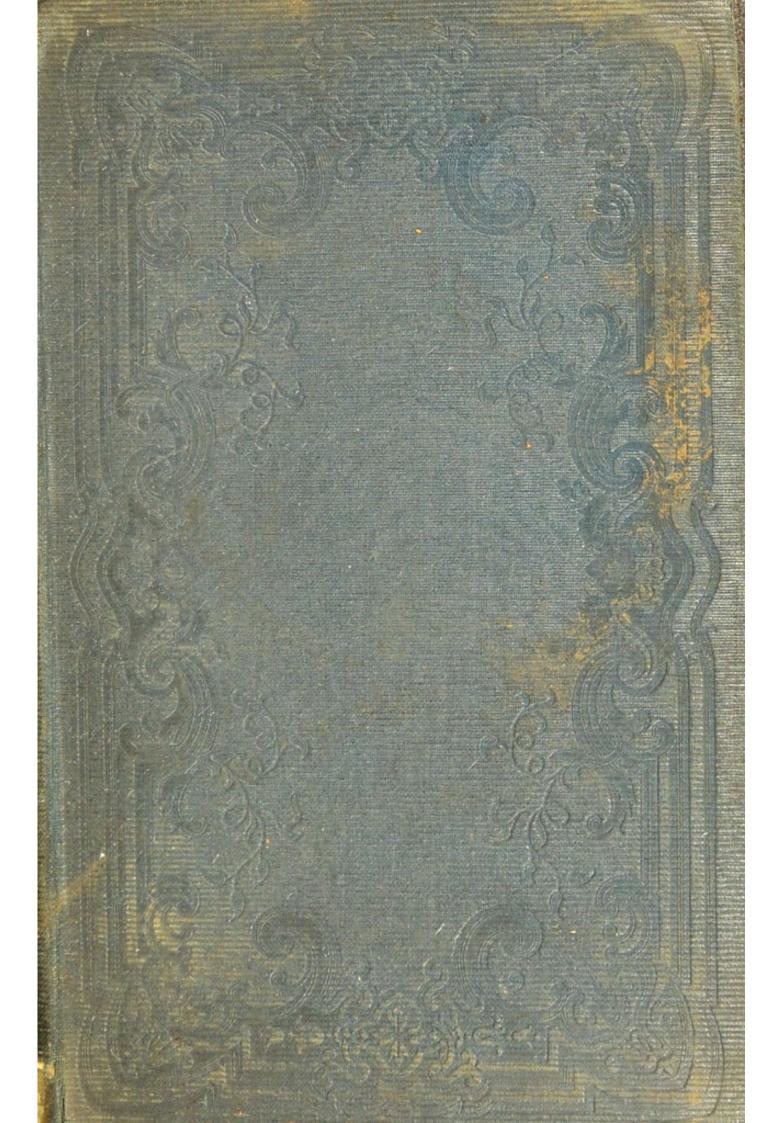


descendants may explore the gloomy recesses of this labyrinth, and illumine what to us is now apparently so obscure. Problems as inaccessible to the ancients as these seem to be to us, have been rendered quite easy of solution, by a long and successful observation of facts and inductive reasoning. But that our successors may enter uponheir work under the most favorable circumstances, it behooves us to refute error, though sanctioned by time and the authority of great names, and by careful observations to extend our insight into the real and truthful connection of natural phenomena, so that our fixed facts and actual instances may serve them as so many starting points, when they come to assume the completion of our unfinished labors.

The second address, delivered at the Fifth Annual Meeting of the Society, was in reply to a review of the first, by Dr. Satchwell, who had chosen, of his own accord, the presence of the Society, as a proper theatre for the discussion of this question. Thus a controversy arose, which surely ought never to have been carried into the Society, at least, with any display of feeling. However, as it was not of my seeking, and as I have, I hope, fully and fairly disposed of the subject, I shall take leave of it with the best feeling in the world.

Dec. 15th, 1854.





However, I shall not discuss here the legal privileges, nor the cherished errors of these charlatans, who are so well versed in the "gospel of enlightened selfishness" as to deny the importance of every consideration, the value of which they cannot estimate in dollars and cents. Nothing is to be made by an argument with or about them. That sort of gratuitous advertisement would only enable them the more readily to climb up into public view, confident, in their own minds, that the application of the old adage, "who shall decide when Doctors disagree," could not result to their disadvantage. It will not be expected of me, therefore, to occupy your time with any further allusion to them particularly, as I desire to make a few remarks, before I pass on to the consideration of the proper subject of this essay, in defence of the profession of medicine, the peculiar advantages we possess for prosecuting the study of it successfully, and in praise of those noble spirits who bring to the practice of their art learning, humanity, discretion and integrity, the four cardinal virtues of a really deserving physician.

It is as true now, as ever, that the services of a learned and skilful physician are of such vital importance to mankind, that if medical men will take care to be distinguished, as a body, for their humanity and integrity, their knowledge and acquirements, and their high toned gentlemanly bearing and kind offices toward each other, they will soon ensure the per-

fect confidence and entire respect of their fellow men; whilst the blunders, ignorance and misconduct of unqualified pretenders would attach to each undeserving one of them, agreeably to his worthlessness, rather than to the profession itself. Then, there would be more hope of a moral regeneration of the profession than croakers will allow is possible, because the sordid and selfish even would begin to discover that a thorough devotion to professional science and duty is the surest, if not the shortest, way to wealth and importance; and wisdom once acquired, no matter what the motives were which prompted the acquisition, will be faithfully cherished afterwards, not only for the advantages which it can confer, but for its loveliness and virtue. The wise man, in describing the advantages of the love of wisdom and virtue, says: "Length of days is in her right hand, and in her left hand riches and honor." But, in my humble judgment, the members of the profession, who undertake the study and practice of medicine, with a full knowledge of its relations with the various wants, pursuits and purposes of life, and with a determination to be prepared to meet these exigencies, are more deserving of praise for merit of every kind than the world is in the habit of according to them.

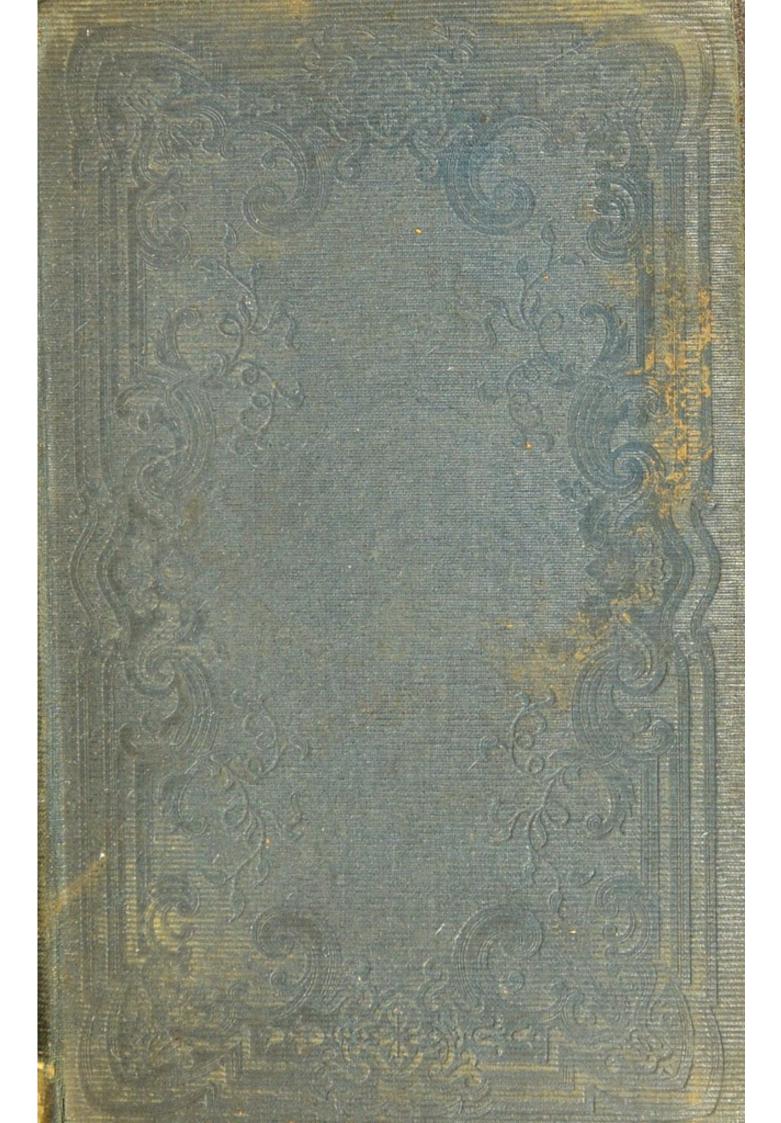
> "A physician skilled our wounds to heal, Is more than armies to the public weal,"

is the testimony of him, who, nearly a thousand

years before the beginning of our era, sang of Troy and her fall; and shall it be said in this so justly called age of progress, when invention is every day discovering new and unappropriated objects of interest, and opening, by experiment and the inductive method of reasoning, new fields of inquiry, in which every man may take an even start, that the humble, but earnest and truthful disciple of ÆSCULAPIUS is a less useful, important, and respectable member of society than he was in those ruder times? No; it cannot be. I will not believe it. The love of useful knowledge not only still exists, but even burns with a more ardent glow than at any former period of the world's history. Many circumstances conspire to produce this condition of things. It is not owing to any change in man's nature, peculiar to this age, for human nature, without doubt, has been the same in every enlightened age and nation, but results in part from the higher incentives to cultivation, and the greater rewards offered to industry. Wherever these are liberally provided, there every faculty of mind and body will be exerted to the utmost, and man will furnish the most numerous and shining examples of human perfection. Besides, along with these inducements for the ardent pursuit of useful knowledge, we are the fortunate heirs of time, who have acquired by inheritance all the advantages of the experience and wisdom which history teaches .-Mounted, as it were, upon the shoulders of those who have preceded us in the pathway of human progress, we enjoy a more extended horizon than met their view. No narrow limits contract the sphere of our intellectual vision, but the whole boundless world is ours.

Much, too, is due to Protestantism, which has achieved wonders in philosophy as well as religion, and is one of the distinguishing peculiarities and most valuable characteristics of the present age. In our day, the inquirer after Catholic truth, in all the departments of knowledge, in the exact sciences and speculative philosophy, as in religion, can pursue his object with a protestant spirit. No longer the schools are connected with the Vatican, producing a degree of mental vassalage and subserviency destructive of the spirit of free inquiry. No longer the word of a Priest or Master, or a dogma of the schools, is the test of truth, but the immortal mind, whose capacity for knowledge and wisdom is increased the more it is stored with useful treasures, is left that full liberty to combat error or pursue truth, which is so characteristic of the age we live in .-And if it be the honor, as I believe it is, as well as the character, of this age, that genius and learning, not less than christian benevolence, are chiefly busy in the habitations of men, and around the walks of daily life, and that the greatest men, as well as the best, find their themes of study, and their sources of inspiration, in the moral and physical wants of mankind, then, in such an age, and especially in a country like ours, where we have in our governmental policy avoided the cherished prejudices and tolerated errors of long established despotism, on the one hand, and escaped from the greater evils of fanaticism, unrestrained by law, on the other, "he who will not reason is a bigot, he who cannot reason is a fool, and he who dares not reason is a slave." God has given man the peculiar faculty of reason to guide him wisely, and therefore safely, in the pursuits of life, and he who will not exercise it vigorously and healthfully in the progress of events, will presently find himself trodden down and crushed beneath the feet of the rushing multitude whose onward course he obstructs. Let not this be the lot of any one of us. On the contrary, let each of us, not only in his individual character and position, but likewise in his associated character, press on to the attainment of the objects and purposes of his high calling, emulating the lives and conduct of the masters in our profession, who have taken their stand, shoulder to shoulder, in the foremost ranks with those philosophers who have inscribed their names high in the temple of fame.

In the anticipation of a glorious future, the youthful and ambitious student finds the highest incentive diligently to prepare himself for the active and honorable course he means to run; and the older ones find it necessary to labor faithfully in their



acquaintance with those kindred sciences, which develop the mental faculties, and a taste for polite literature which gives them harmony, and to acquire a christian spirit, that we may have it in our power to contribute to the refinements as well as happiness of the social circle. This course of mental gymnastics will not only enable us to investigate with facility and to scrutinize the advantages and disadvantages of all the facts and theories, which are continually coming out of the prolific laboratories of medical Philosophers, but likewise to discharge the onerous duties of our profession more as a pleasure than as a task.

"Tis not for mortals to command success
But we'll do more, Sempronius,—we'll deserve it."

Lord Bacon regarded the science of medicine with the greatest interest. He aimed at the relief of "man's estate," and this he believed was to be accomplished as well by mitigating human suffering as by multiplying human enjoyment. The study, therefore, of the to kalon and to eidolon of the old philosophers, however well calculated it may have been to sharpen the wit or refine the rhetoric of the schoolmen, contributed but little, according to the views of this great man, to alleviate the pains or lessen the burdens of suffering humanity. Considered in relation to these great objects, he regarded the science of medicine as the most important department of know-

ledge, because it was capable of conferring the most desirable benefits on mankind.

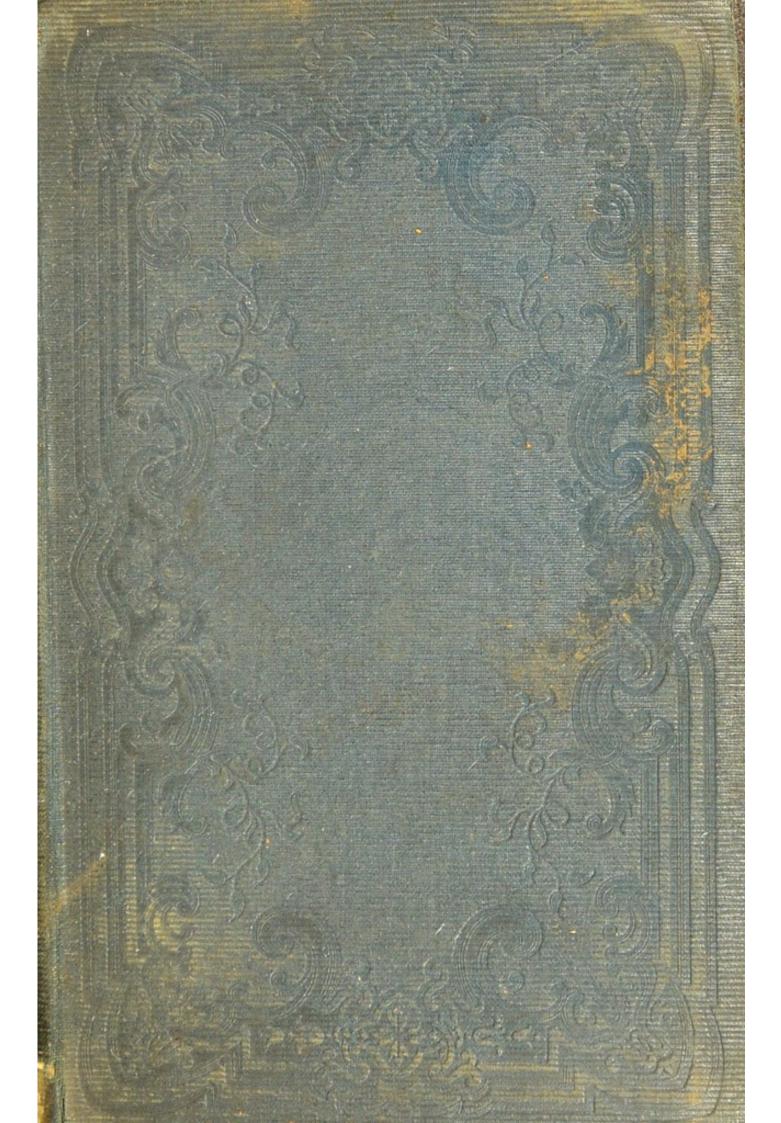
In this connection, too, it will not be improper to elevate our thoughts and recollect that "the great physician of the soul did not disdain to be also the physician of the body."

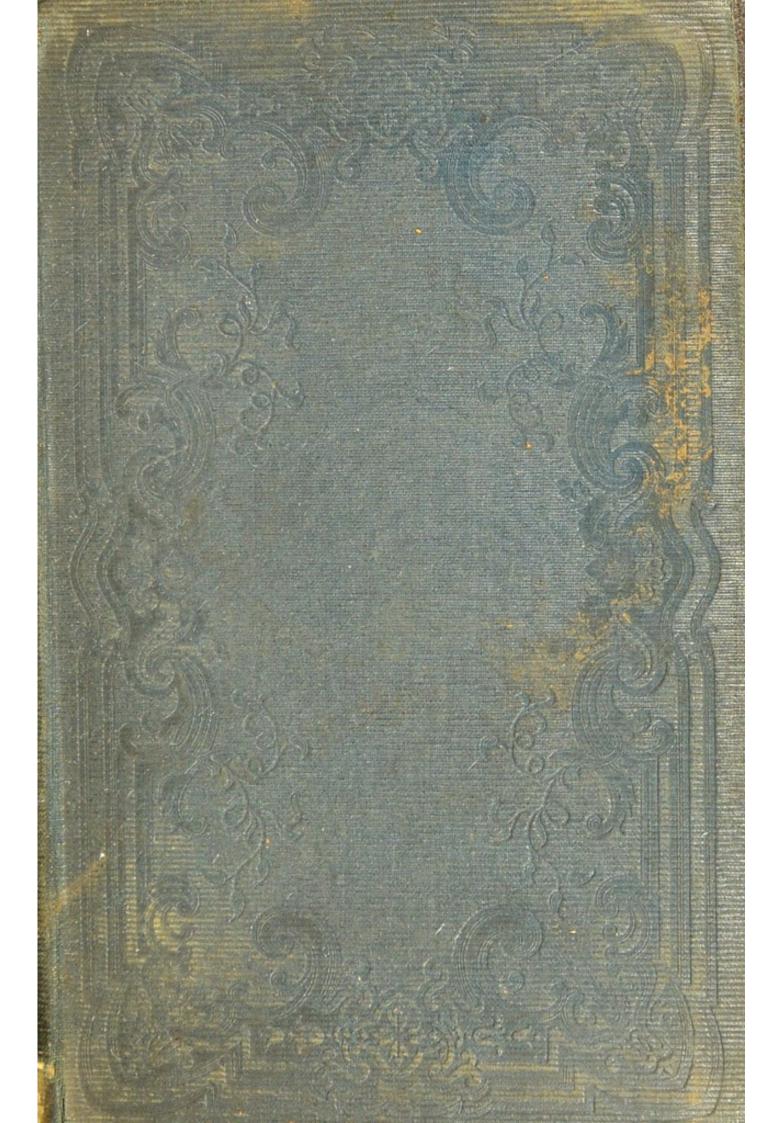
How gratifying to the mere philanthropist and physician are the views and opinion of Bacon!—How cheering and sustaining to the enlightened, laboring physician, who is at the same time a christian man, to know, that in some degree, at least, he is following the example of his *Divine Master!* 

Again; the dangers the medical man encounters, and encounters alone, unsupported by the emulous spirit and confidence of numbers,

> ----- "All the while Sonorous metal blowing martial sounds,"

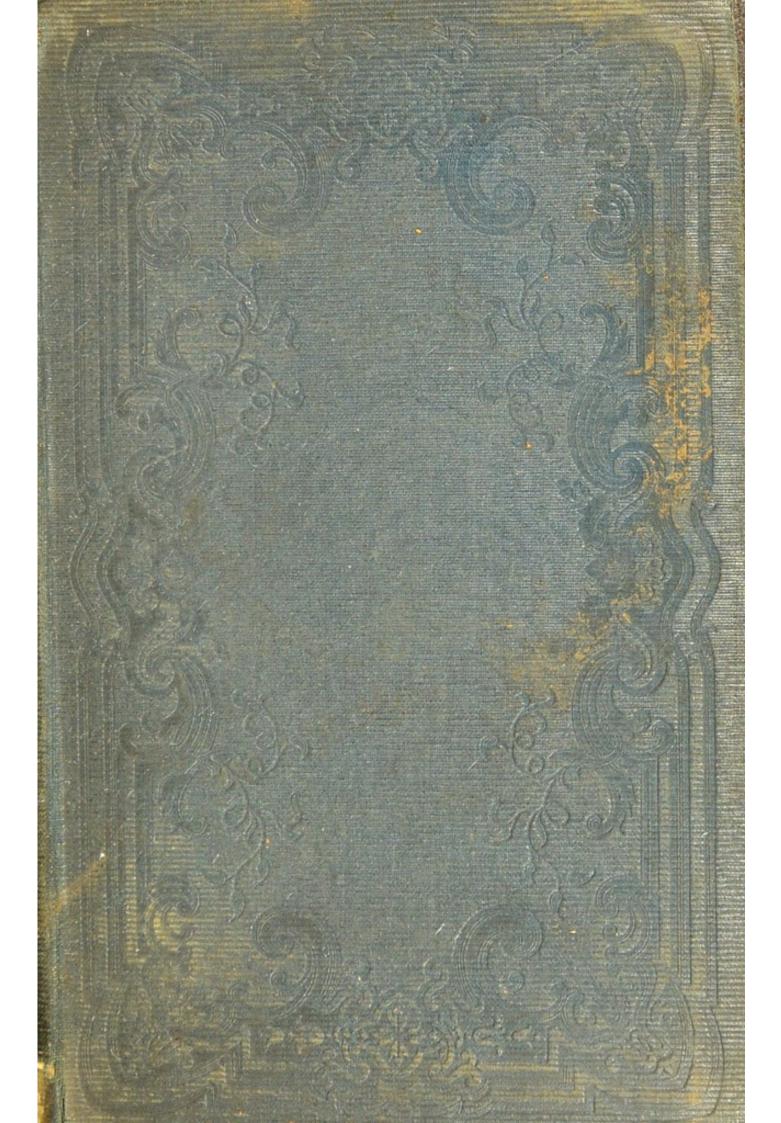
are as much greater than those of the soldier in the battle field, as the calm deliberation of high purposes and conscious rectitude is superior to the mere enthusiasm of excited courage. Aye, and if he falls, as he oftentimes does, fighting with deadly disease, in his lonely walks amidst pestilence and famine, no funeral honors attend upon him, no public provisions await his family. His is the honor only to have acted well the things that belong to the sad realities and pressing necessities of human life—his the honor to have been a co-worker with those great and good men, by whose constant toils, and energetic labors



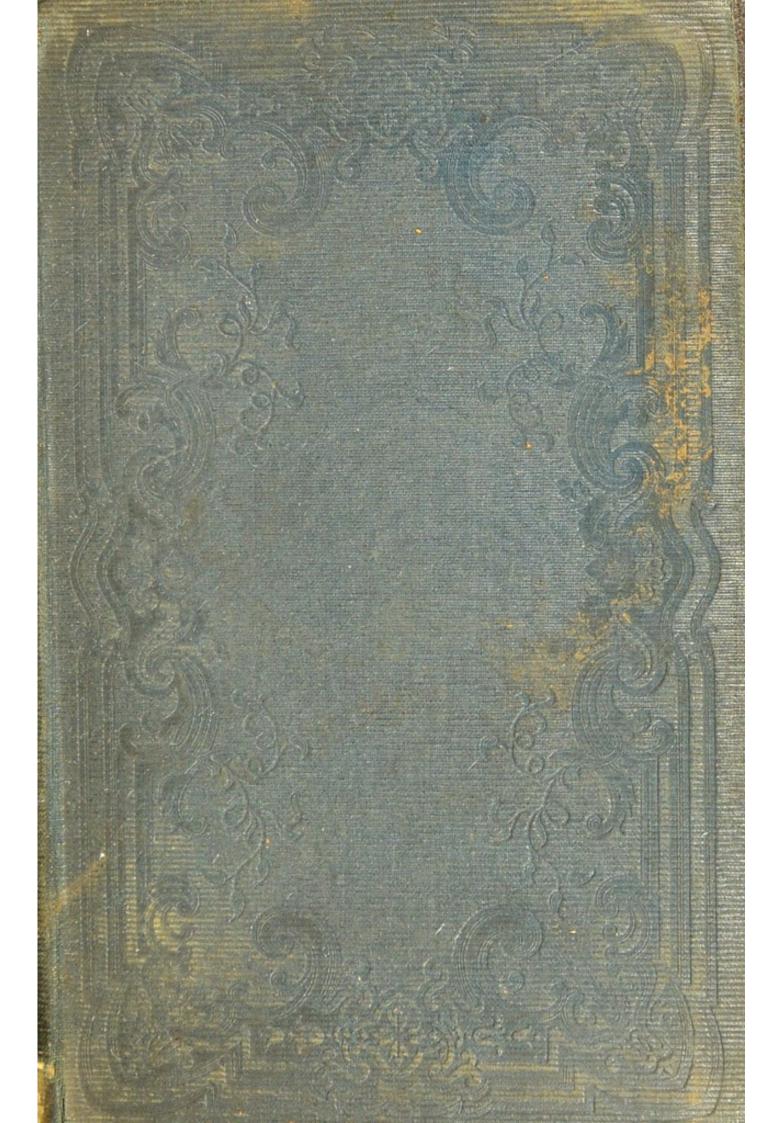


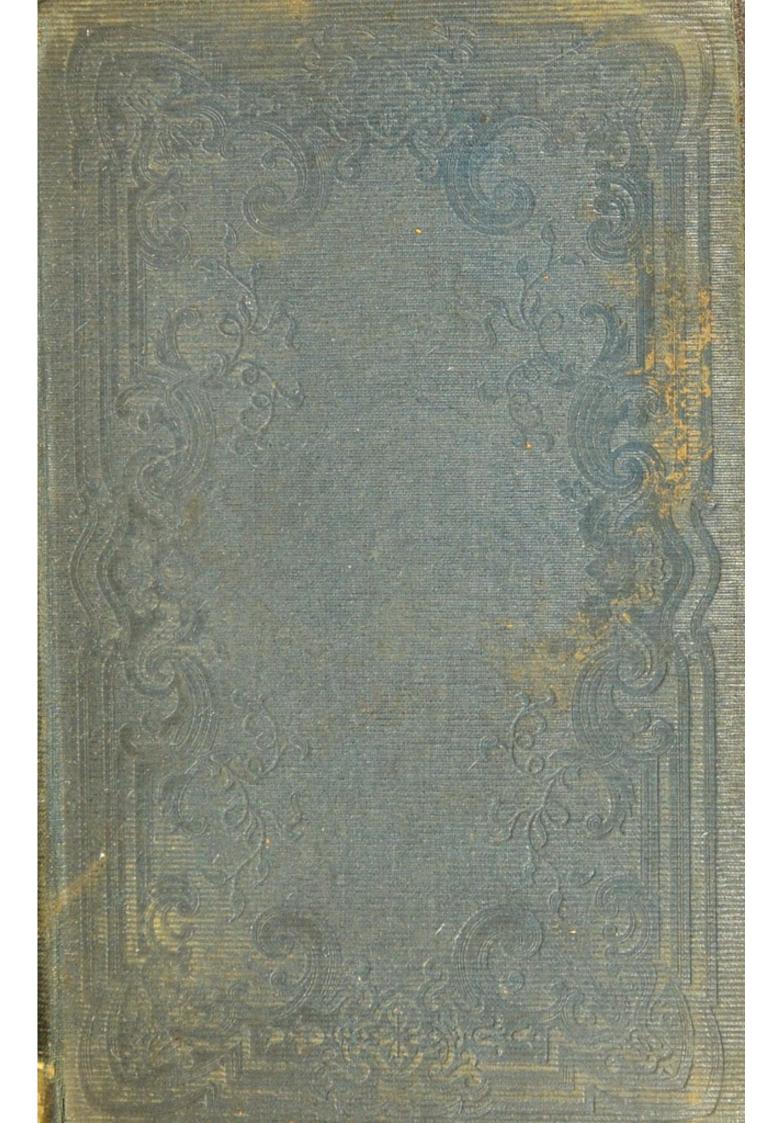
little importance, at least, to the skilful physician of the Southern States, involving, as it does, the every day application almost of the principles of practical etiology, which I understand to be the establishment of the invariable relationship, as cause and effect, of those agents or influences that are capable of producing diseases, and the diseases themselves. This, I believe, the sequel will show is not the case with miasm and the so-called miasmatic diseases.

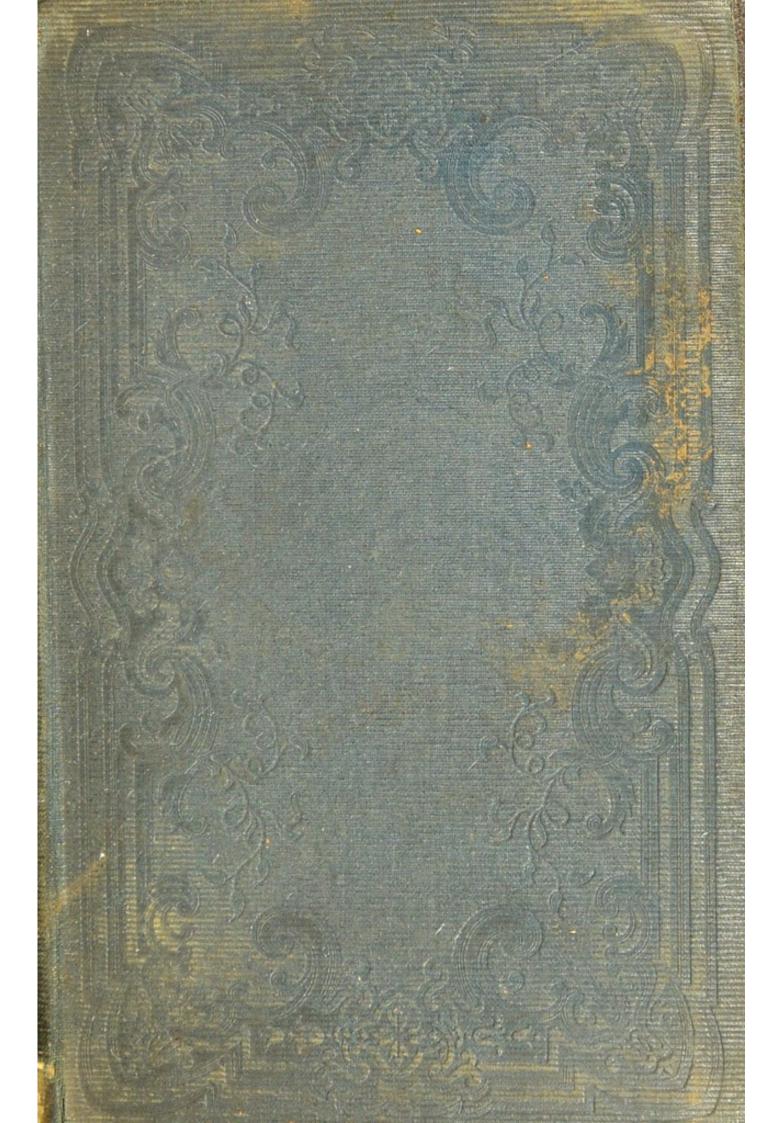
I know that in advancing this opinion, I am impinging upon the current prejudices and dogmas of the schools, and, perhaps, upon the opinions of most, if not all, of the medical gentlemen here assembled. But, let me ask you, in all sincerity, have you not adopted, as a portion of your early professional education, your belief in the miasmatic origin of disease? Have you faithfully and philosophically investigated its claims to validity and truth, and, after due inquiry, yielded it your full credence, because you could not resist the overwhelming evidence in its favor? Or have you not unpardonably cherished an error, because it was a popular one, or because it furnished you with an easy, if not satisfactory, solution of a difficult question? Or have you not preferred to rest on a foregone conclusion, not, at bottom, really embracing any well tried fact, or established principle, rather than be troubled or disturbed about that on which you have already made up your minds? Or, acting still more culpably, and upon the well known

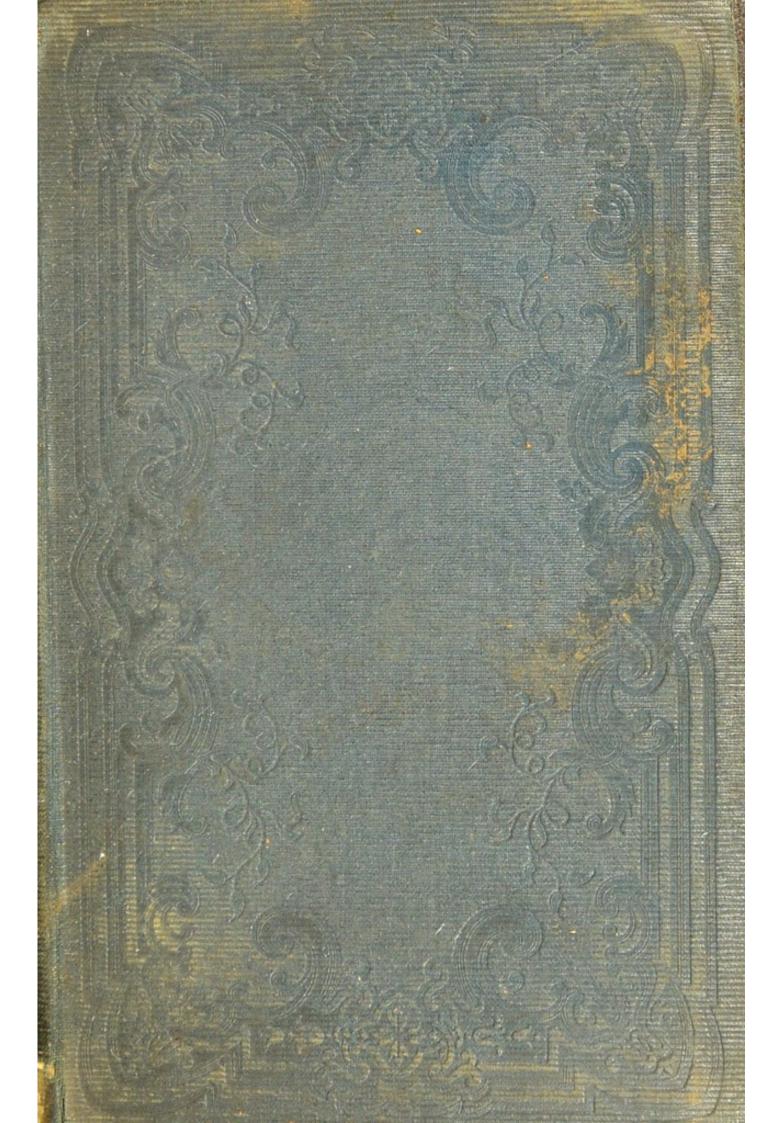


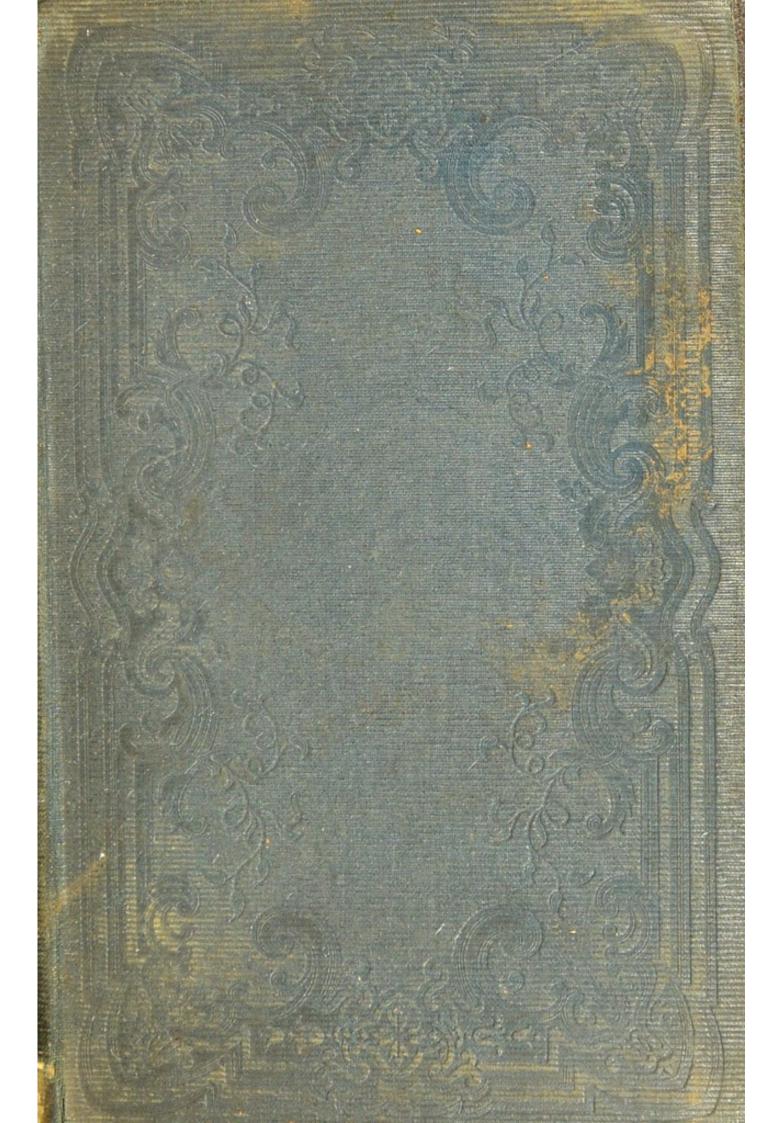
matured experience, have ripened those doubts into convictions, and I now regard the doctrine as a groudless assumption or pure hypothesis. Let me not, however, be misunderstood on these points. I do not mean to deny the fact, well known to every observing man, whether he be a physician or not, that a low marshy country is, generally speaking, more sickly than a higher, drier and better ventilated one. Indeed, I may observe in this connection, that so far from denying the effect of climate and position upon organic life, I am inclined to think there is some truth in the remark of a distinguished naturalist, made at a meeting of Savans in Charleston, South Carolina, a year or two ago, that he was so well acquainted with the geological and meteorological conditions of the State in which he resided, and the influences they exerted, even upon man, as to be able to decide in a given number of individuals, by their peculiar characteristics, in what sections of the State a majority of them were reared. Nor do I mean to assert, what every educated person will deny, that hypotheses are altogether valueless in every scientific inquiry. The views I wish to present, and hope to maintain, are simply these: That the greater sickliness of the low lands is not owing to miasm, an exhalation from decaying vegetable matter, under certain circumstances of heat and moisture, the sense in which it is used by the schoolmen; and that hypotheses, to be of any importance in philosophical in-





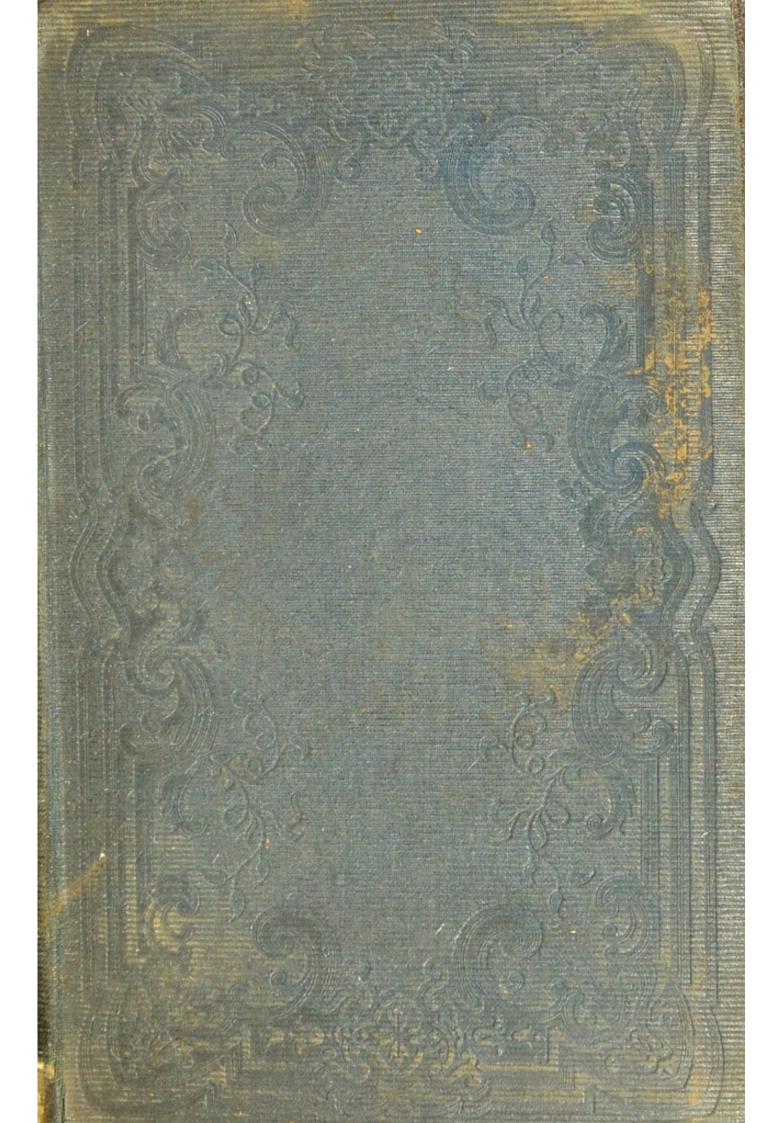


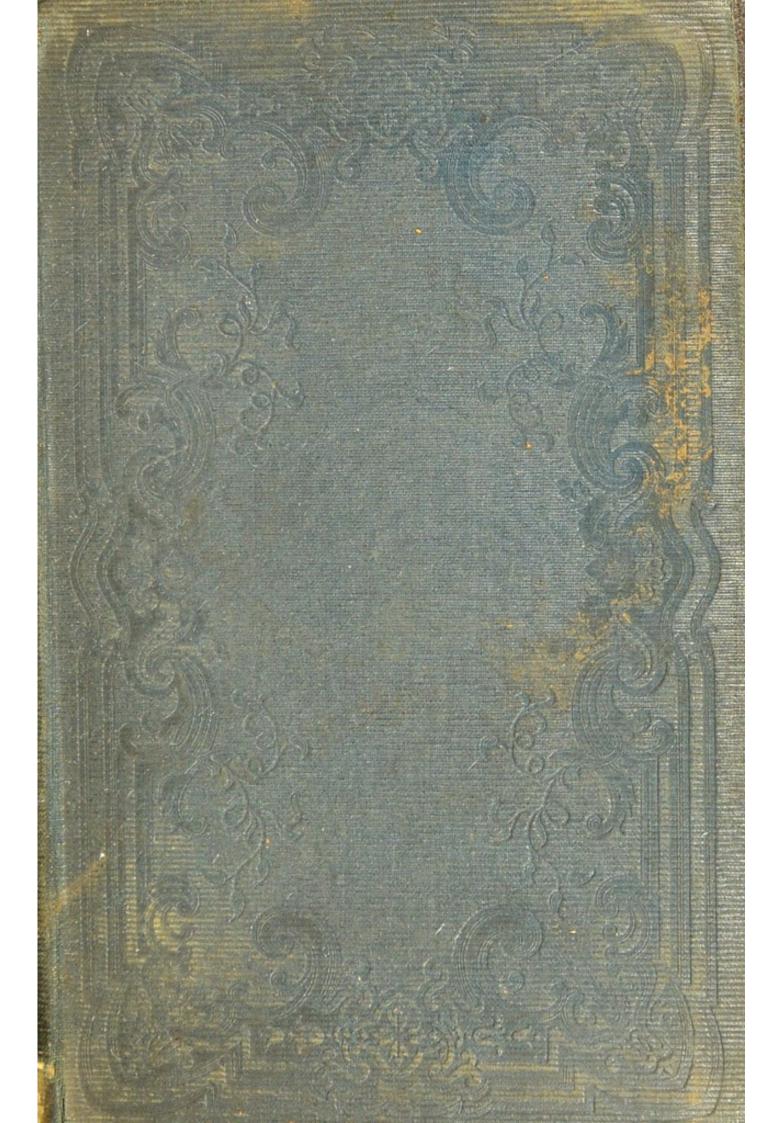


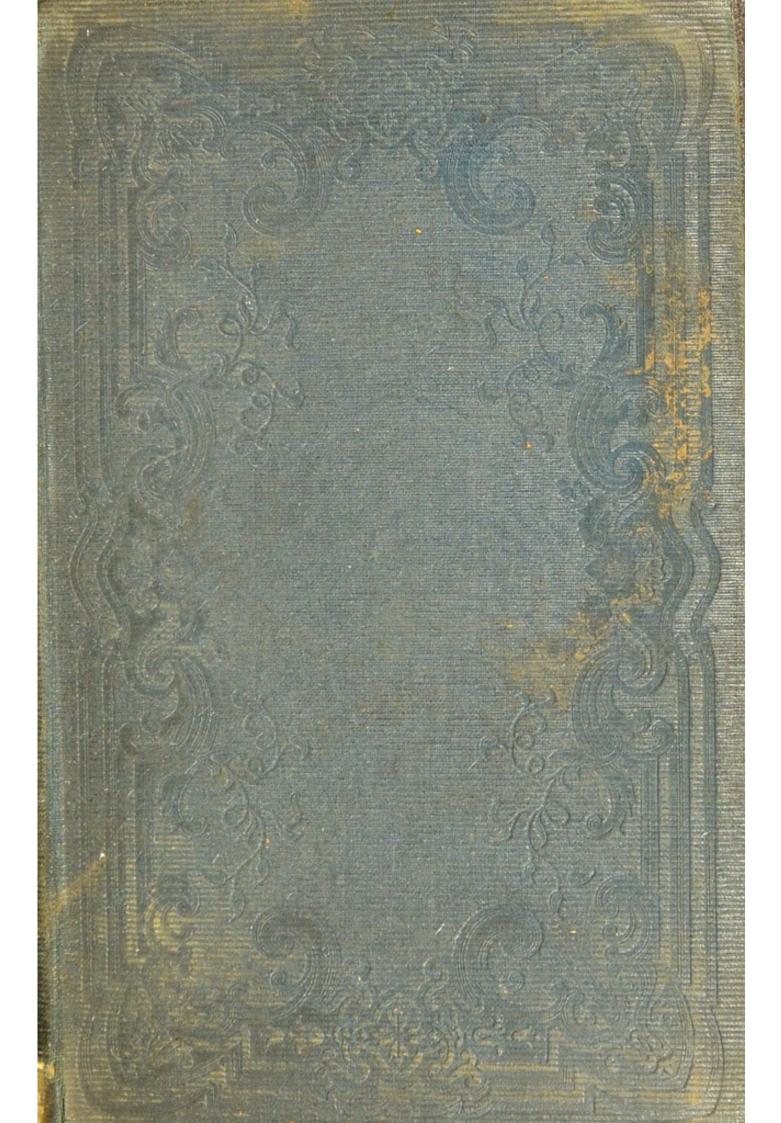


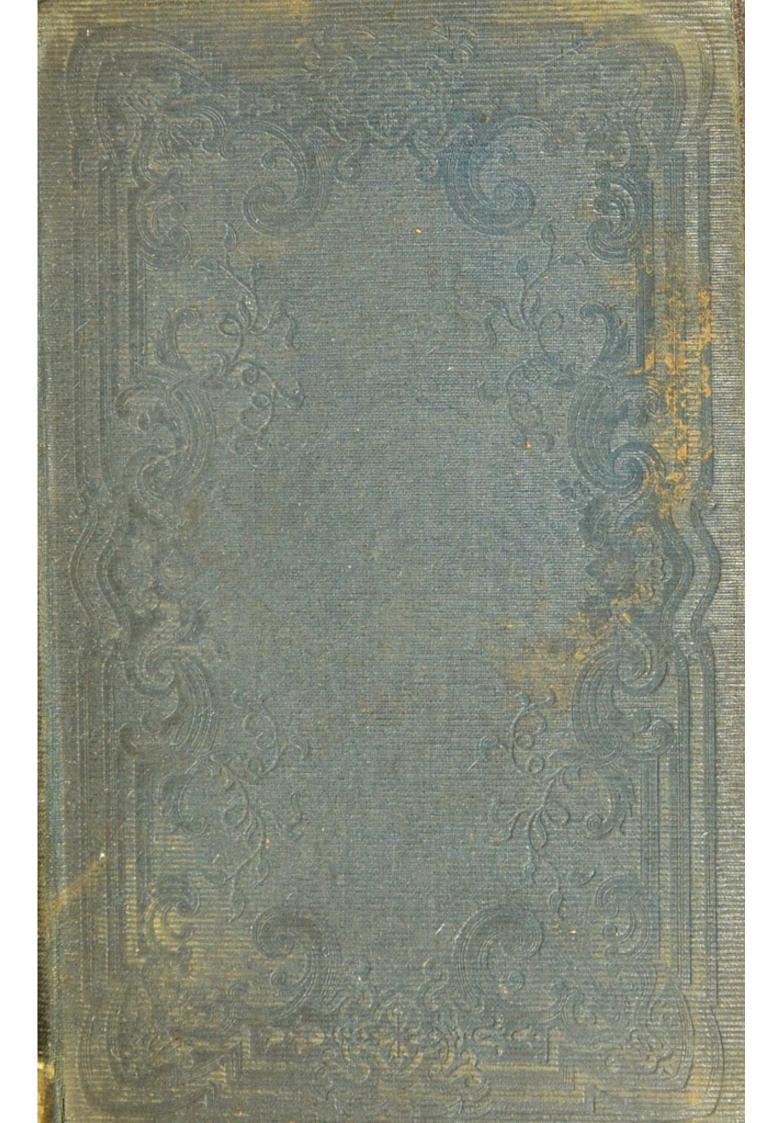
phenomenon may be the chief cause of many consequences, and it will be clearly seen that these principles are not too rigid for a correct philosophy.

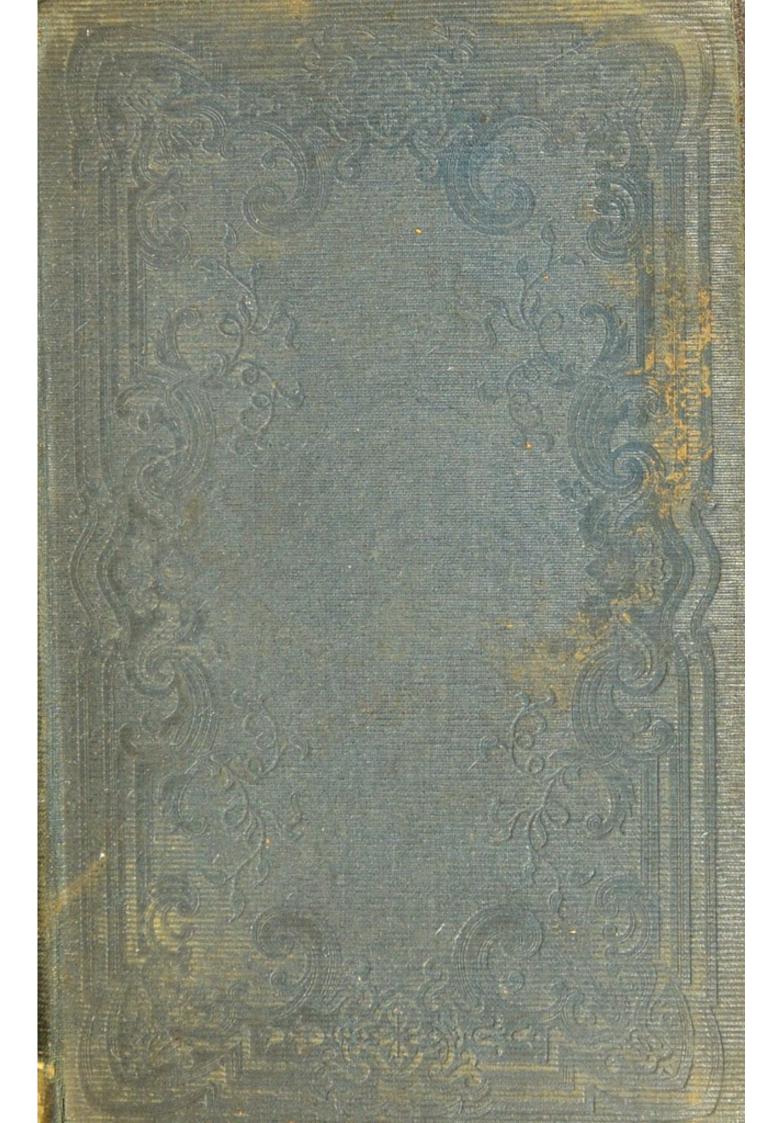
Now let us apply this Baconian process of inductive reasoning, this well established method of conducting philosophical investigations, to our belief in the miasmatic origin of malarious diseases, and see if it is well founded. Or whether, in the first place, we have not assumed a fact, which is not proved, and then built upon it a theory, which, in the next place, we are prone to apply when no induction or proper plan of philosophizing shows that it is applicable; thus making the whole operation not a process of inference or induction, but one of interpretation or deduction, which is, after all, the old Syllogistic method of teaching by authority, rather than according to the rules of modern philosophy, which has discovered the only true method of scientific investigation, by making facts the basis of inductions. To take these constructive formulas or syllogisms for the realities of experience and observation was the grand folly of the ancients. To employ them without due examination as to their real value and scientific applicability is the besetting pedantry of many moderns, especially wrangling theologians, who attempt to make the wisdom and laws of Omnipotence quadrate with their finite notions and pre-conceived opinions. Carefully investigated, then, I think it will be









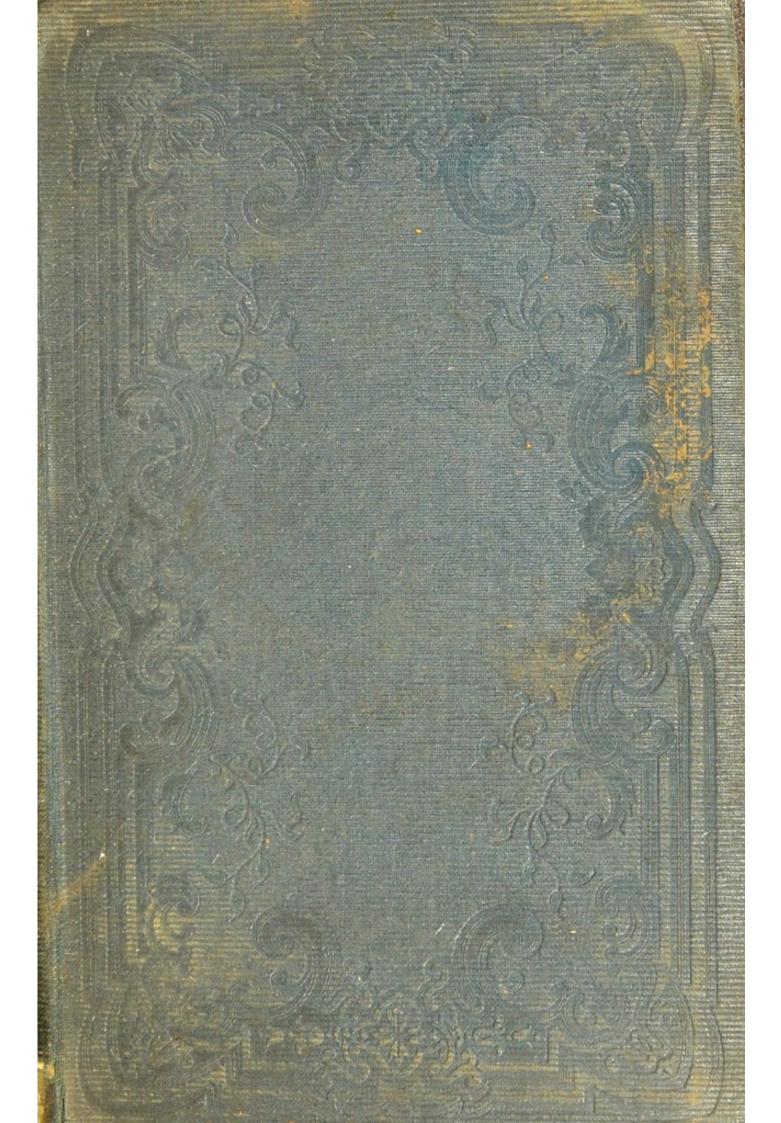


"Through the whole distance, it (the canal to Dayton,) traverses a fertile valley from one to three miles in width, abounding in diluvial terraces and low alluvial bottoms, to which the present diminutive stream bears in the volume of its waters no assignable proportions. This valley is, in fact, the obsolete bed of one of those vast river currents which once flowed from the north into the trough of the Ohio river."

Here we unquestionably have an abundance of the materials, heat, moisture, and vegetable matter, for the generation of miasm; and yet the same writer, who has furnished us with the above description, declares: "It does not appear that the inhabitants of the region through which the canals were dug were injured by the process, or by letting in the water when they were finished; nor have I been able to collect any reliable evidence, that the annual emptyings and cleanings out have been productive of fever."

Again, on the authority of Dr. Henton, he assures us, there is on Paint Creek, in Ohio, a mill pond covering over sixty acres of bottom land, near the village of Washington, which is generally drained off about the first of June, after having been submerged all the previous autumn, winter, and spring, and yet it was never known to cause sickness in the neighborhood.

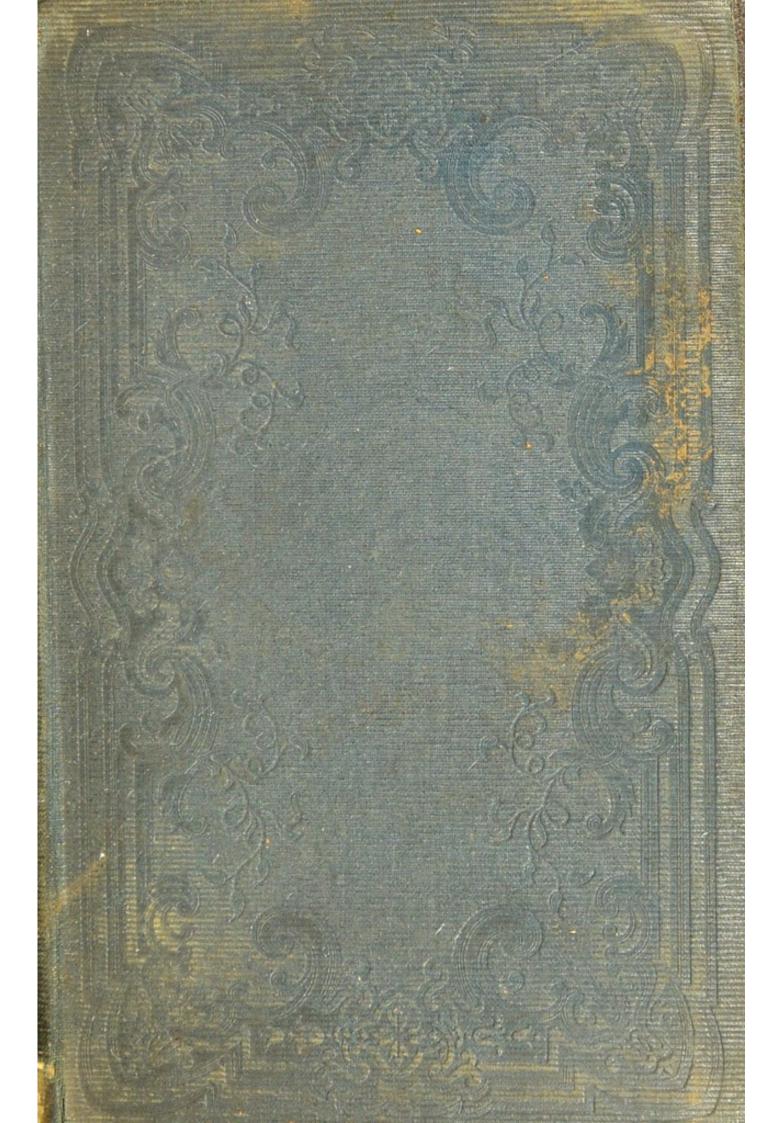
The following facts, communicated to me by my



covered with cypress, magnolia, sub-aquatic plants and shrubs, yet it is quite healthy, excepting near the head of the bay, where the Escambia river, coming down from Alabama, empties. Here it has been notoriously sickly always, notwithstanding the temperature and moisture are the same as they are lower down the bay, and the extent of marsh only a trifle greater.

My present object does not make it necessary for me to describe particularly the topography of the Delta of the Mississippi, further than to state, what every one knows, that it consists of alluvial deposits, with an abundant and luxuriant vegetable growth.—Such a condition of things, in so hot a climate, might, a priori, be claimed by the miasmatist as the very focus of miasms; but let us see what are the opinions of some distinguished medical gentlemen, themselves believers in the doctrine of the miasmatic origin of disease, upon this subject.

The inhabitants of the Balize, writes Dr. Drake, suffer much less from miasmatic diseases than those who reside along the rivers of the interior of Louisiana, notwithstanding vegetation, heat and moisture are as abundant at the Balize as more inland. This he and others attempt to explain, by supposing that the salt water of the Gulf waves prevents the extrication of miasmata at the Balize. The same reason is given for the comparative healthfulness of Key West; and also to explain why Fort Pike is less lia-

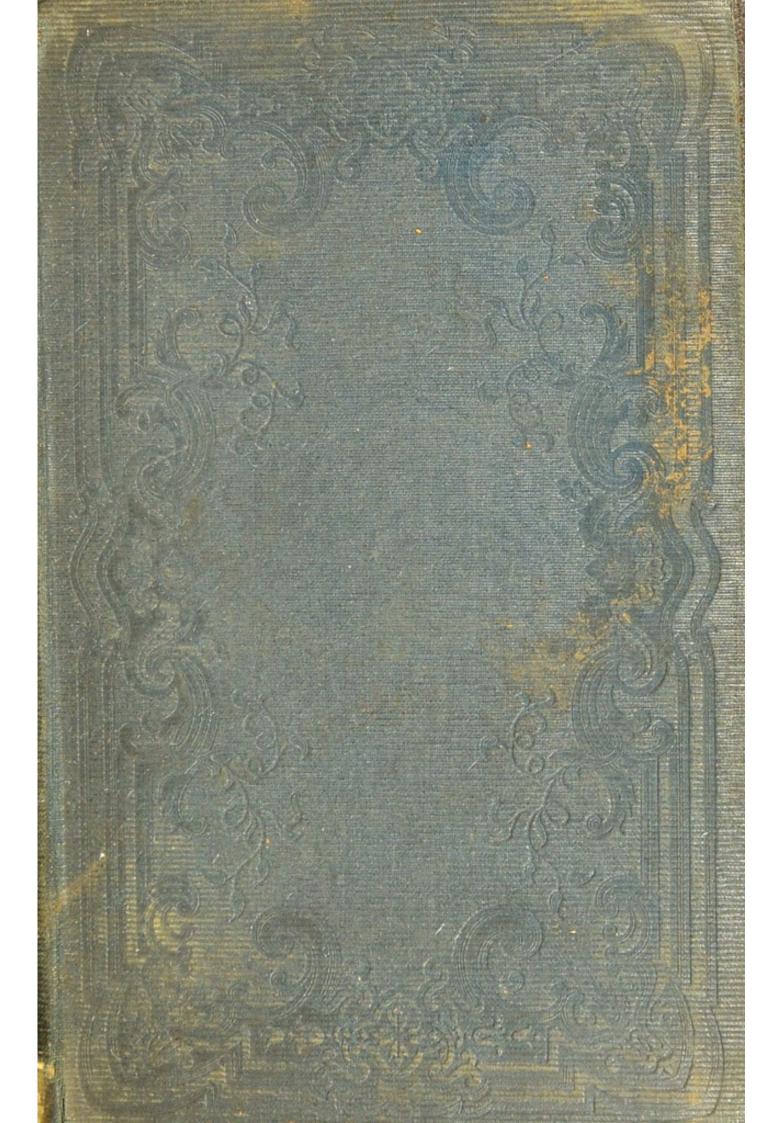


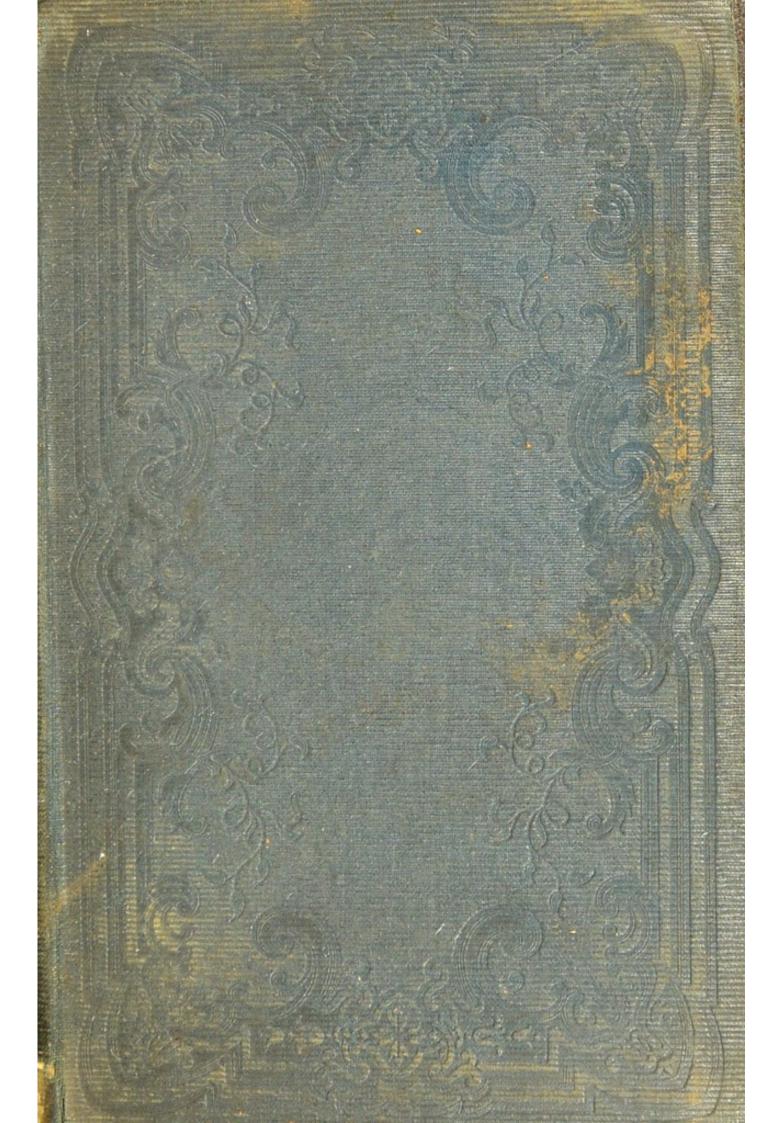
ter in marshes appears to enhance the copiousness and virulence of miasmata to a very obvious degree."—
"It is a singular fact," says the Doctor. "that the water of the sea is much more apt to enter into putre-factive decomposition than fresh water; and this, no doubt, depends on the great quantity of organic matter which it contains."

But to return to the delta of the Mississippi.—
Fort Pike is thirty-five miles Northeast from New Orleans, and situated on the Island of Petites Coquilles. This Island, elevated about two feet above the Gulf, enjoys a rich productive soil, composed of shells, argillaceous and vegetable matter. It is washed on one side by the waters of Pearl river, and intersected with numerous bayous and marshes, and has pools of stagnant water, but notwithstanding these inviting circumstances, it has never been visited by yellow fever, and autumnal fevers even, are very scarce.\*

Fort Wood is seven miles from Fort Pike, and situated on the south side of the channel, Chef Mentieur, one of the connecting Straits between Lake Ponchartrain and Lake Borgne. In its rear, there are some cypress and fresh water swamps of limited extent, which are annually replenished by rains with fresh water, like the same character of swamp and marsh in the rear of the "coasts," from New Orleans to Bayous La Fourche and Plaquemine. This situa-

<sup>\*</sup> Army Statistical Reports.

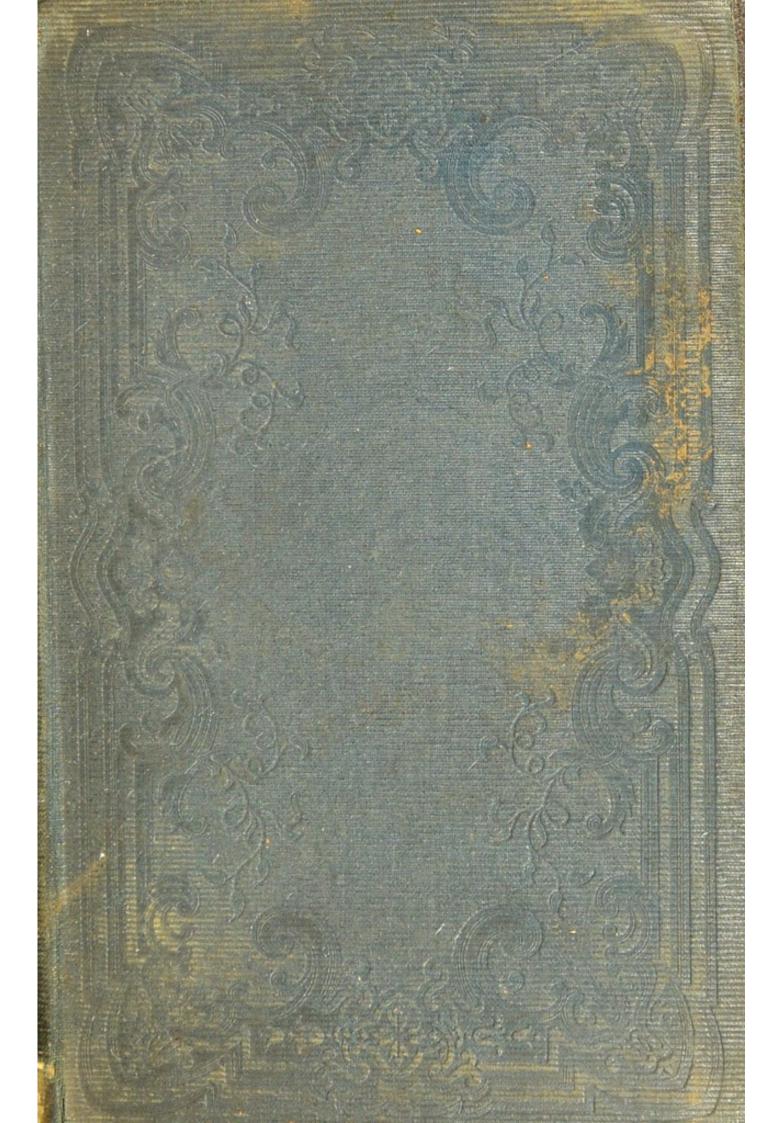


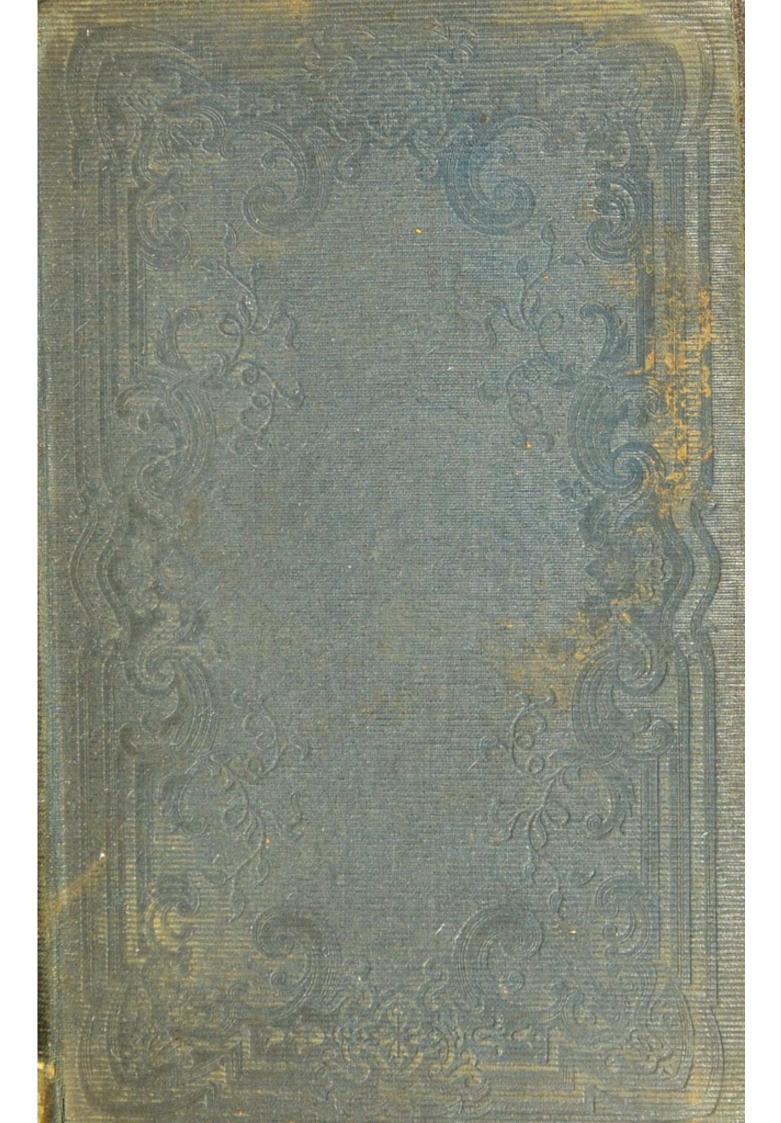


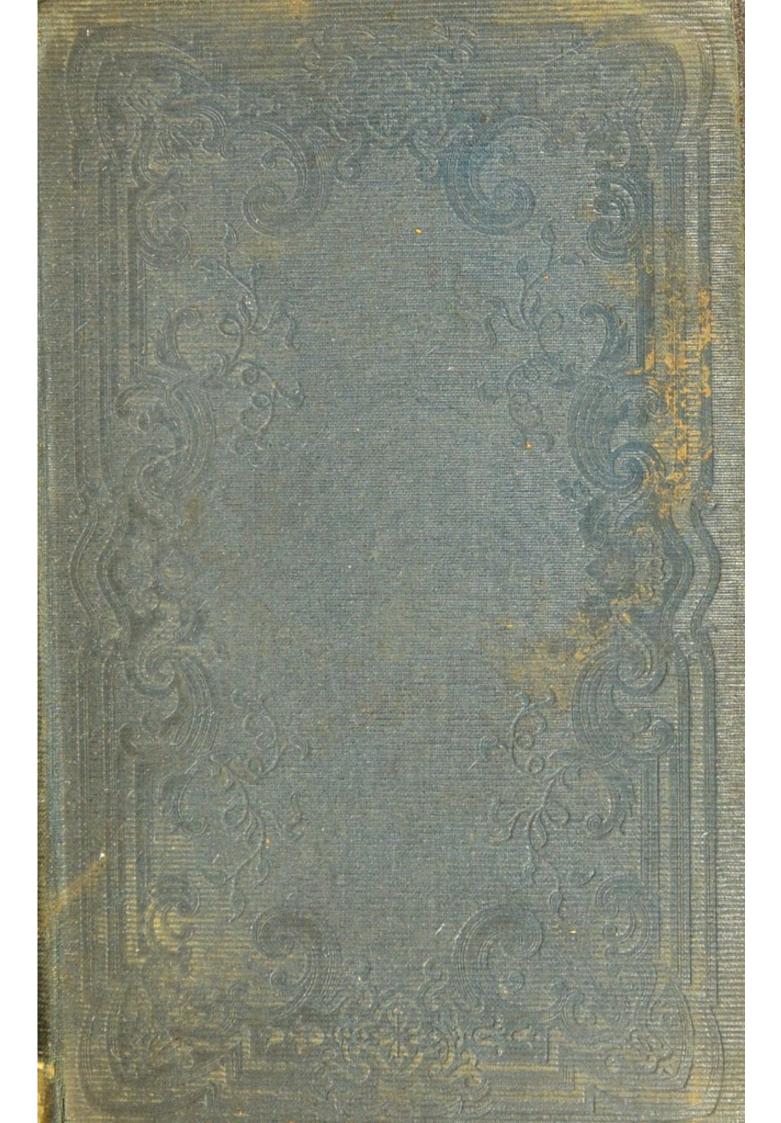
Here, then, we have, confessedly, an ample supply of all the materials required by the miasmatists for the manufacture of malaria; but, indeed, the country seems to be so singularly and unexpectedly exempt from miasmatic diseases, that every one is looking out for some countervailing agency, some means of neutralizing the marsh poison, which each believes must be generated under circumstances so favorable for its evolution. Each learned Doctor has his own peculiar views upon the subject, whilst the common people generally say it is owing to the prevalence of sea breezes; but why do not the sea breezes, felt with equal force and constancy at the head of Pensacola bay, where the Escambia river empties, and where there is one little marsh of some one or two miles in extent, instead of a whole region of marshes, preserve that locality from the reputation of being one of the most insalubrious spots on the face of the earth?\*

So, likewise, in our own State, we have extensive tracts of swamp land, in which a great number of laborers are engaged every year in getting shingles.—
These laborers not only work during the day in these swamps, and drink swamp water, which is greatly discolored by decaying vegetable matter, but sleep in them at night, in open huts or rudely constructed shanties; yet they are decidedly the healthiest portion of the laboring classes in those parts of the State.

<sup>\*</sup> Lind and others.





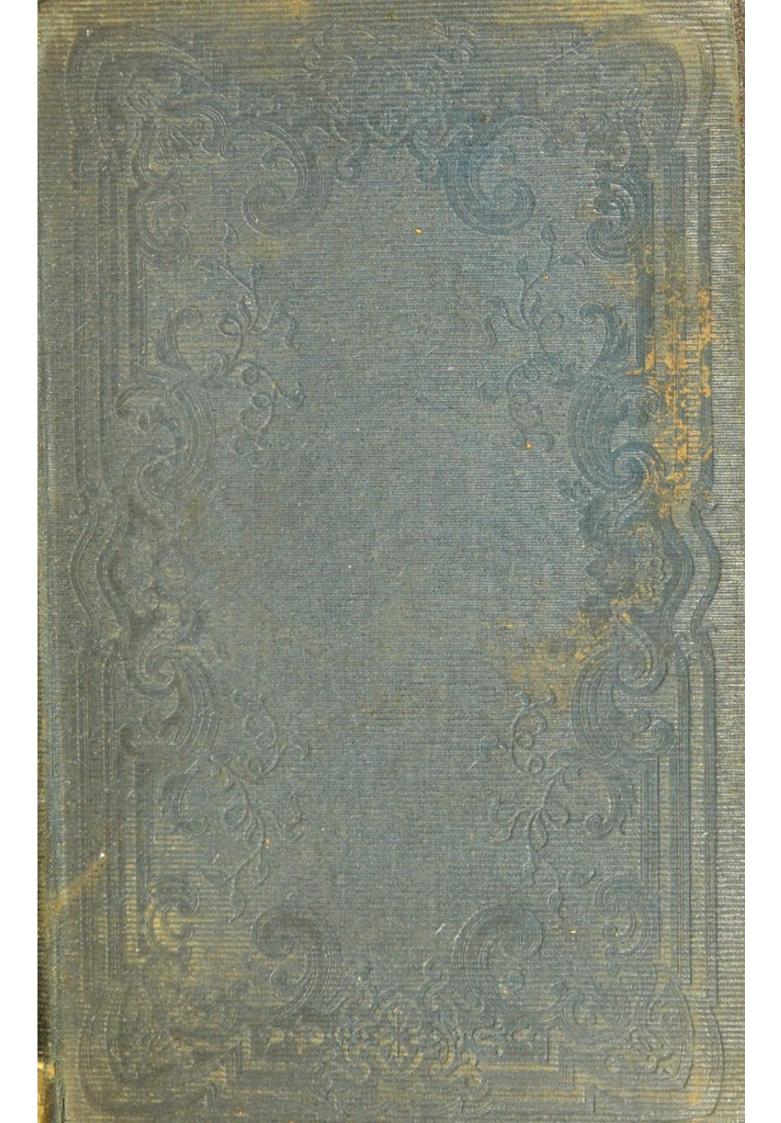


keep Rio almost without cessation immersed in a heavy, sultry atmosphere, rendered more disagreeable by want of cleanliness and the exhalations from the ravines and marshy grounds in its rear,"-yet Rio, notwithstanding, is considered by travellers generally, who have spent some time there, as well as in other parts of Brazil, to be healthy. And Walsh informs us that for many weeks at a time, during therainy season, there were several hours in each day when his clothes would be wet on him, and that he oftentimes put on wet clothes in the morning, which had remained wet all night; and that whenever the sun shone out, it was so intensely hot, that he went smoking along in his wet clothes, the water from which was exhaling by heat and dissolving into vapor. "Such weather," to use his own language, "in Africa, under the same latitude, no human being could bear; but not so in Brazil; no one is affected by those states of the atmosphere which are so fatal elsewhere. It has, with some reason, therefore, grown into a proverb, that it is a country where a physician cannot live, and yet where he never dies."

Dr. Dundas, in his sketches of Brazil, after giving a full description of the medical topography and condition of Bahia, showing conclusively that in that city are accumulated, in almost unexampled abundance, all the physical conditions which are considered by the miasmatists to constitute the elements essential for the production of febrific miasms, says: "Yet,

notwithstanding this appalling combination of physical, moral and social evils, universally admitted as the chief agents in producing the most extensive and fatal diseases, Bahia continued, and can, moreover, up to the present hour, boast the happy privilege of having escaped, since the period of its foundation, from every species of endemic or epidemic malady yellow fever, cholera, influenza, typhus and dysentery." He also states that the town of Bomfim, situated in the midst of a morass, and supplied with an immense quantity of vegetable and animal matters, exuviæ, insects, &c., which are constantly acted on by the powerful influence of a tropical sun, yet enjoys the reputation of being one of the healthiest districts in Brazil. And he further states that the inhabitants of Bomfim sometimes have intermittents during the winter season, when the marshes are completely flooded, and therefore cannot furnish febrific exhalations, and when a strong S.S.E. wind, which blows directly from the ocean, sweeps over the town; but they never have them in the hot dry months of summer, when the place is reeking with the effluvia of the These circumstances induce him to believe marshes. that marsh poison has no agency in producing these periodic fevers, but that they are most probably attributable to exposure to moist sea breezes.

This opinion of Dr. Dundas derives some support from the fact that a North East wind in Batavia, which, from the geographical position of the place,

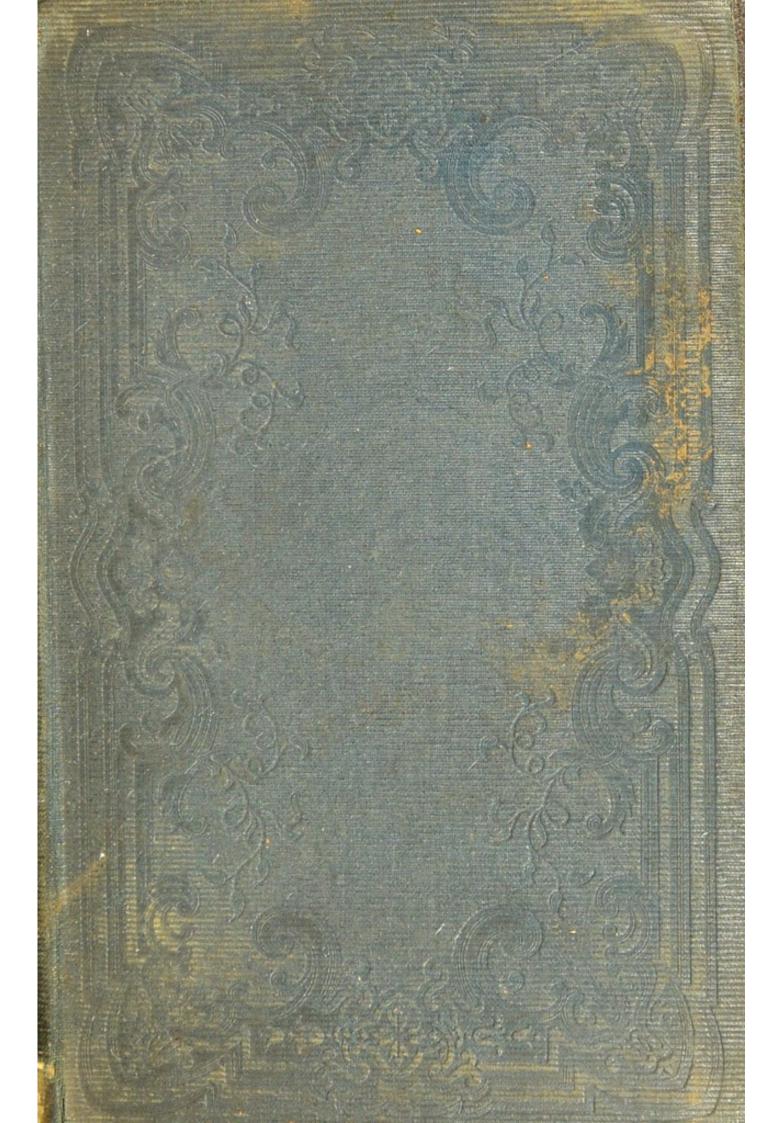


it abounds in a most luxuriant vegetation, and in numberless streams, cataracts and rivulets, which are tamed to the peasant's will. In the hottest and driest season, they are made to retain some of their water which the farmer directs into endless conduits and canals to irrigate the lands, which he has laid in terraces for its reception. It thence descends to the plains and spreads over them, shedding fertility whereever it flows, till at last, by innumerable outlets, it discharges itself into the sea."

This same system of artificial irrigation, which is so innocuous in Java, is believed by Dr. Wilson, in his medical notes on China, to be the cause of the unhealthiness of the Islands of Chusan and Hong Kong: for, in discussing this question, he says: "The meteoric influences and the aspect of the country appear highly favorable to health—what is detrimental is believed to be chiefly the wilful work of man's hands, or of perverse ignorance."

Dr. Thomas, in his remarks "on the peculiarities in figure, the disfigurations, and the customs of the New Zealanders, and on their diseases, and their modes of treatment," says: "I have not seen a case of Intermittent or Remittent fever among the New Zealanders, and Dr. Rees, who has been resident for ten years near a populous pa (village) on the bank of the Wanganui river, has never seen one either."

"It is very remarkable," says Dr. Thomas, "that in New Zealand, where the temperature is for many

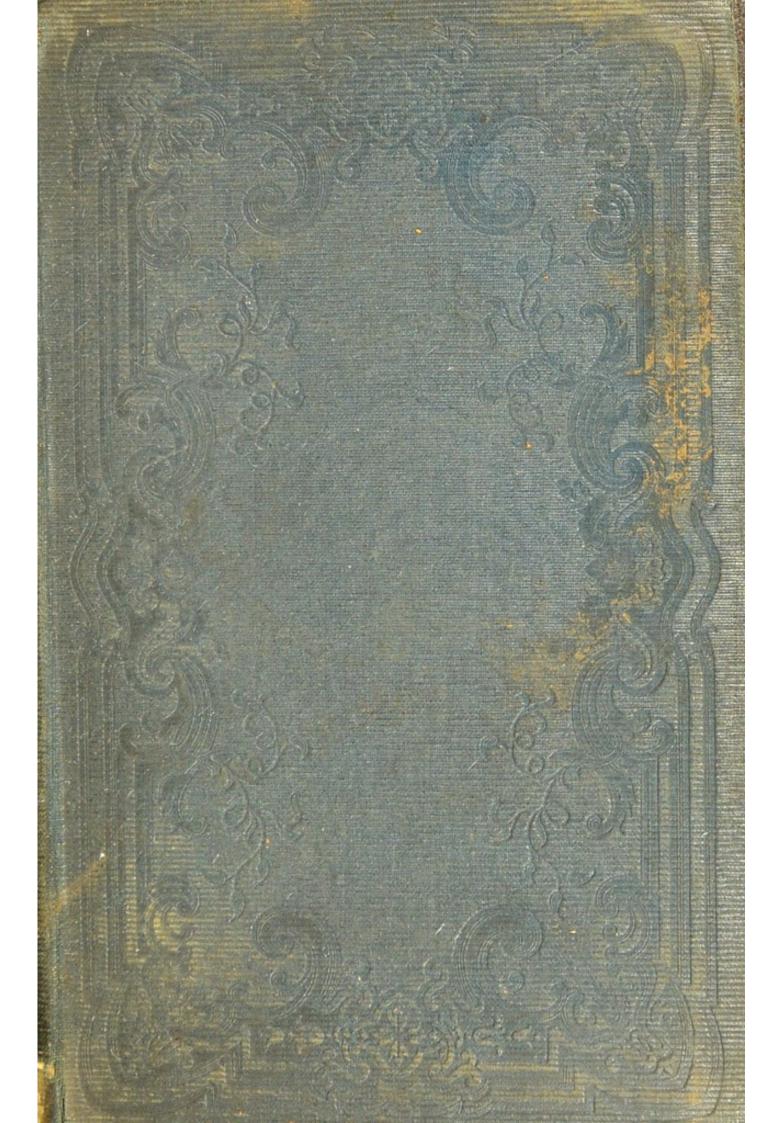


of the exhalations from these marshes day and night, living and sleeping, owing to "the shore duties of the service, in the midst of marsh stenches and musquitoes, when the days were hot, and the huts open and exposed."

Captain Wilks mentions that these Islands are hot, moist, fertile, and remarkably healthy.

On the other hand, Mr. Peale observes that almost every one of the expedition suffered more or less from endemic diseases, after their arrival on our northwest coast, that were encamped upon the Wallamette river, in Oregon, where there were no marshy grounds, excessive moisture, stagnant ponds, or other sources of miasm, as both the earth and the atmosphere were remarkably dry.

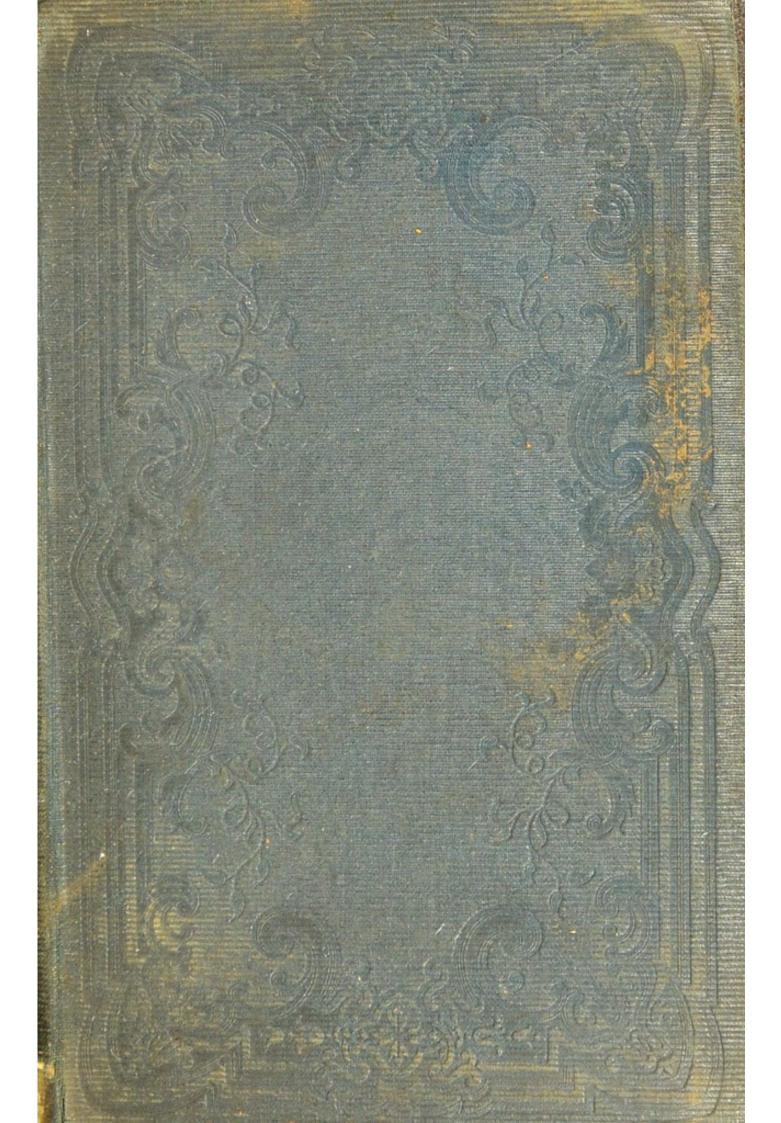
Dr. Hope, of Princeton, in a letter to Prof. J. K. Mitchell, of Philadelphia, describes the Island of Singapore, which lies within the tropics, and abounds in streams, marshes, ponds and pools of stagnant water, with its jungles and a most luxuriant vegetation in many places, of astonishingly rapid growth, and equally rapid decay, as being very rarely visited by fevers of any kind, and when they did occur, were from "imprudent exposure to fatigue or the sun."—
"Singapore" says the Doctor, "is considered a kind of Sanatarium for the oriental invalids, who go thither, from every quarter of the eastern world, to escape from malaria or to recover from chronic diseases."

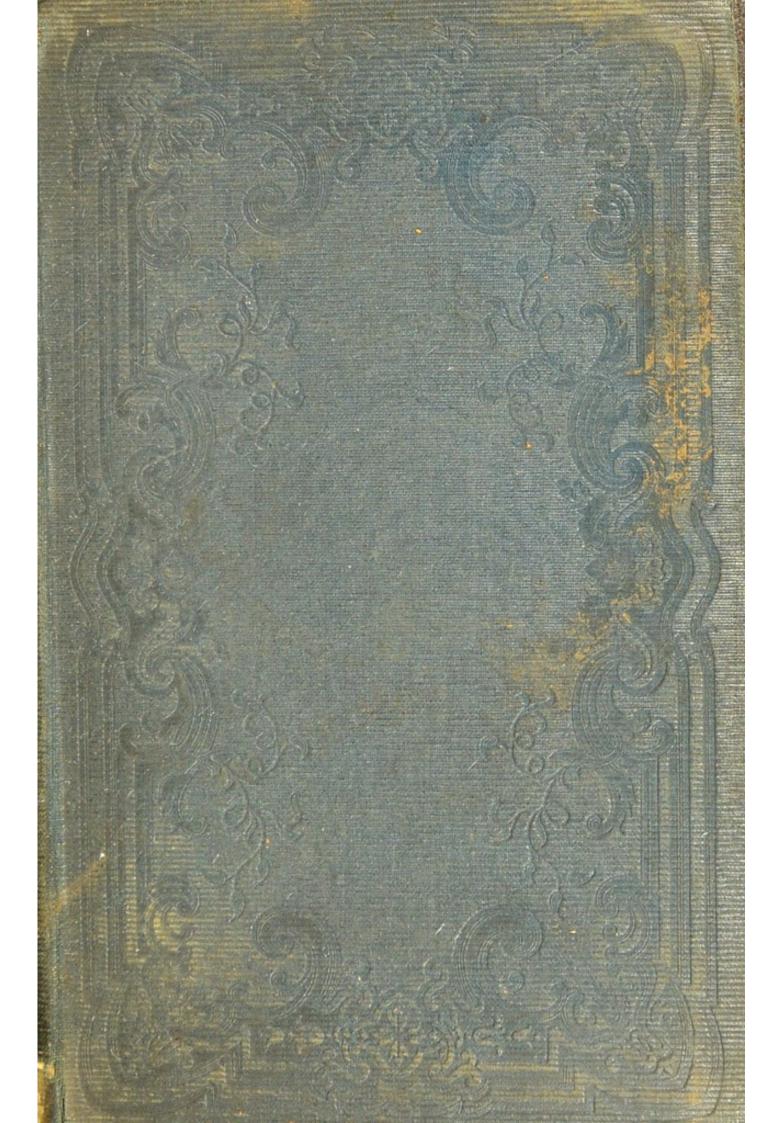


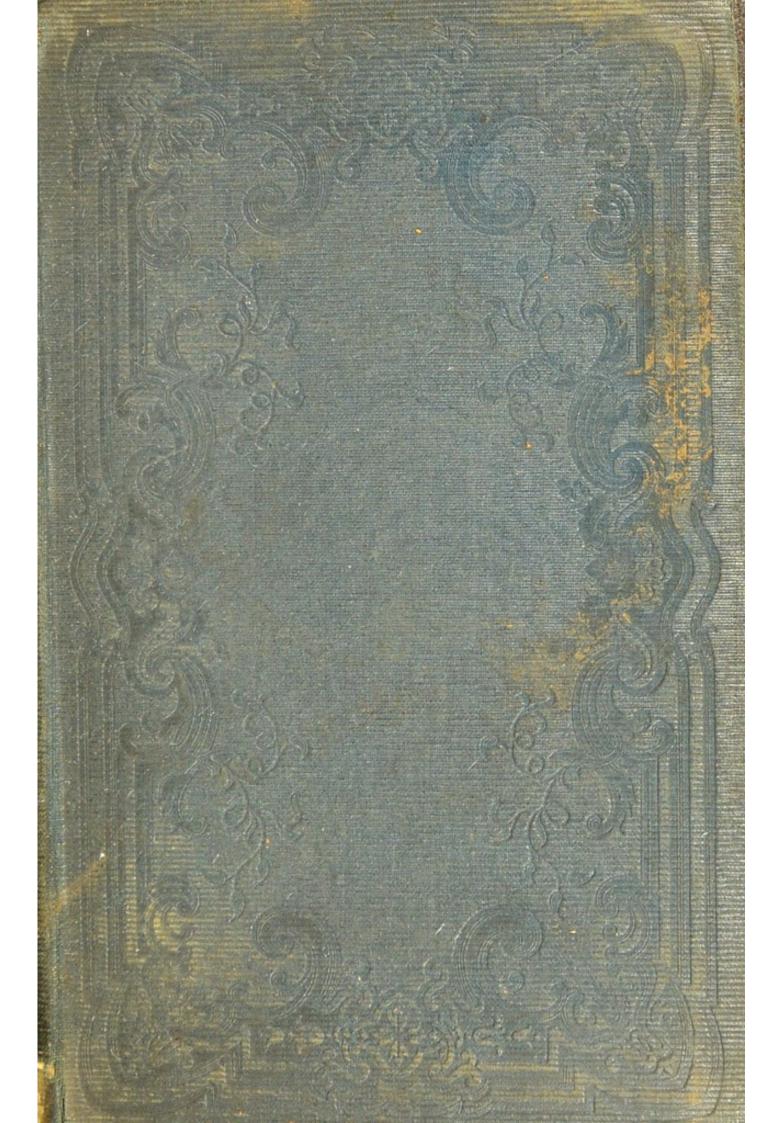
Dutch house ought, from the above creed, to be attacked annually with intermittent fevers, since to each is attached a summer house, situated immediately over a small stagnant canal, covered with vegetable remains, and exposed to the sun's rays.—
Here, hours, especially in the evening, are spent by the family, without the members of it being afflicted with disease."

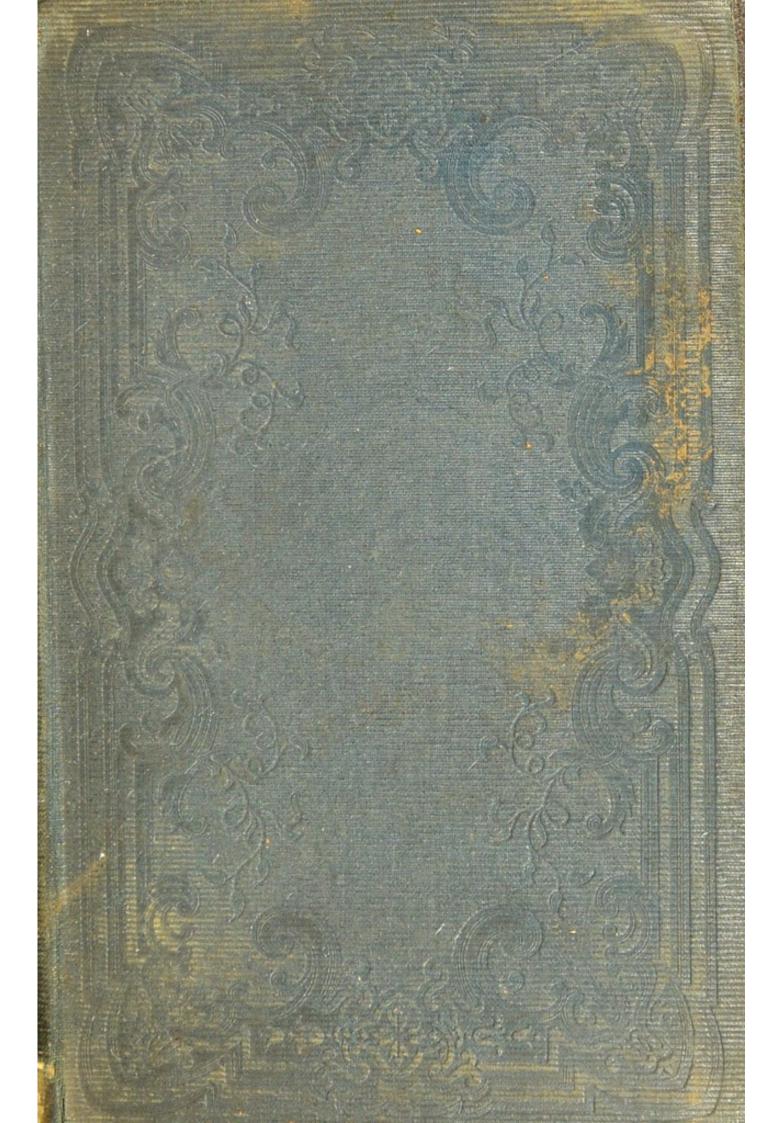
So, what is called the "Jew's Quarter," in Rome, is represented by Dr. James Johnson, in his work on change of air, as the dirtiest, filthiest, dampest, "and the healthiest spot in that famous city." Being down upon the shores of the Tiber, and more exposed to the vapors from the river, and wet river banks, than any other portion of the Roman Capital, it ought to be sickly, according to the views of the miasmatists, but "it is quite free from the fatal malaria."

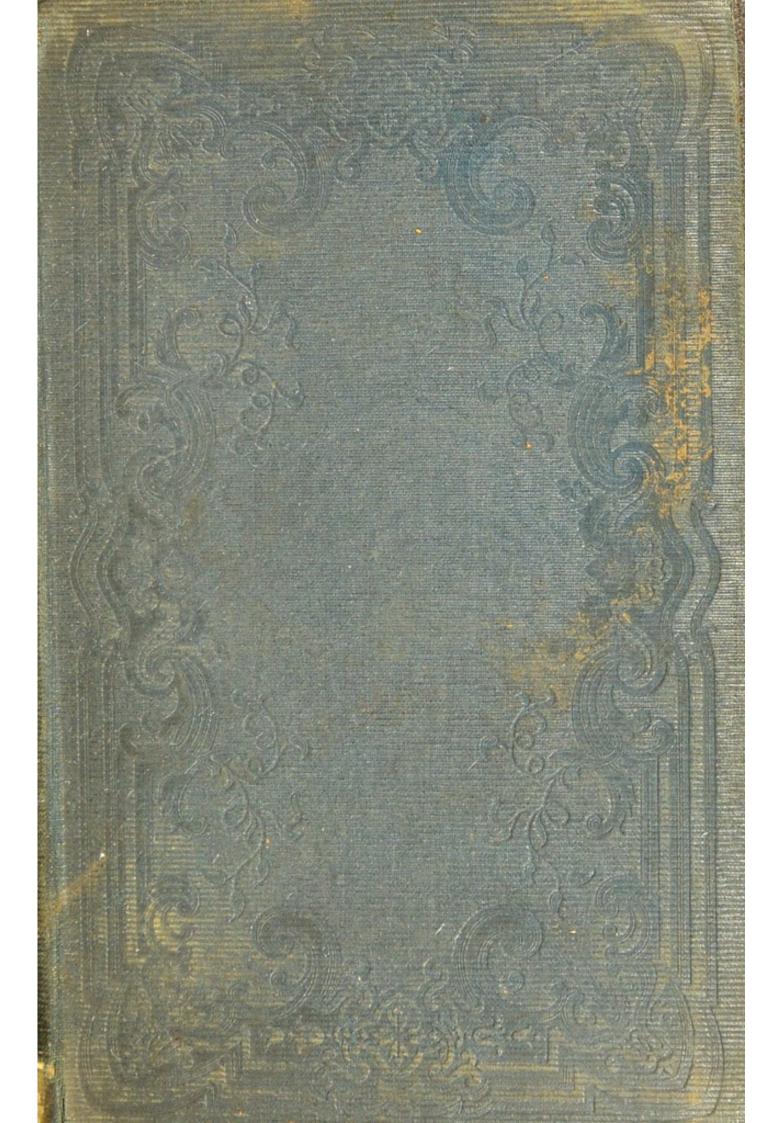
And Lisbon, one of the filthiest towns in all Europe, cannot carry on gardening, which, in so dry a country, is of the utmost importance to every family, without artificial irrigation, and that the inhabitants may be able to accomplish this desirable purpose, the water is collected during the rainy season in the cisterns in their gardens, and under their houses.—
"The water," says Ferguson, "being of utmost importance, is husbanded carefully, for several months in the dry season. Diminishing daily by drainage and evaporation, it, of course, gets into a most concentrated state of foulness and putridity, with a thick green

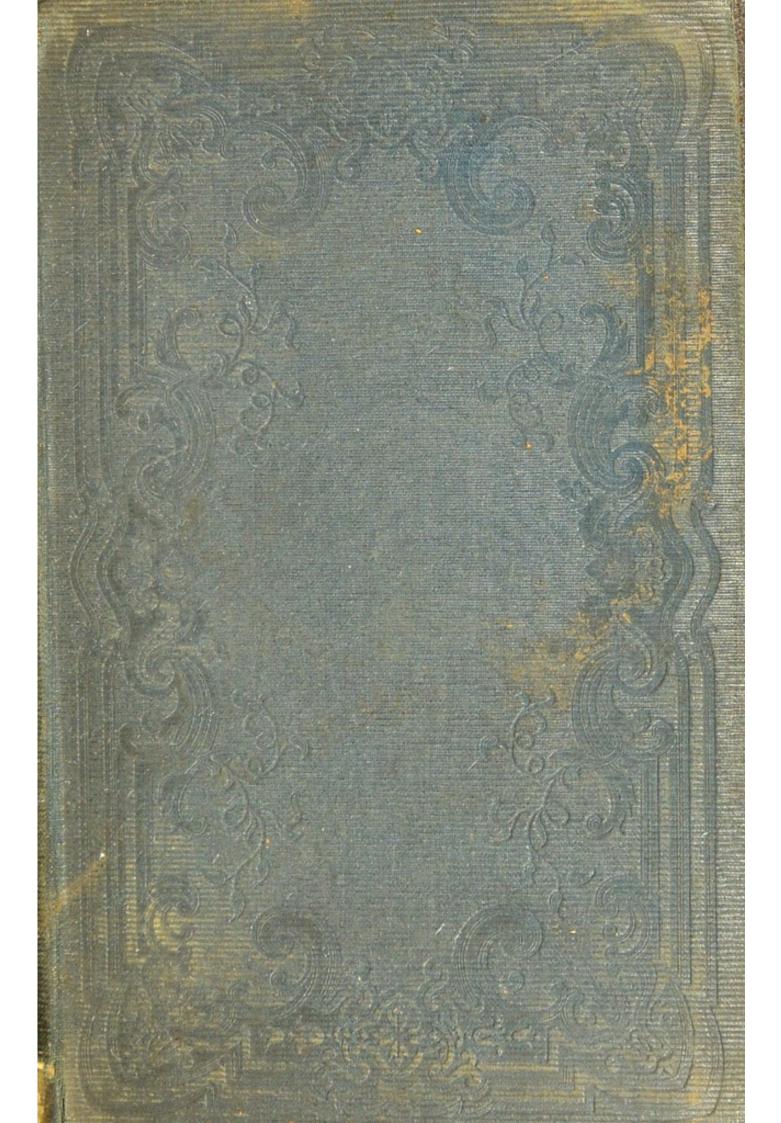










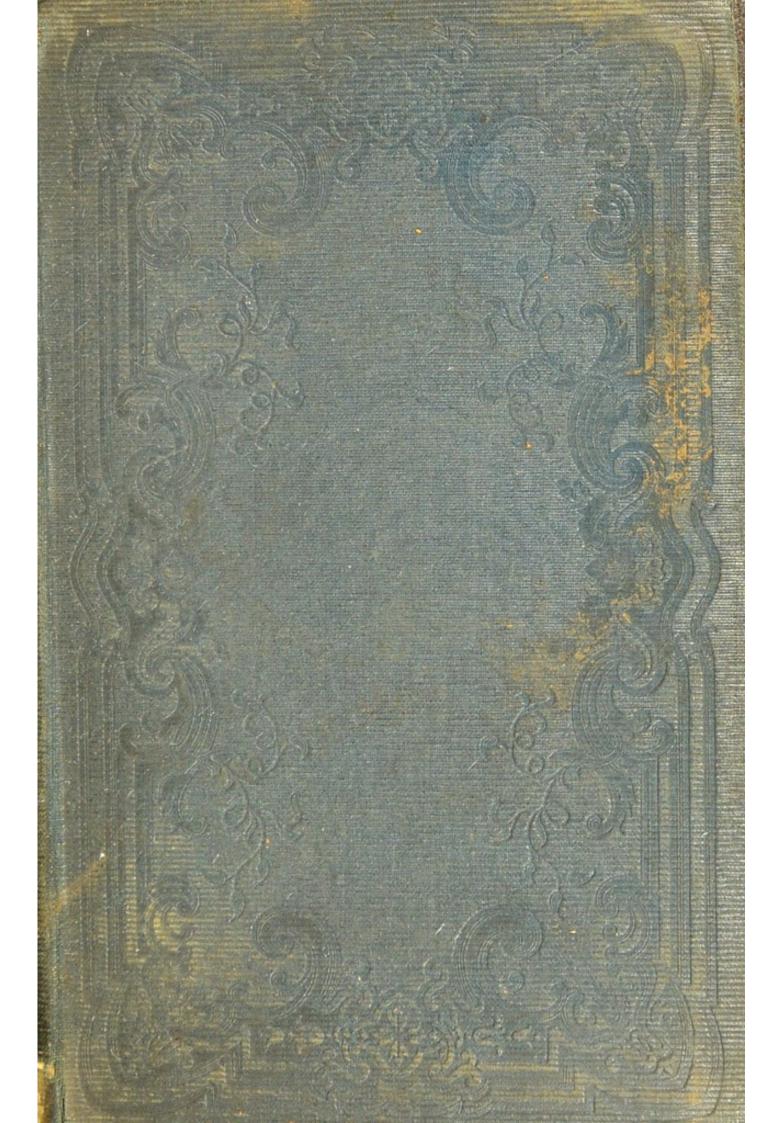


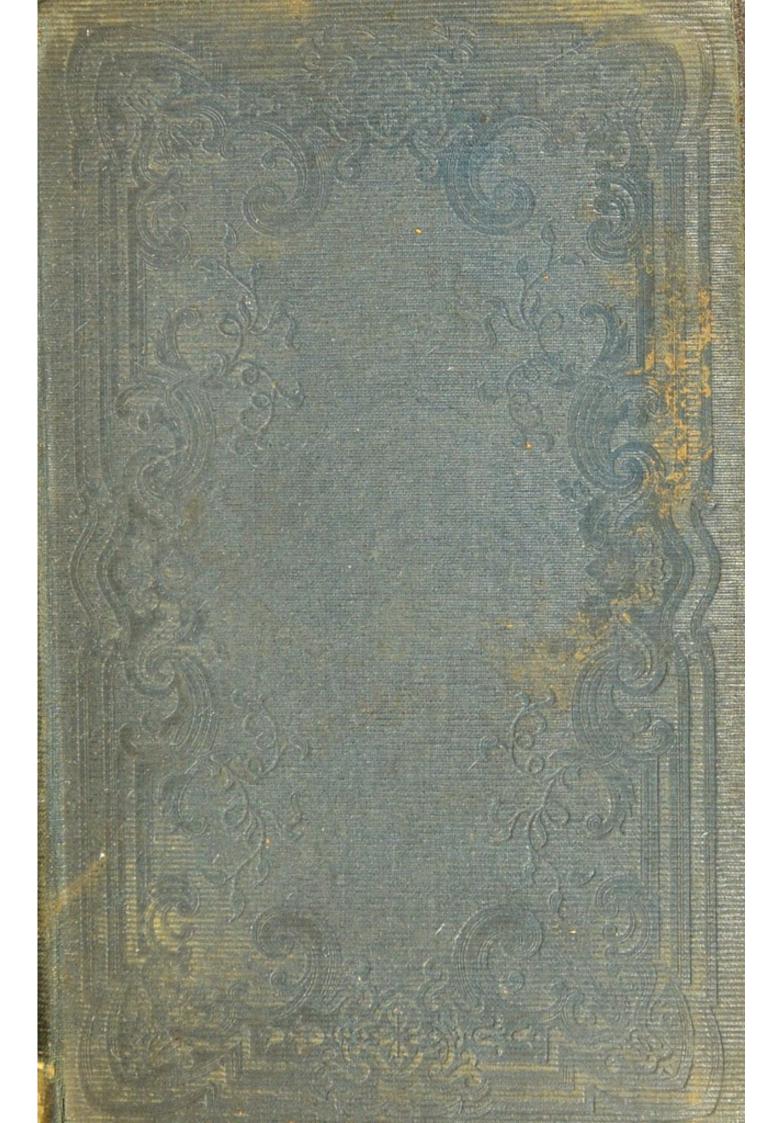
made one of the wettest, by the periodical rains, with its vegetation and aquatic weeds restored, that it can be called healthy, or even habitable, with any degree of safety."

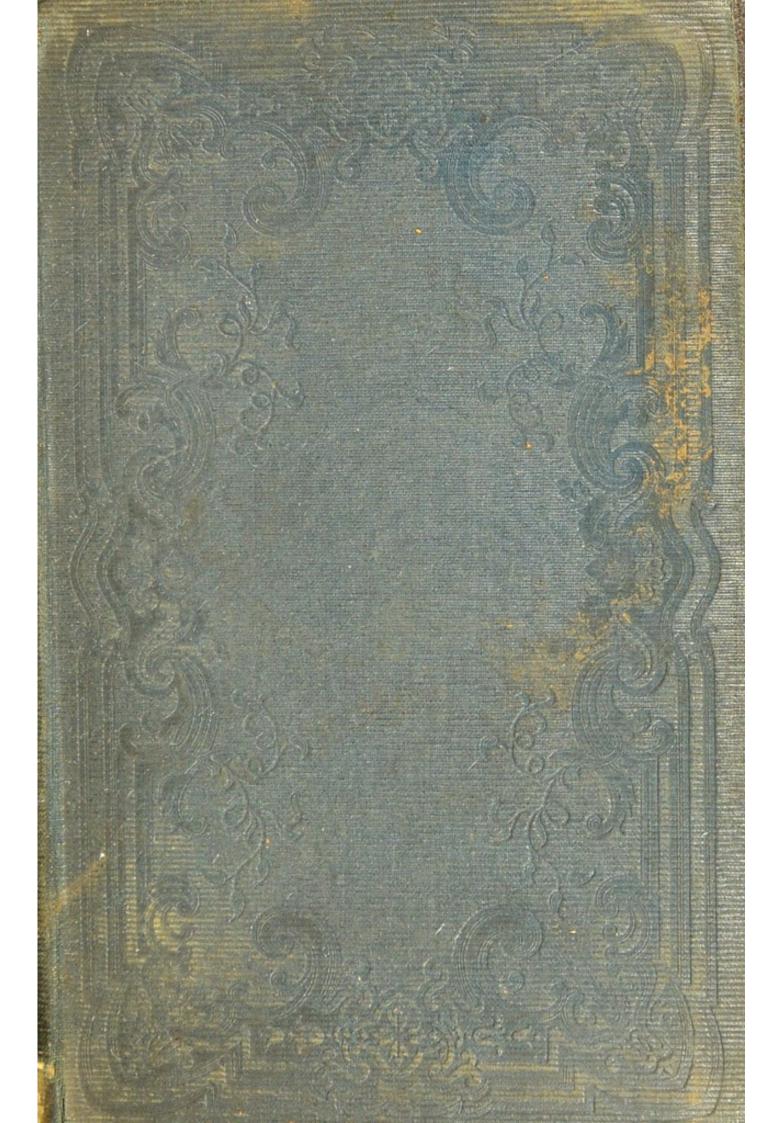
Dr. Brown, a decided miasmatist, confirms this statement, and adds: "He has repeatedly observed that cases of fever and ague abounded in parts of Estremadura, so remote from the Gaudiana or any stream, that no influence from visible water or dampness could be supposed to have a share in their production."\*

And Professor Merrill, a man of deserved consideration, in a lecture before the Memphis Medical Society, adverting to the great mass of irrefragible evidence adduced by Ferguson and others against the "decomposition theory;" and in view of the "many well authenticated instances of the prevalence of the most malignant and deadly forms of fever, in the midst of hot and parched up sand plains, where there was nothing to decay, or moisture enough to admit of decomposition even if there were materials for it," says: "Modern writers cannot refuse their testimony against the decomposition theory, unless they are willing to discredit the statements to which I have referred, which no man living has had the hardihood to do, for they are sustained, among other witnesses, by the whole of those vast armies, officers and men, which the British government to the astonishment of

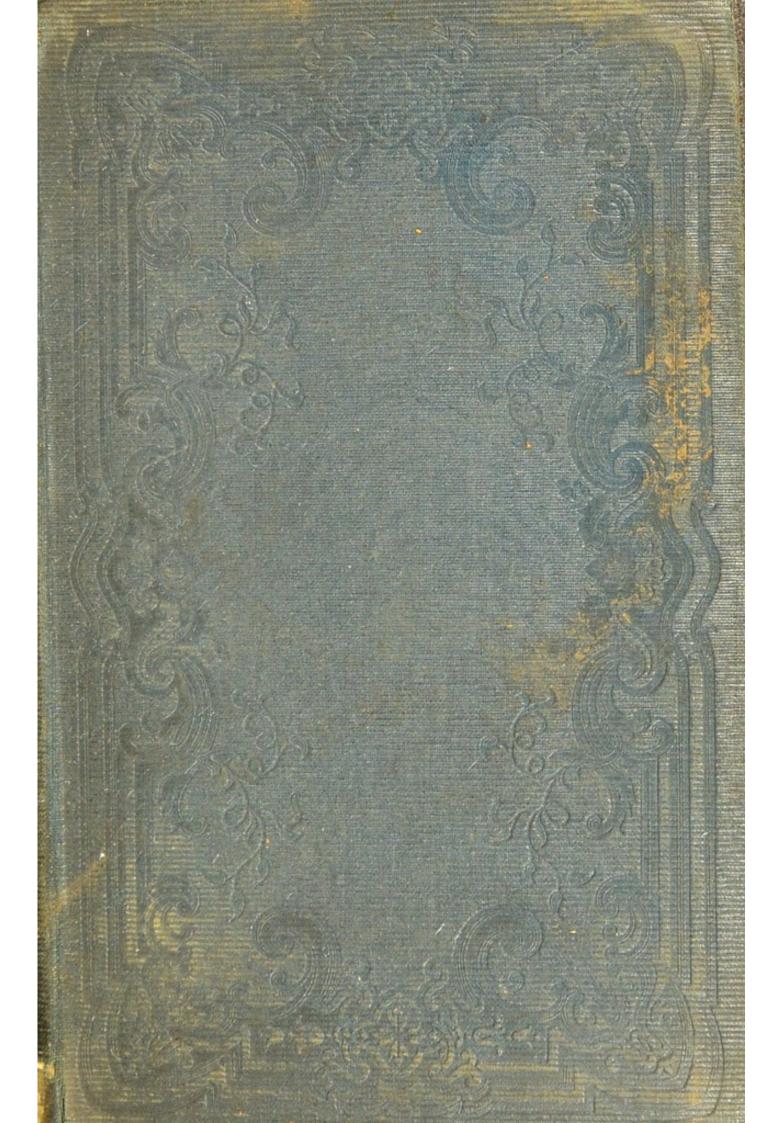
<sup>\*</sup> Cyclopedia of Practical Medicine.

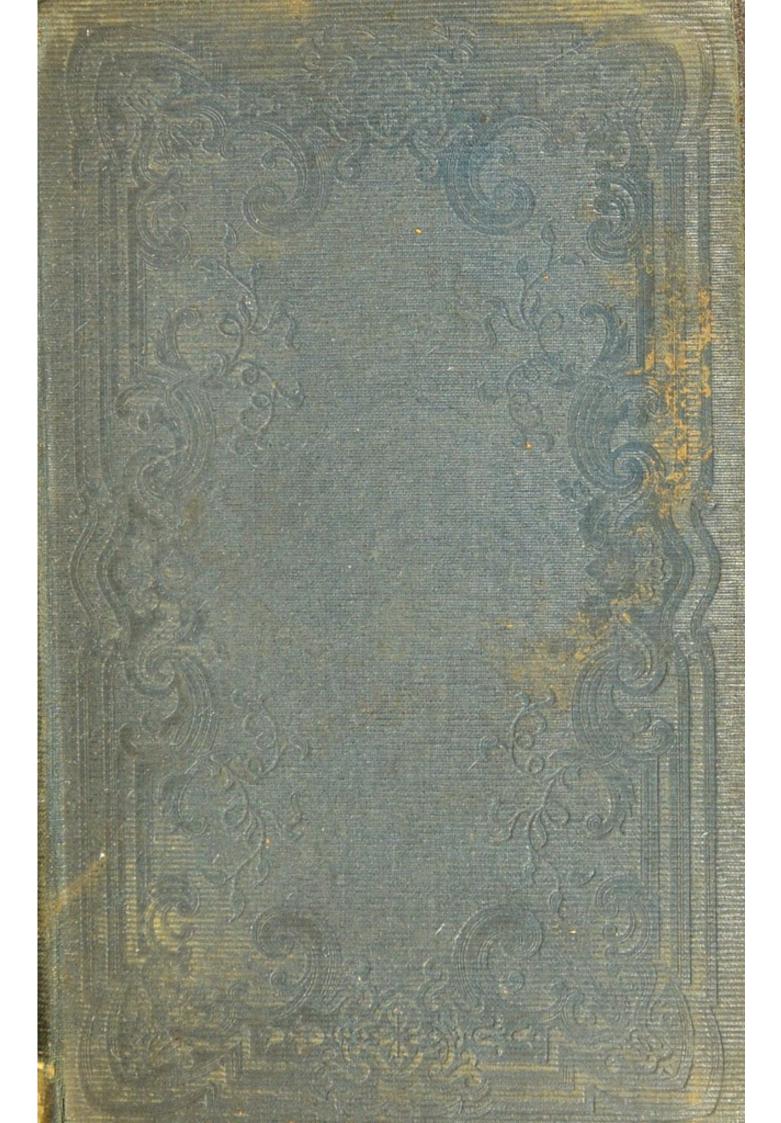






and where vegetable decomposition, to the extent of poisoning the atmosphere, is never suspected. Professor Wood attributes the prevalence of intermittent and remittent fevers, under such circumstances, to an unaccountable epidemic influence, and not alone, to the presence of marsh poison; for he says, speaking of the effects of epidemic influences: "Hence, probably, the late prevalence of intermittent and remittent fevers, during the summer and autumn, in portions of the middle and eastern States, in which these diseases were formerly almost unknown; while the circumstances of these regions, in relation to the production of miasmata, remained, so far as could be discovered, the same as in preceding years." The learned professor does not exactly acknowledge here the agency of two separate and distinct causes for the production of one and the same effect, for he seems to be fully aware how apparently inconsistent this statement is with the previously expressed opinion of the specific febrile character of miasmata in these diseases, and therefore endeavors to reconcile them, by supposing that there is always, and in every place, even in the healthiest situations, where there is no unusual amount of moisture, heat and vegetation, and where intermittent and remittent fevers have been hitherto unknown, a sufficiency of exhalation from decomposing vegetable matter to produce these diseases, if there was only present a little epidemic yeast to enliven the mass. Now, this view of the matter,





extensive marshes on a portion of the range of Calabrian mountains, which were formerly covered with forest, but which are now cultivated, upon which marshes, thick fogs or mists are always to be found during the night and early hours of the morning; yet the peasants sleep with impunity along the margins of them, and even the proprietors remain in their immediate vicinity during summer and autumn without injury.

Dr. Robert Jackson, in his work on the diseases of the West Indies, informs us, that the same fevers occur in those islands amongst the series of mountain ridges, not exposed to the exhalations from swampy and low grounds, and at an elevation of six or seven hundred feet above the level of the sea; and Dr. Jas. Johnson, in his work on tropical climates, asserts, that these diseases prevail in the high hills and thickly wooded parts of the mountain ridges of the island of Ceylon, and on the secondary mountains and primitive ridges in Sicily; while Dr. Heyne attempts to account for their occurrence amongst the rocky, wooded hills, in the Madras Presidency, distant from any acknowledged source of miasms, by supposing them to be owing to some magnetic influence, dependent upon the ferruginous character of the rocks.

Fourcault also mentions, in his work on chronic diseases, that "the mountains surrounding the Agro Romano, at Tivoli, Subiac, and Terni, are sickly, notwithstanding there are no marshes about them."

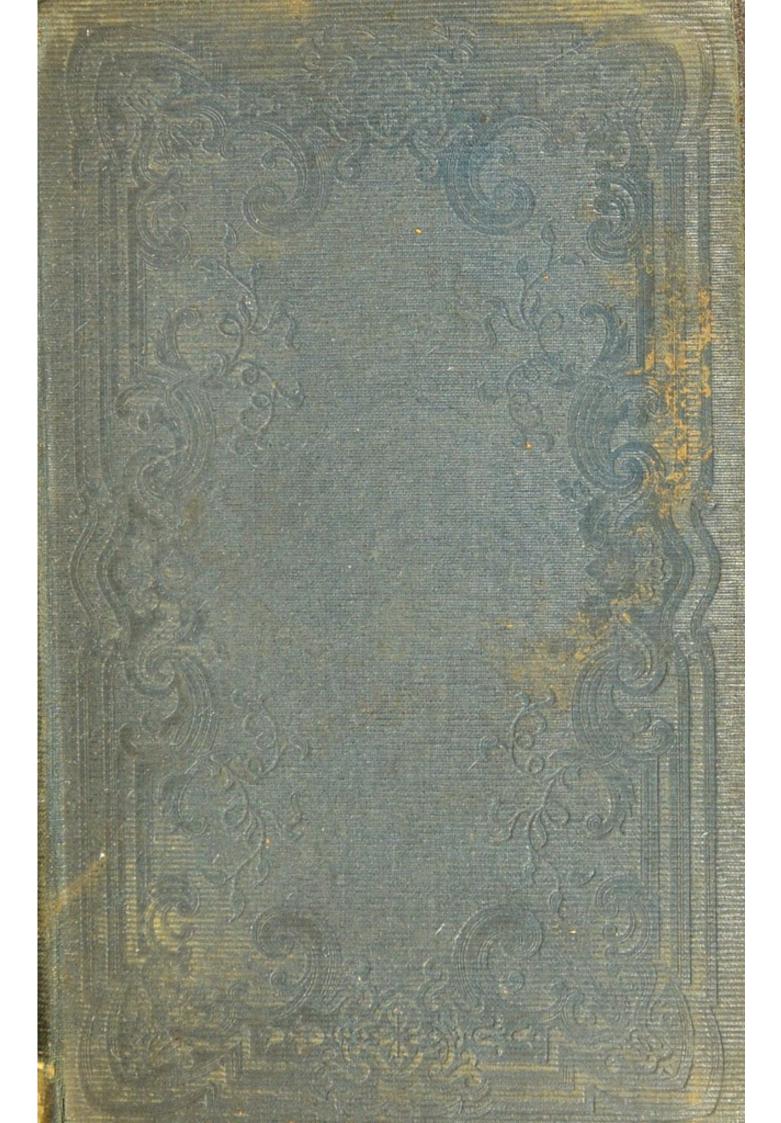
And Wortabet says, in his fevers of Syria, "that the town of Hasbeyah, situated on one of the high hills near Mount Hermon, and distant twenty-five miles from the marshy plains of Huleh, is a notorious place for intermittents of the most obstinate character which we have ever seen," while "the villages which are situated between it and the marsh are, on the whole, remarkably healthy."

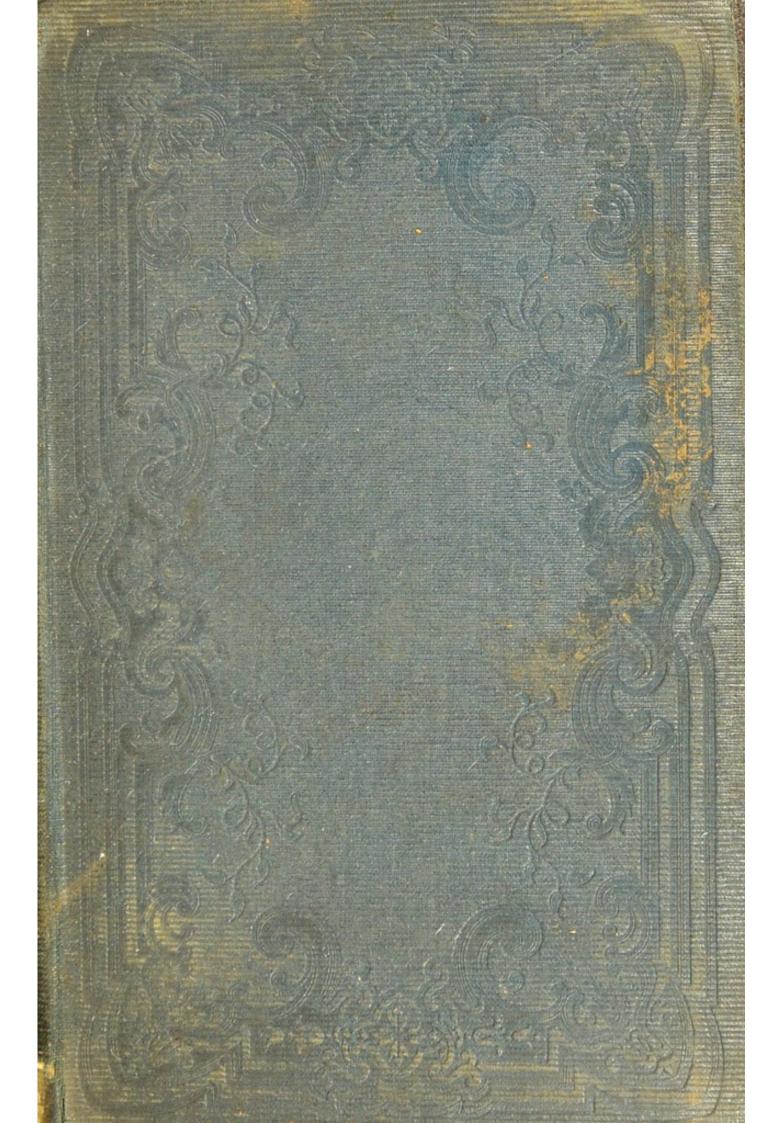
In the same manner, other distinguished observers have insisted that these diseases have been known to originate and prevail extensively in argillaceous soils, where no vegetable putrefaction was going on, or at all suspected.\*

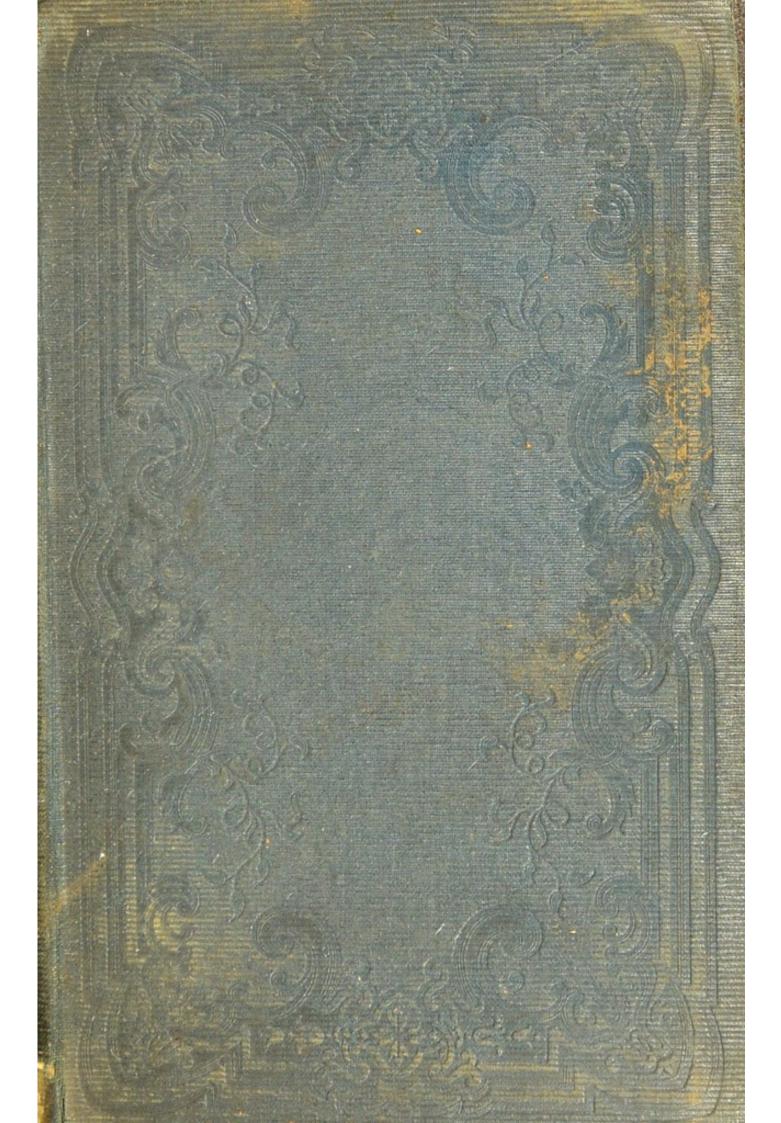
The celebrated Linnæus contended, in his inaugural essay, that periodical fevers originated in all those places where the soil abounds in clay, and only in such places; and Von Aenvank, a Netherlander, endeavors to explain their prevalence in argillaceous soils, by supposing that clay possessed the property of absorbing oxygen from the atmospheric air, and thus imparing its purity.

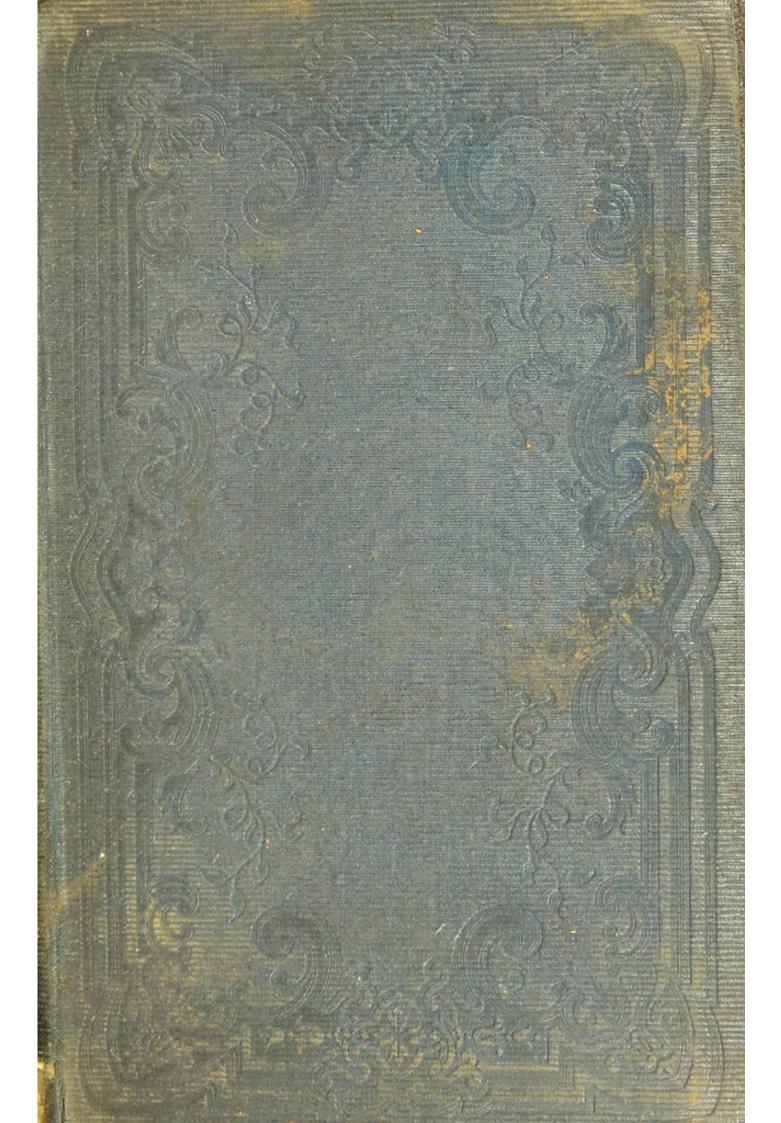
But Dr. Watson, in his lectures, thinking this matter not so well settled, says: "No very certain or extensive observations have yet been made in regard to the kind of soil from which the miasmata are most apt to be extricated. That which is loose, penetrable, porous and sandy, appears highly favorable to their formation. So are soils which containing much clay are very retentive of moisture."

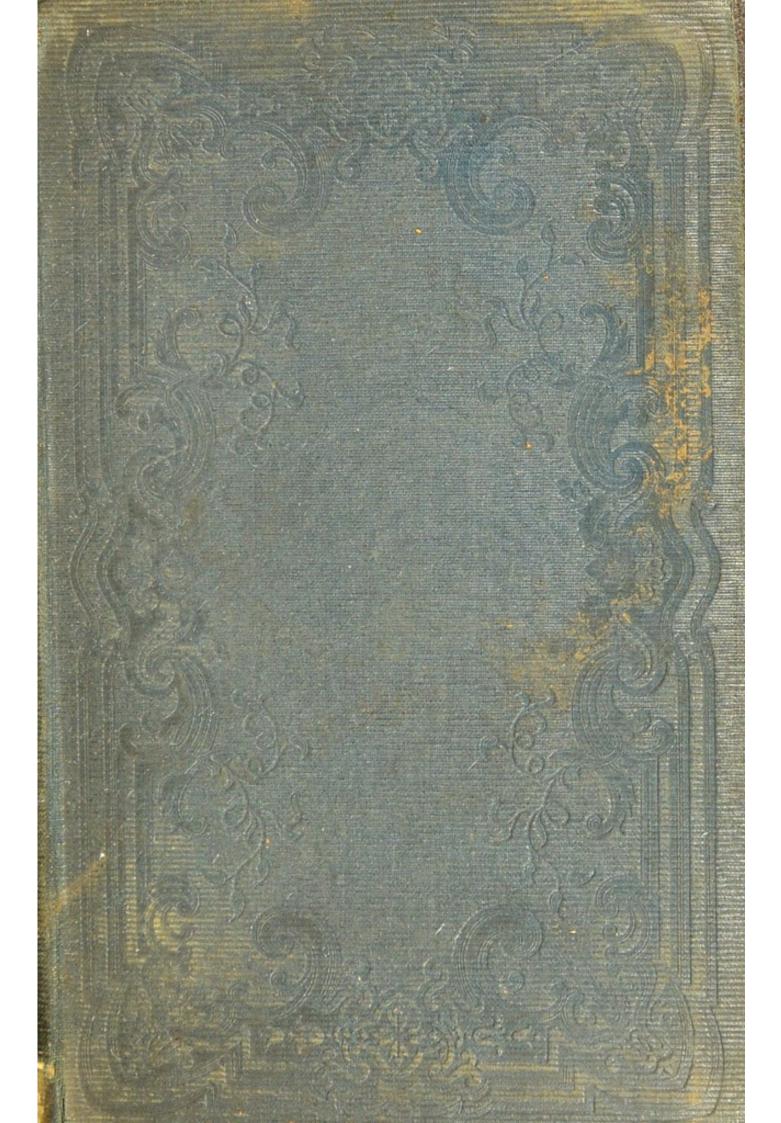
<sup>\*</sup>Chisholmn, Brown and others.











## AN ADDRESS

DELIVERED BEFORE THE

## MEDICAL SOCIETY OF NORTH CAROLINA,

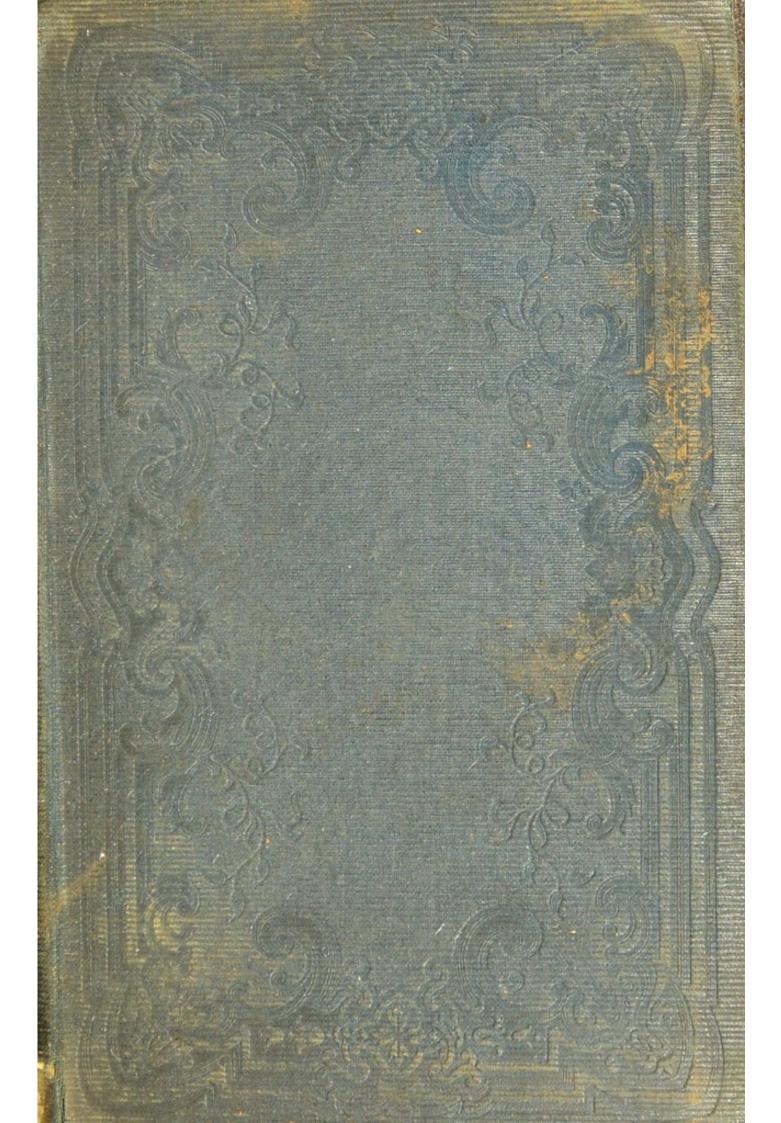
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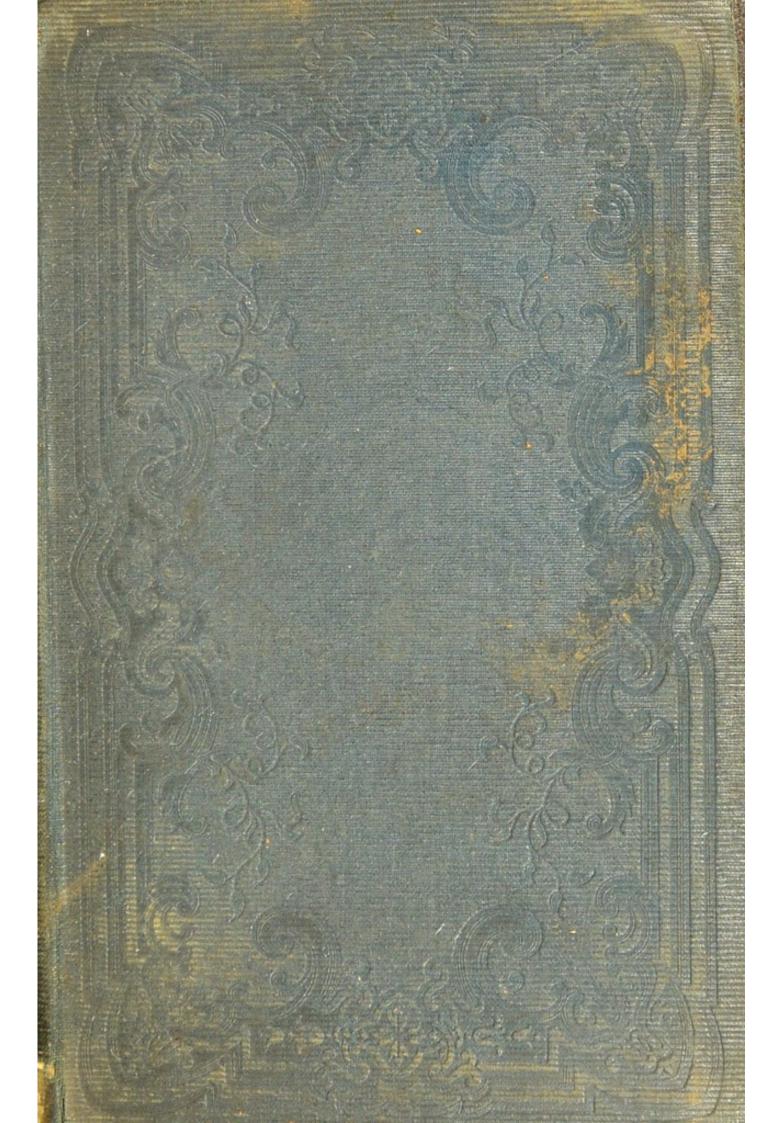
## Fifth Annual Meeting.

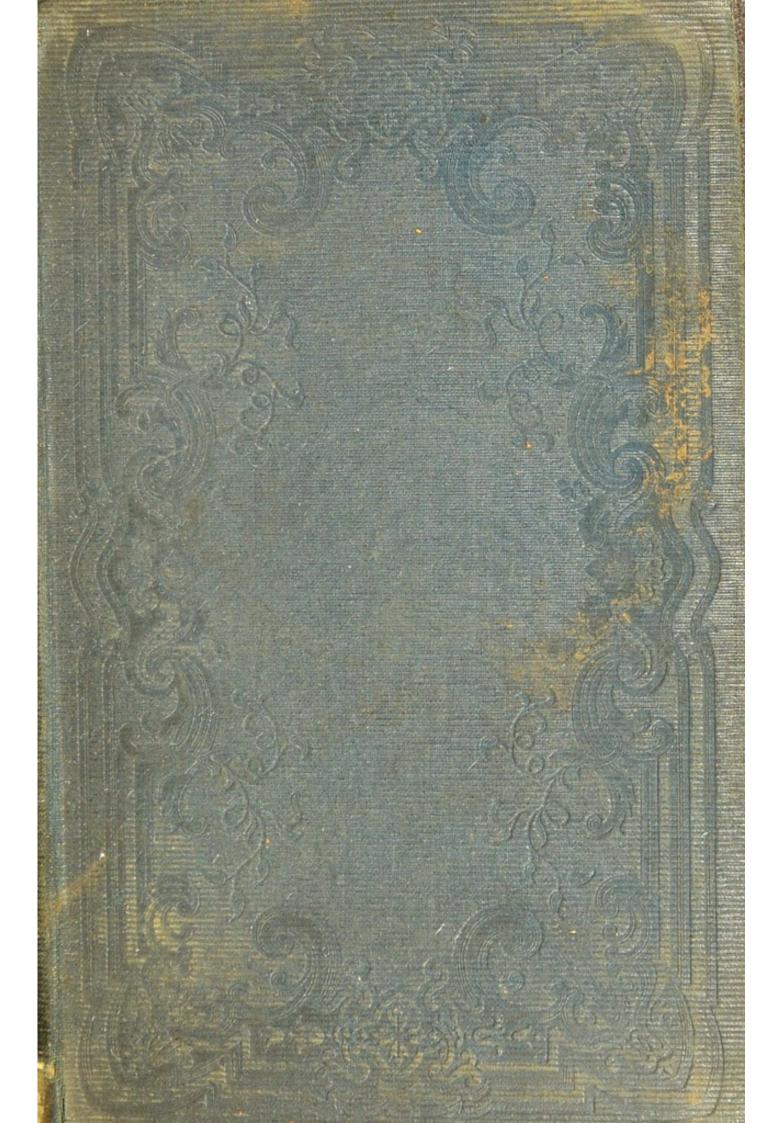
Mr. President and Gentlemen
of the Medical Society of the State:

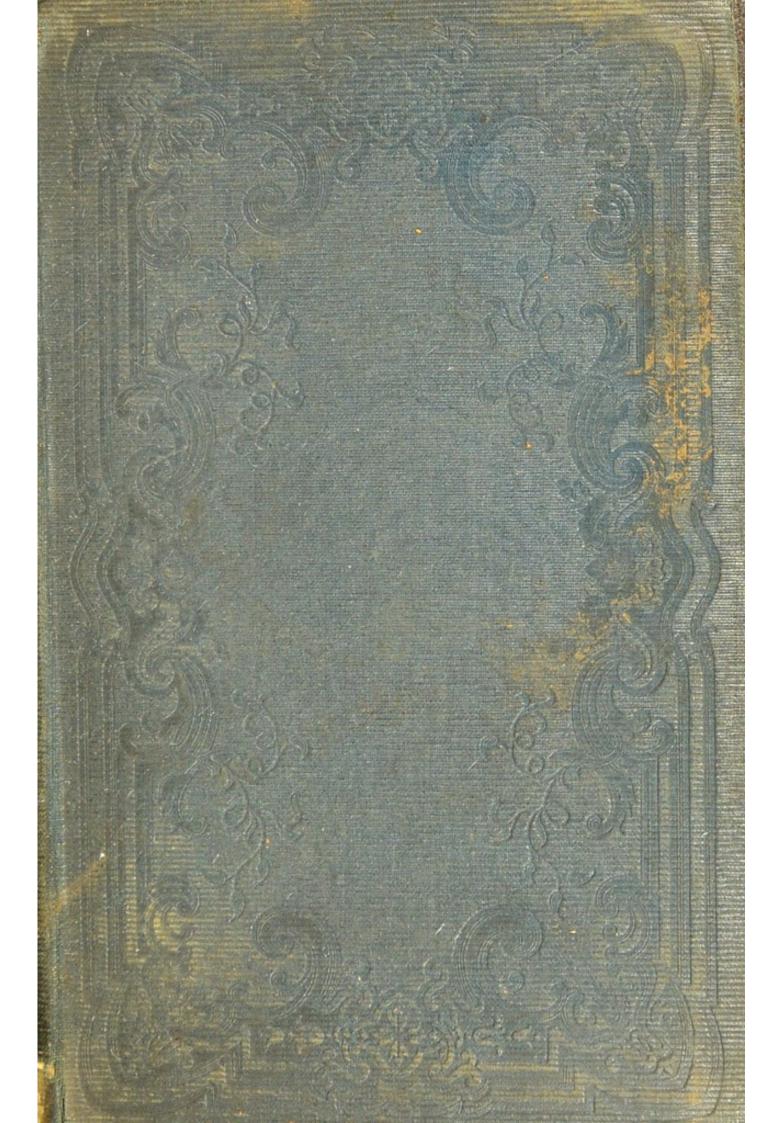
It was my purpose to make this communication to you at the last Annual Meeting in Fayetteville, but circumstances of a pressing nature prevented my attending that meeting; and as I preferred reading to the Society, first of all, my remarks in reply to Dr. Satchwell's strictures upon my address, delivered here three years ago, it will be readily understood why they have not been made public before.

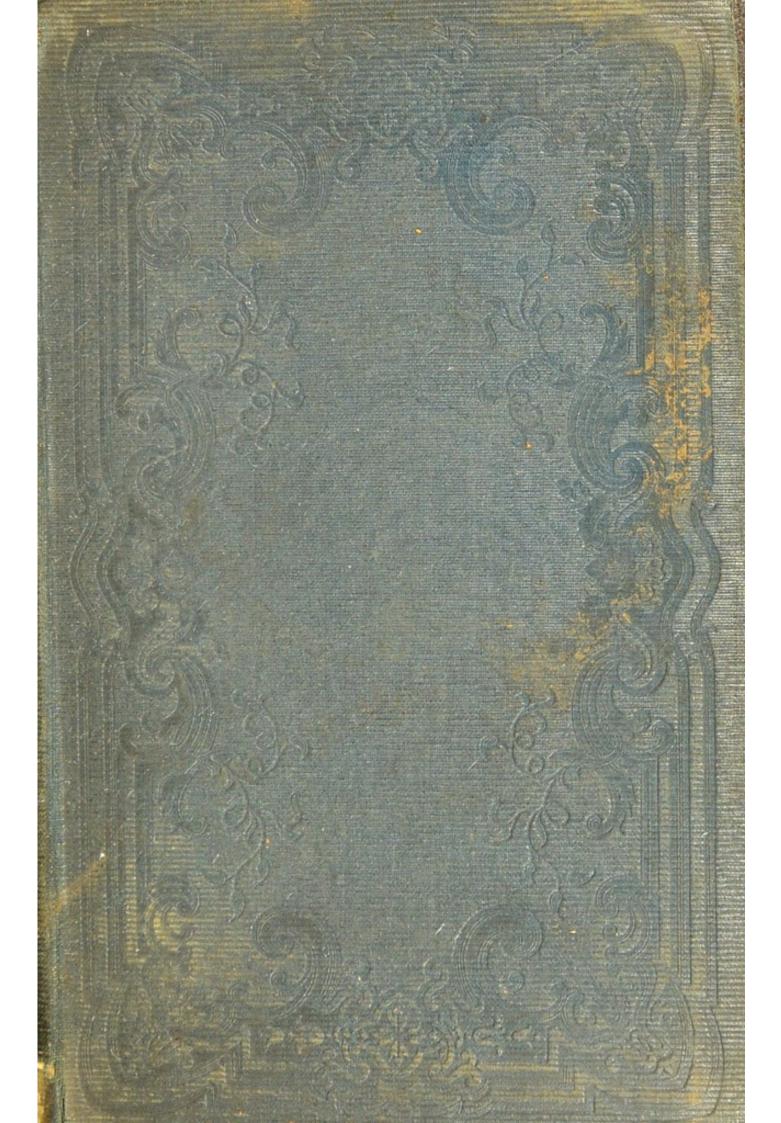
In that address, I emphatically stated that I was submitting for your consideration the chief evidence on which, against the early convictions of education, I was first led to doubt, and finally to reject, a doctrine sanctified by the lapse of ages, and supported by many great authorities in ancient and modern medicine. And being fully aware, that in these times, no proposition in medical philosophy is mooted which does not become a subject of controversy, where every statement is met by a plausible counter asser-



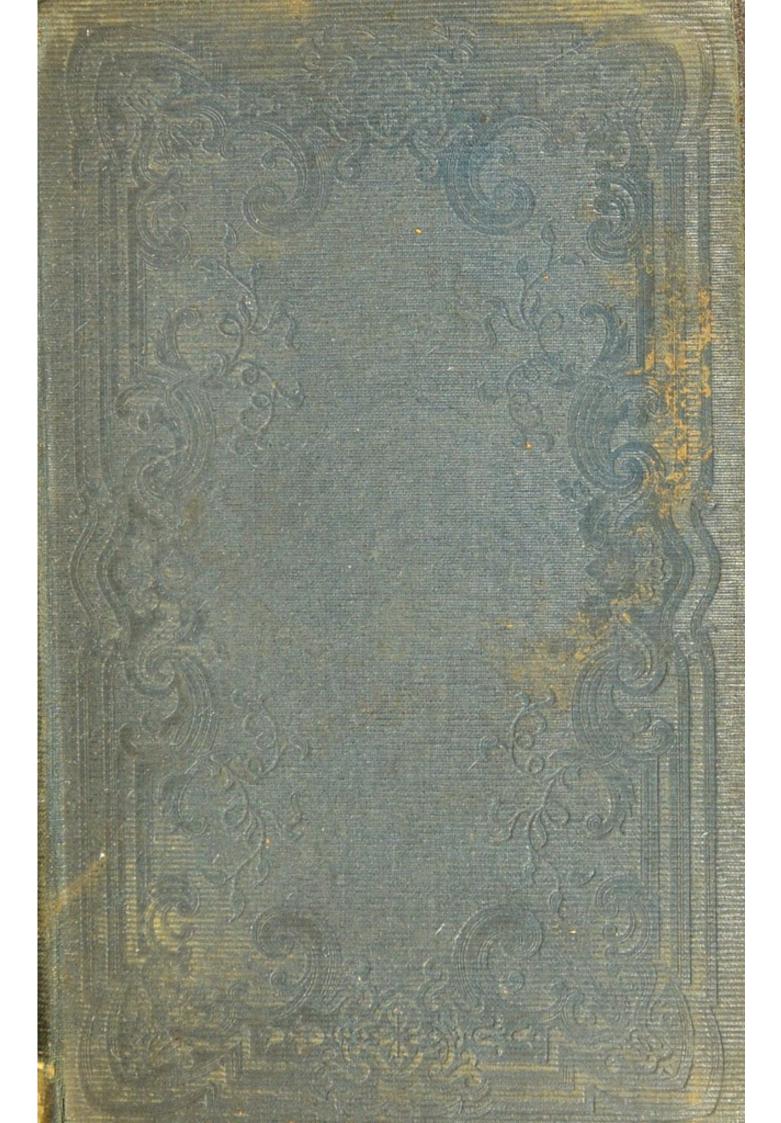


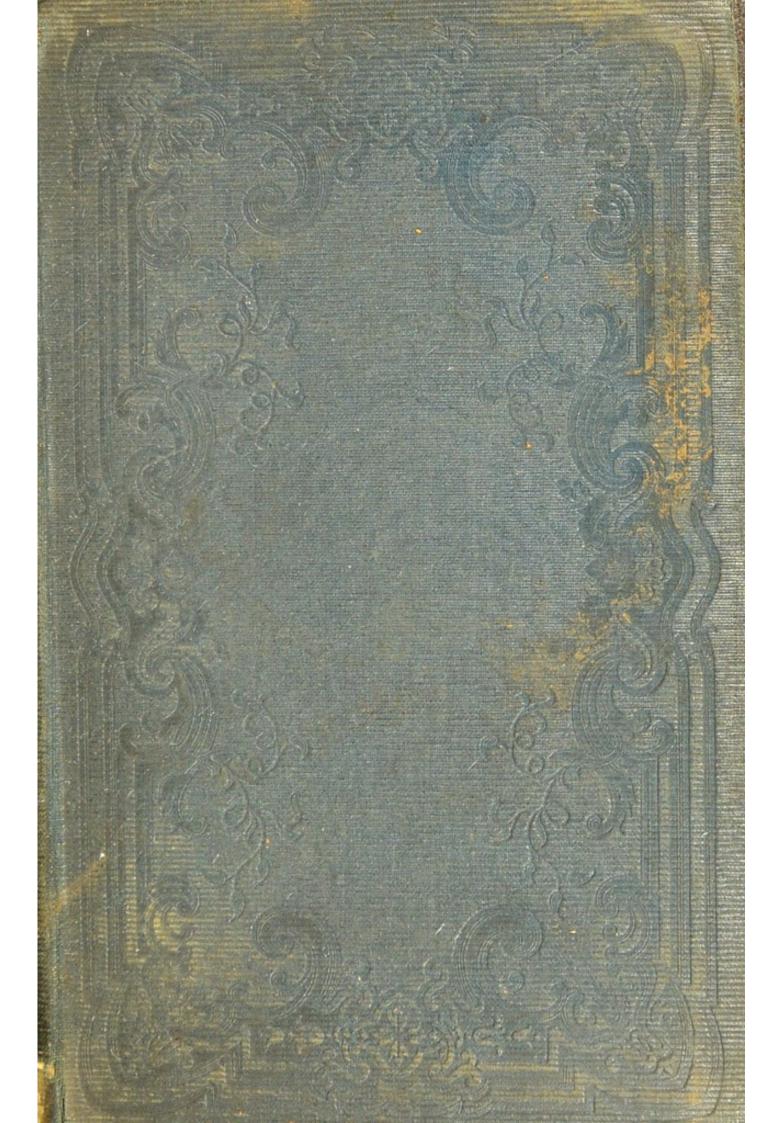






same, nor is their constitution always identical; and they cannot all be individually comprehended in one and the same species." "Non ubique et semper cadem sunt ejusdemque materiæ et singulos sub una eademque specie comprehendi non posse." Again: "There are carried into the air various kinds of corpuscles or particles held in solution, and connected rather by accident than by definite laws, which, on being received into our body, produce greater or less disturbance in it, according as they have been variously tempered together, or as they may even approach the nature of a poison." " Varia quoque in aerem ferri corpuscula, seu particulas solutas, et casu potius quam certa lege societas, quæ, in nostrum corpus ingestæ, minorem vel majorem noxam inferunt prout minus vel minime inter se temperatæ, aut etiam ad veneni prope naturam evector sunt." But elsewhere he distinctly asserts that there are at least two kinds of poisonous effluvia from marshes, the one inorganic, and the other organic.-The inorganic is "an accumulation of dead and inorganic particles, with impure sulphur, and acrid and volatile salts, with other extraneous matters, which being densely evolved in the exhalations from the waters, affect, in a very unpleasant manner, the sense of smell. The other genus of effluvia is composed of a multitude of worms and ova, which float about in the atmosphere, a distinct host of ærial animalcula." " Altarum quidam est congeries inorganicarum atque inanimarum particularum impuri sulphuris, salium-



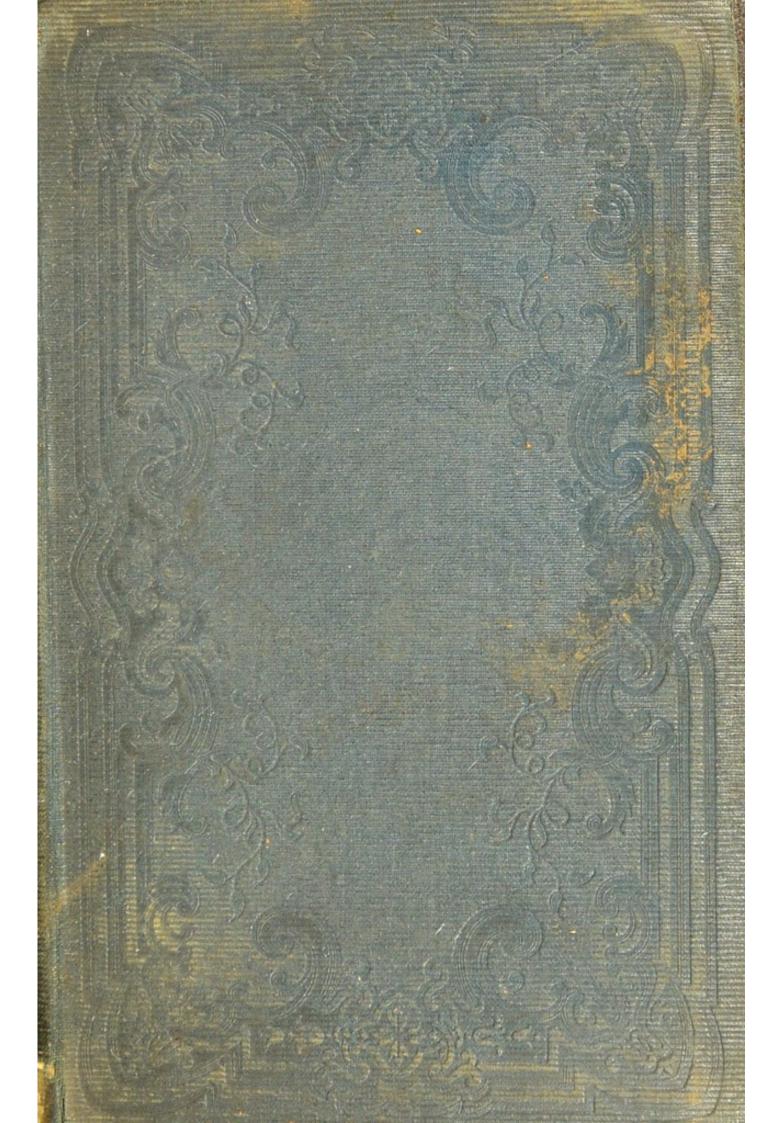


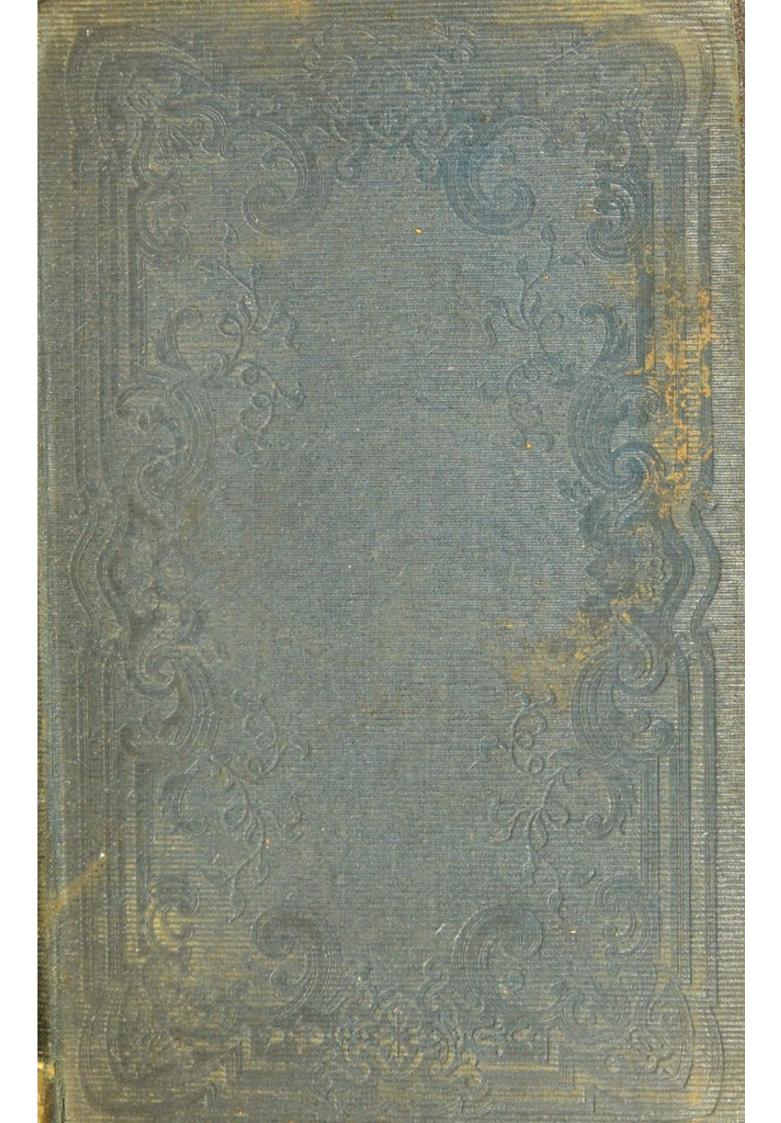
attached to the morbific influence of marsh miasms, and however heterogeneous in their essential constitution he may have considered them, he evidently did not believe that periodical fevers could not arise from other causes than this contamination; for he distinctly states that a check of perspiration, which prevents the escape of the peccant humors from the system, will induce these diseases; and that the purest breezes, tametsi saluberrimus, no matter from what quarter they may blow, are adequate to produce them.

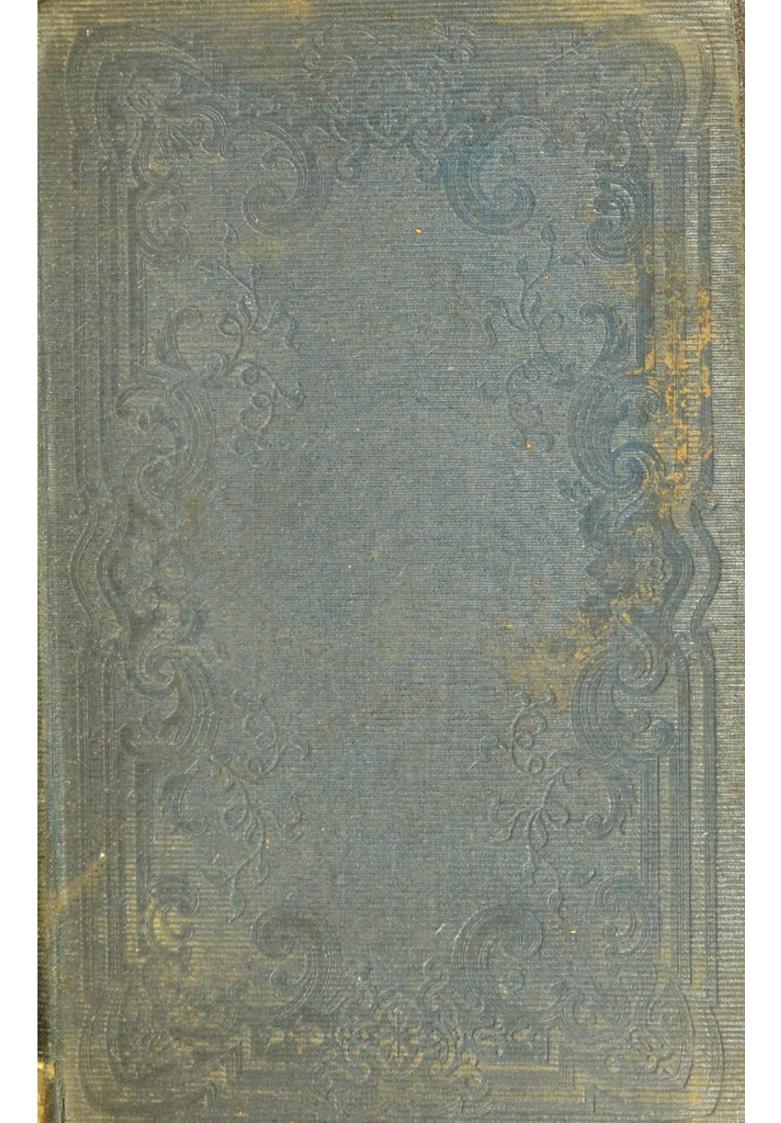
However, I shall now take leave of Dr. Satchwell's notions about progress and improvement, after commending him to a careful husbandry of his strength and resources, as the race before him leads a long way backwards, satisfied the while, although by virtue of his learning and zeal he may be able to make considerable progress, that the universal opinion will be his movement is retrogade, and not onward with that advanced corps of scientific investigators, who are marching forward with increasing and expanding intelligence. Nullum vestigium retrorsum.

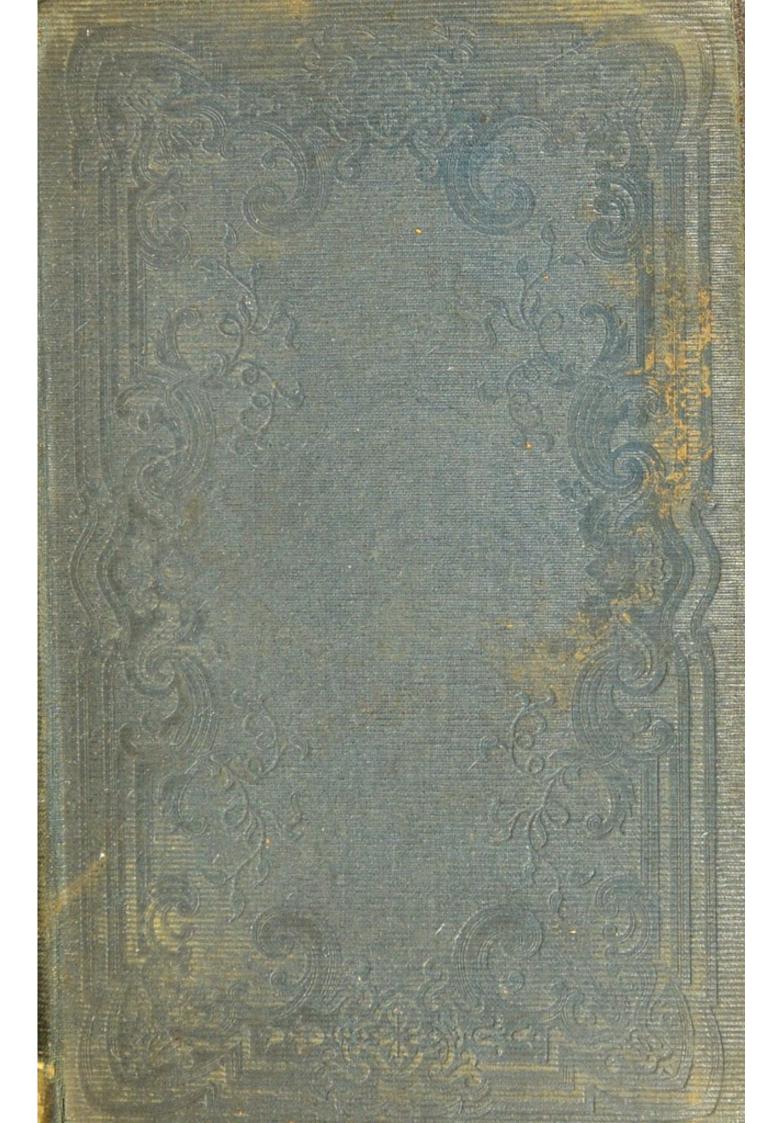
But let us proceed to the discussion of our subject, which I propose to do, by noticing the facts and arguments of Dr. Satchwell, under the three following heads, to wit:

First. He has failed to show that the periodical diseases which prevail in high, ridgy and mountainous districts, and other situations free from swamps





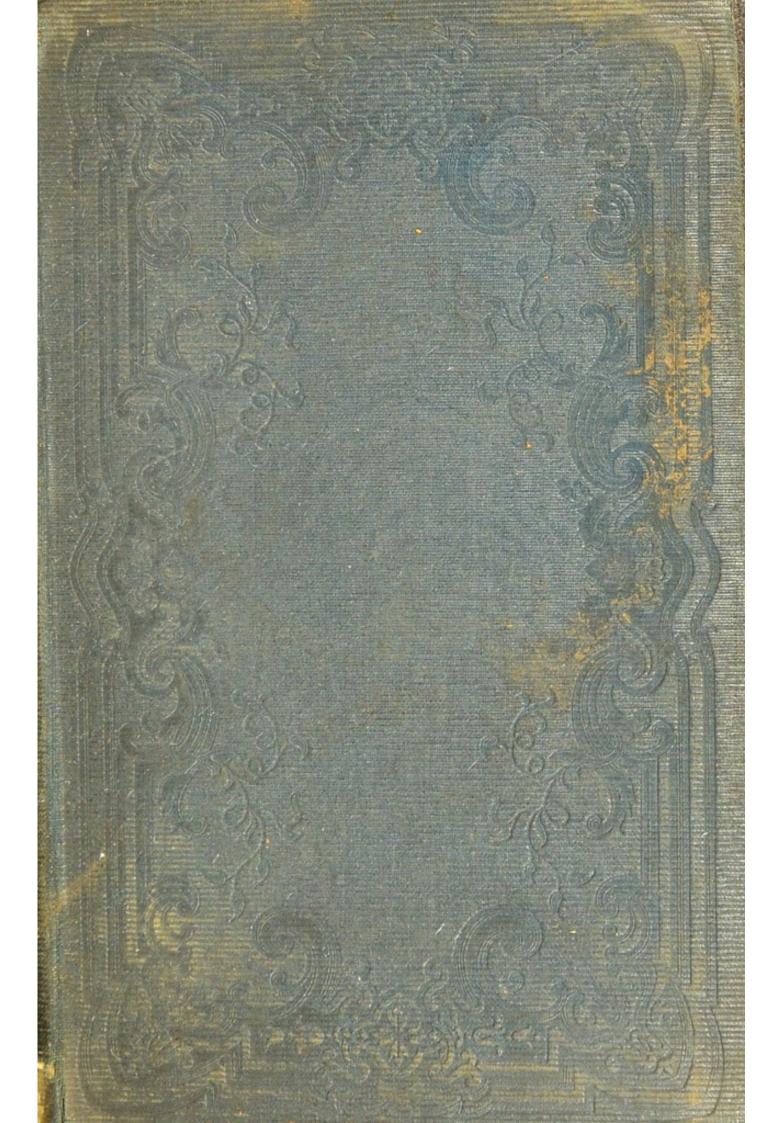


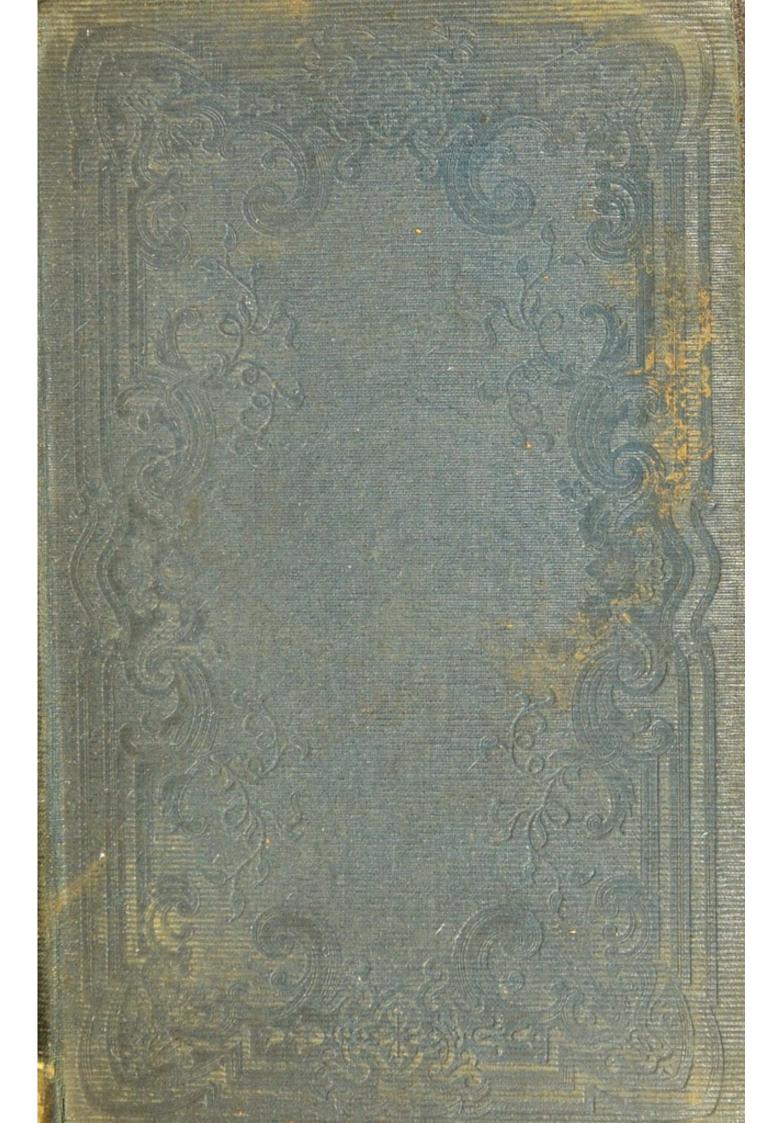


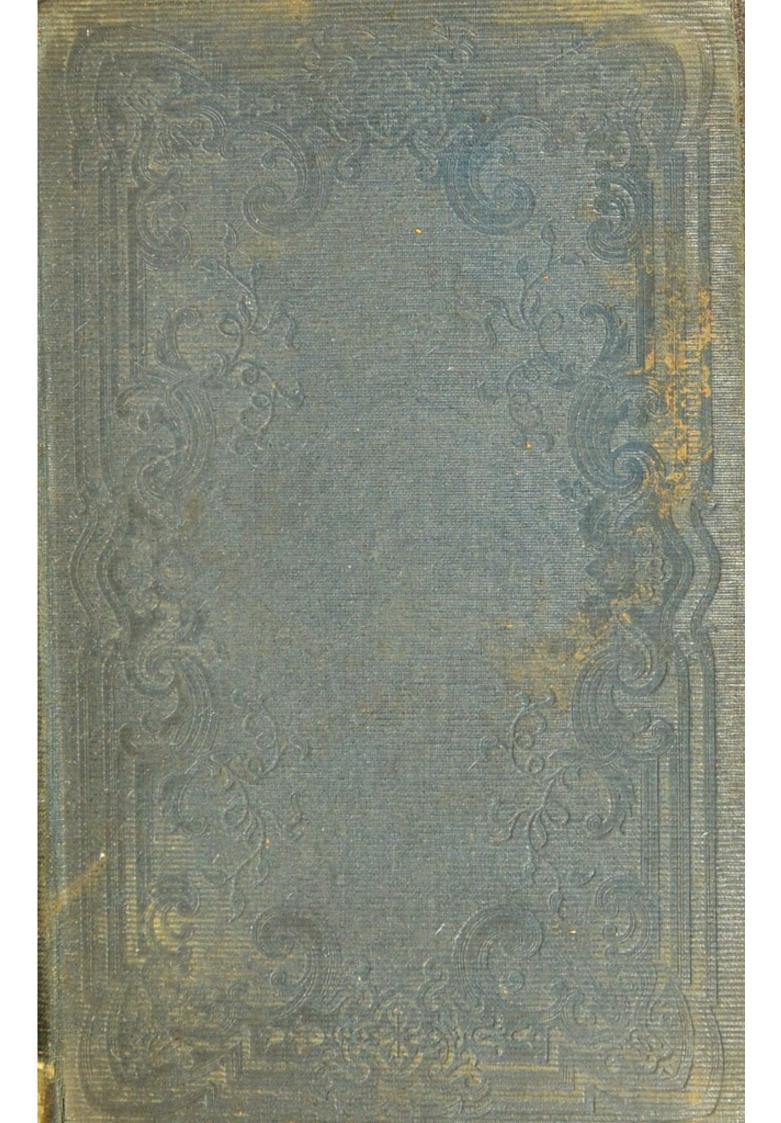
erwise to account for those cases of intermittent fever, which we sometimes meet with in situations beyond any suspicion of miasmata, and in individuals who, so far as can be ascertained, have never been exposed to their influence."

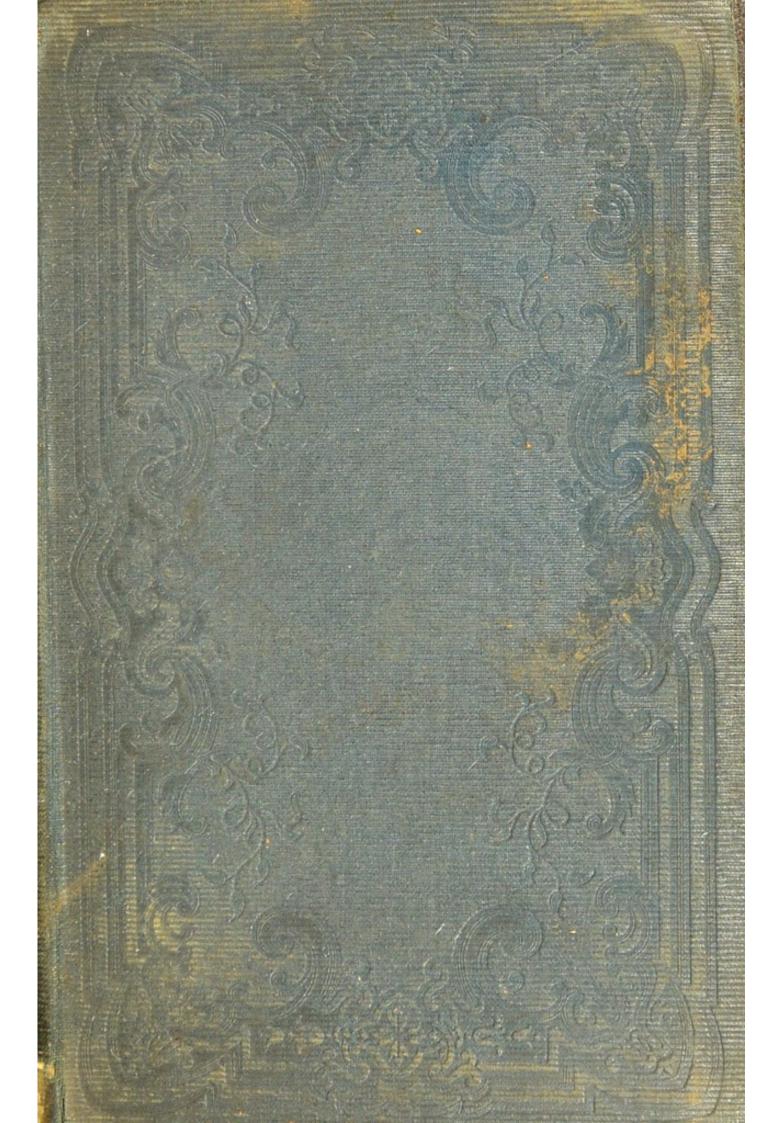
Thus Dr. Wood furnishes us with three distinct modes of accounting for the occasional prevalence of periodical fevers, in situations generally healthy, and where there are no unusual states of heat, moisture and vegetable decomposition, which latter conditions, he declares, are essential to the production of miasmata; yet Dr. Satchwell brings him forward as a competent witness to prove that a specific poison, one and indivisible, emanating from vegetable decomposition, produces these diseases.

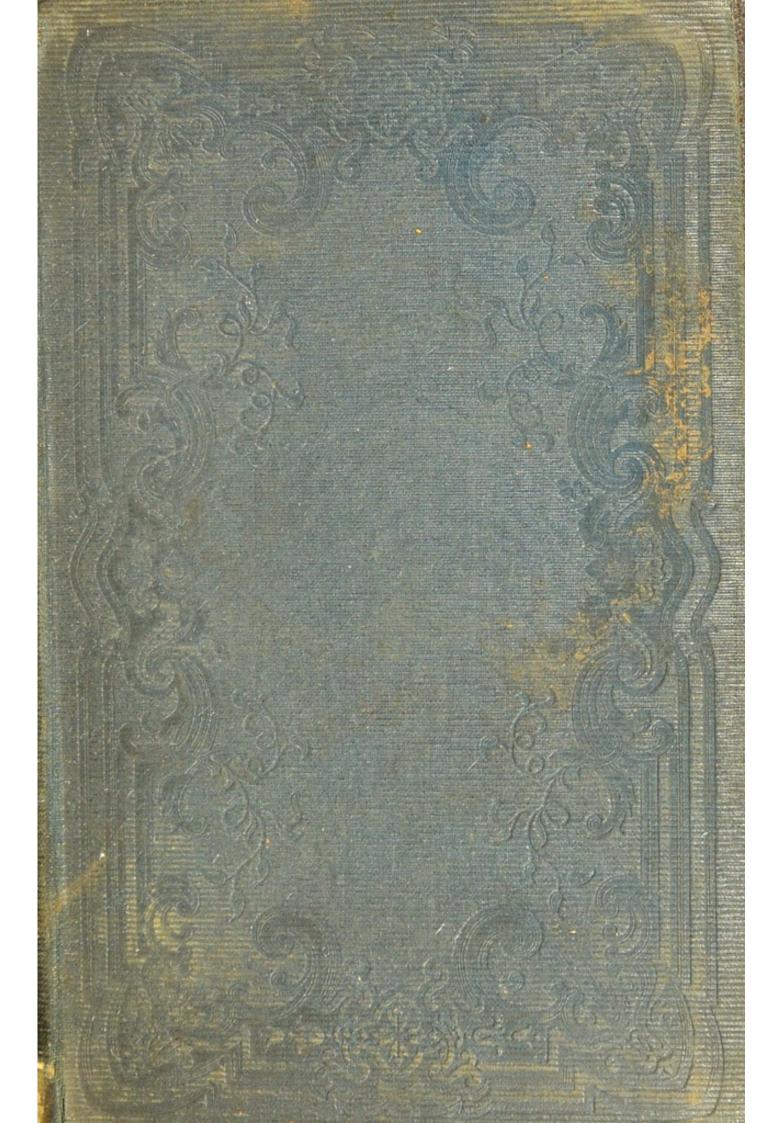
Let us now examine Dr. James Johnson's solution of our difficulty, and through him, Irvine's explanation of the same subject. Johnson says: "Water, imbued with animal and vegetable matters, may sink into the soil, and either remain there, or percolate under the surface till it finds an issue in a spring or river. This is known to be the case in numerous instances, and in almost every country." He further declares, that pestiferous emanations may exhale from it through the cracks in the surface of the earth, during the hot dry months of summer and autumn.—
"Thus (says Irvine) some places in Sicily, though on very high ground, are sickly; as Ibesso or Gesso, about eight miles from Messina, situated upon some

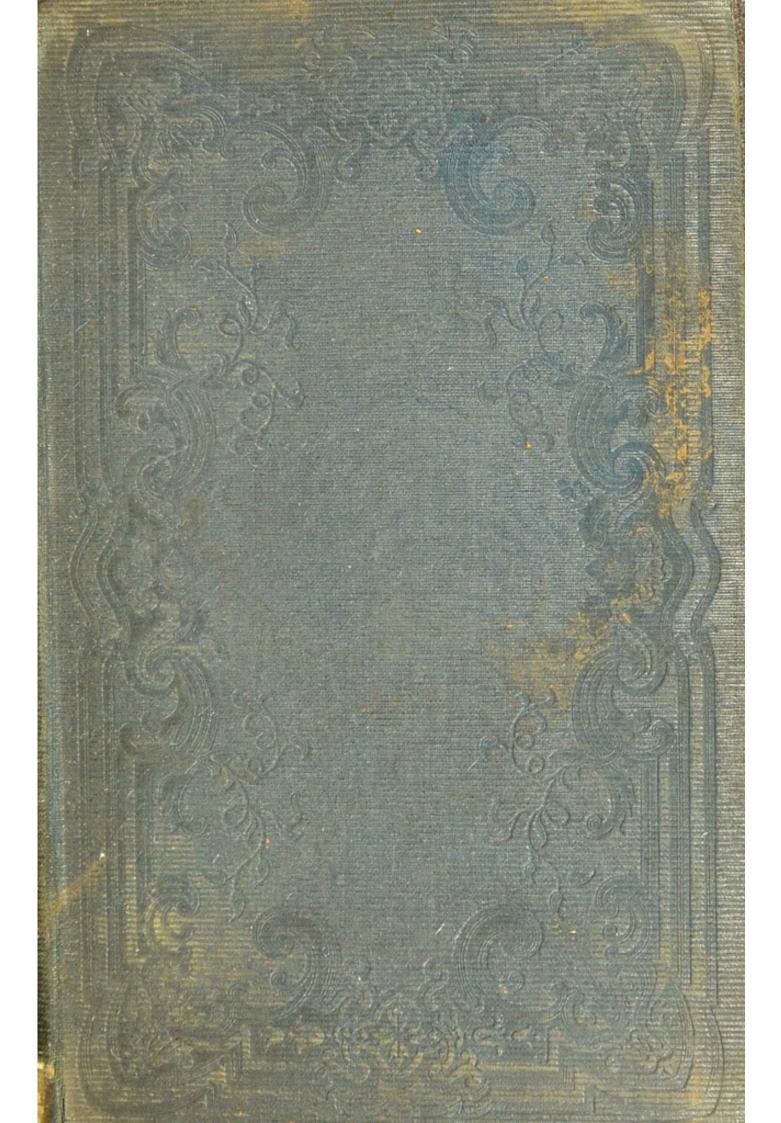


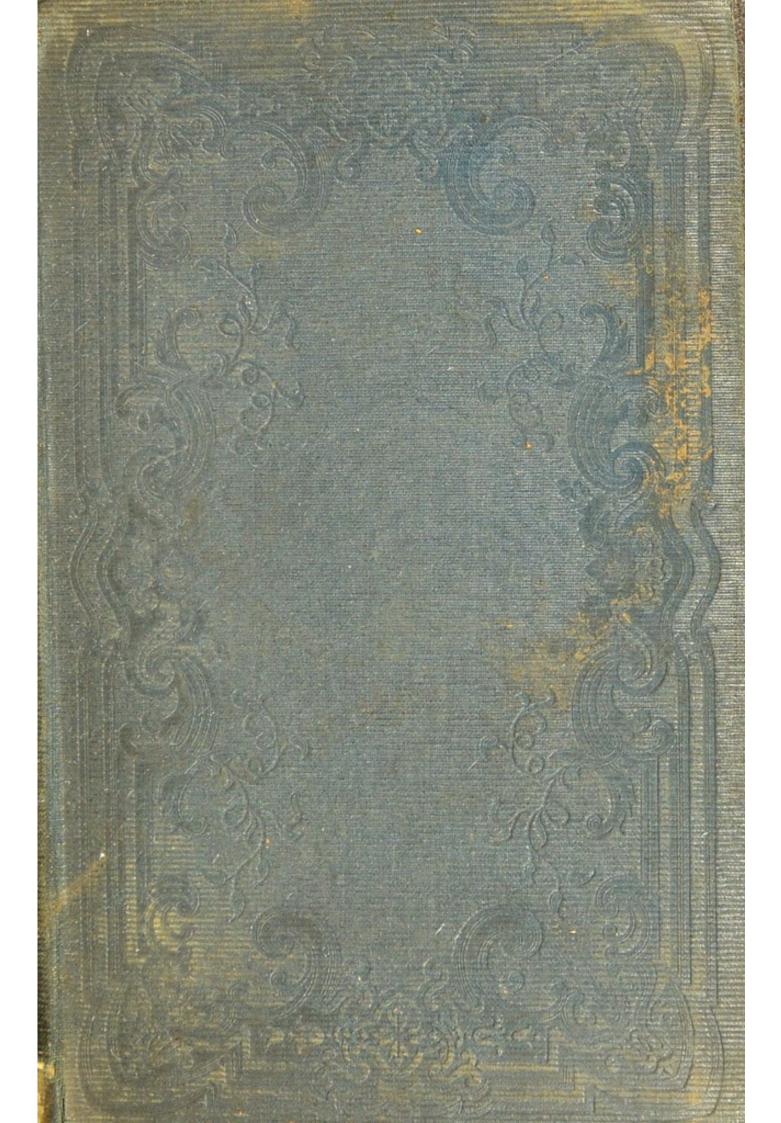


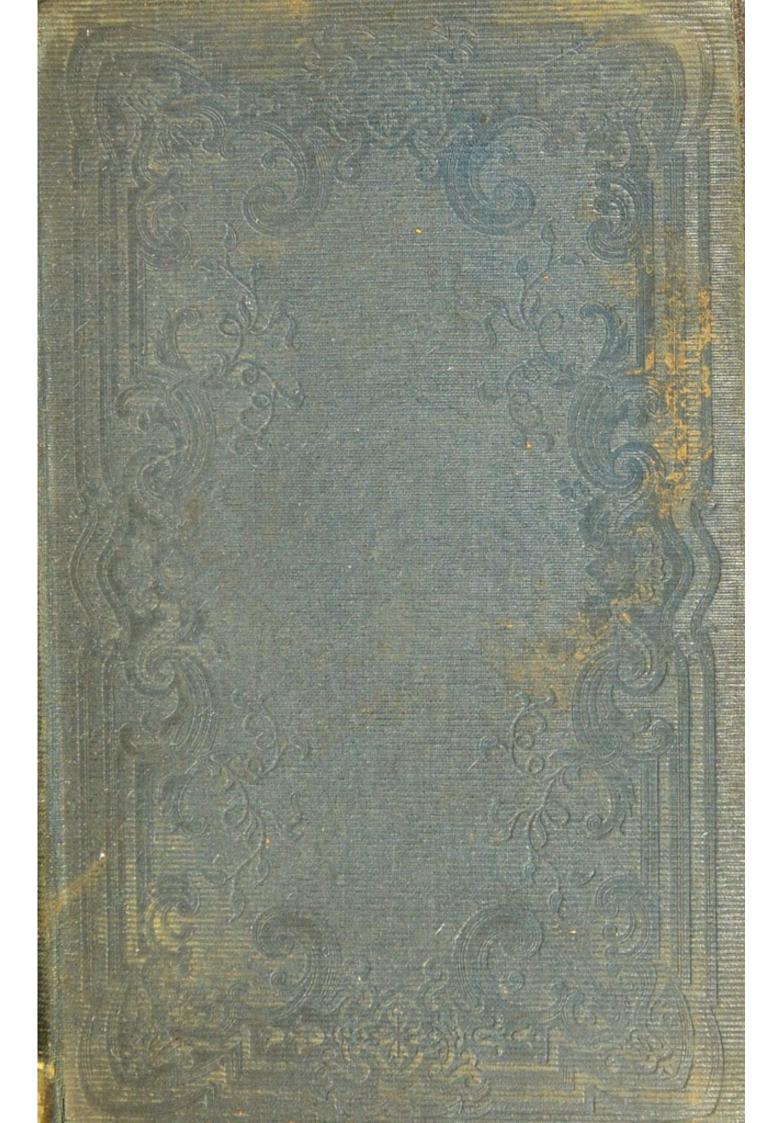


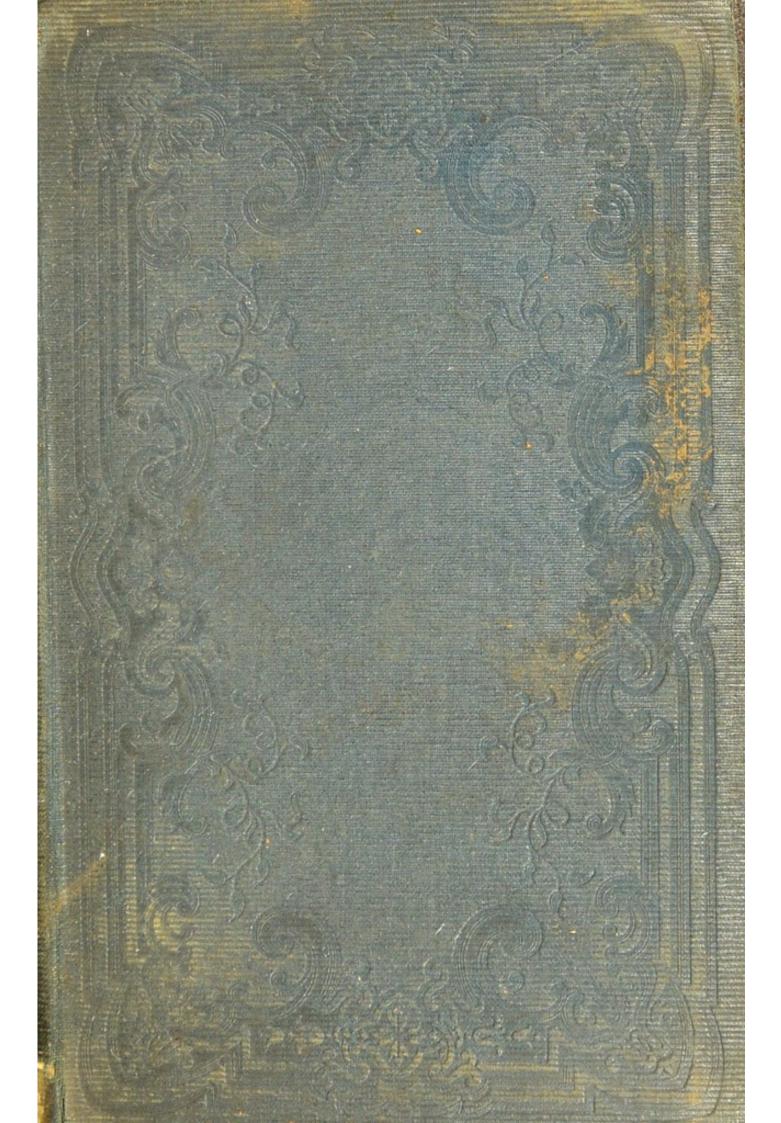








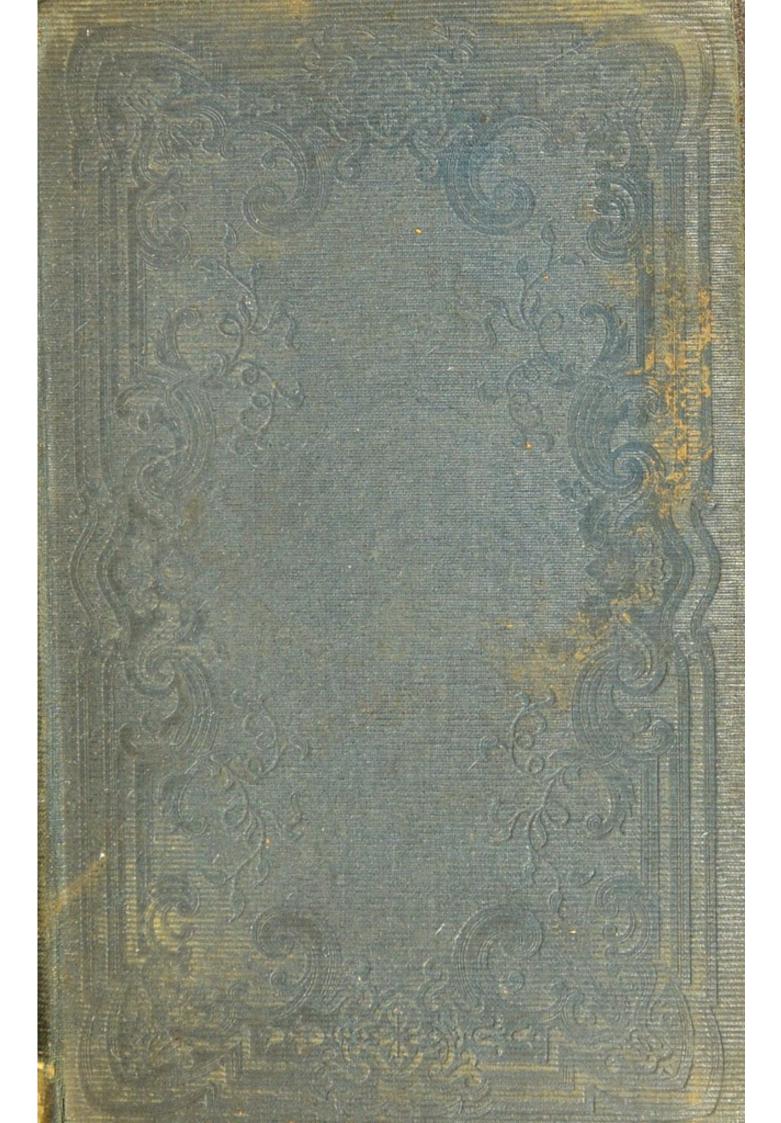


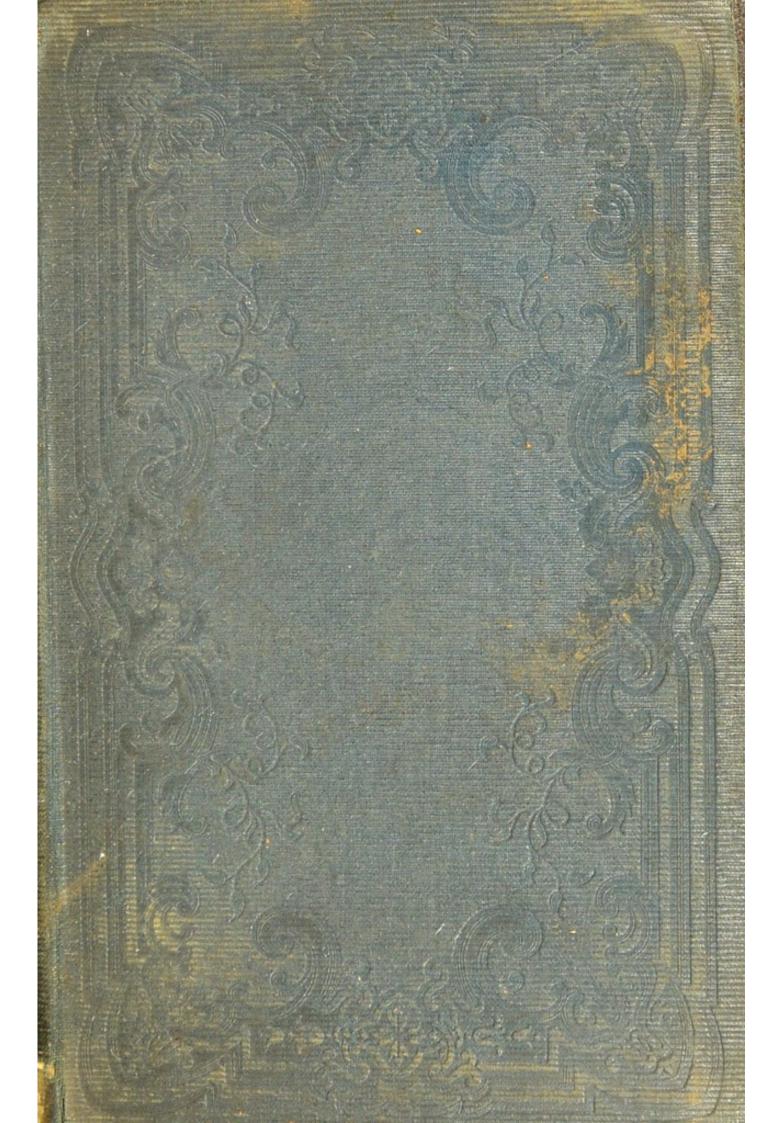


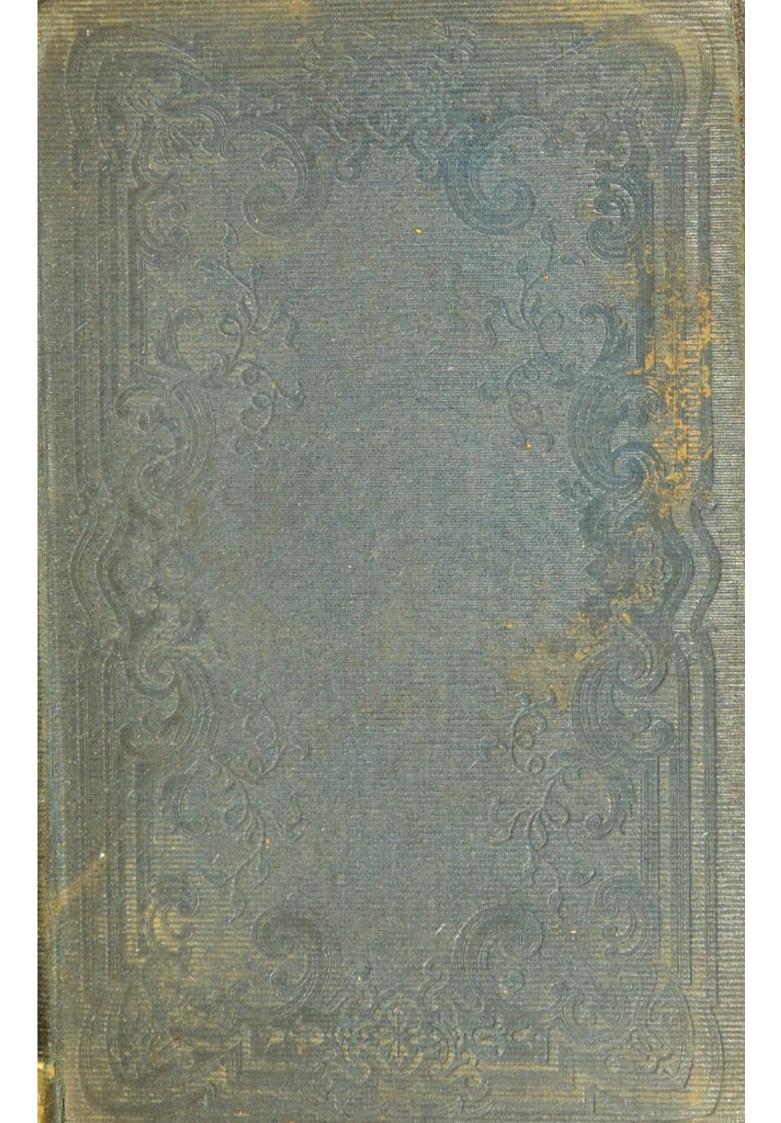
dress, of the unsoundness of the miasmatic theory, is worse than useless. It does not meet the case at all. It was only that portion of the expedition, which was detailed for land service, after reaching Oregon, that was sickly at the encampment on the Wallamette. The remaining portion, which had been equally as much exposed in the travels and duties amongst the Friendly, Society, Fegee, Samoan, and Sandwich Islands, escaped the disease entirely. It could not, therefore, be owing to the exposure to miasmata in these islands, which rendered the encampment on the Wallamette a sickly one.

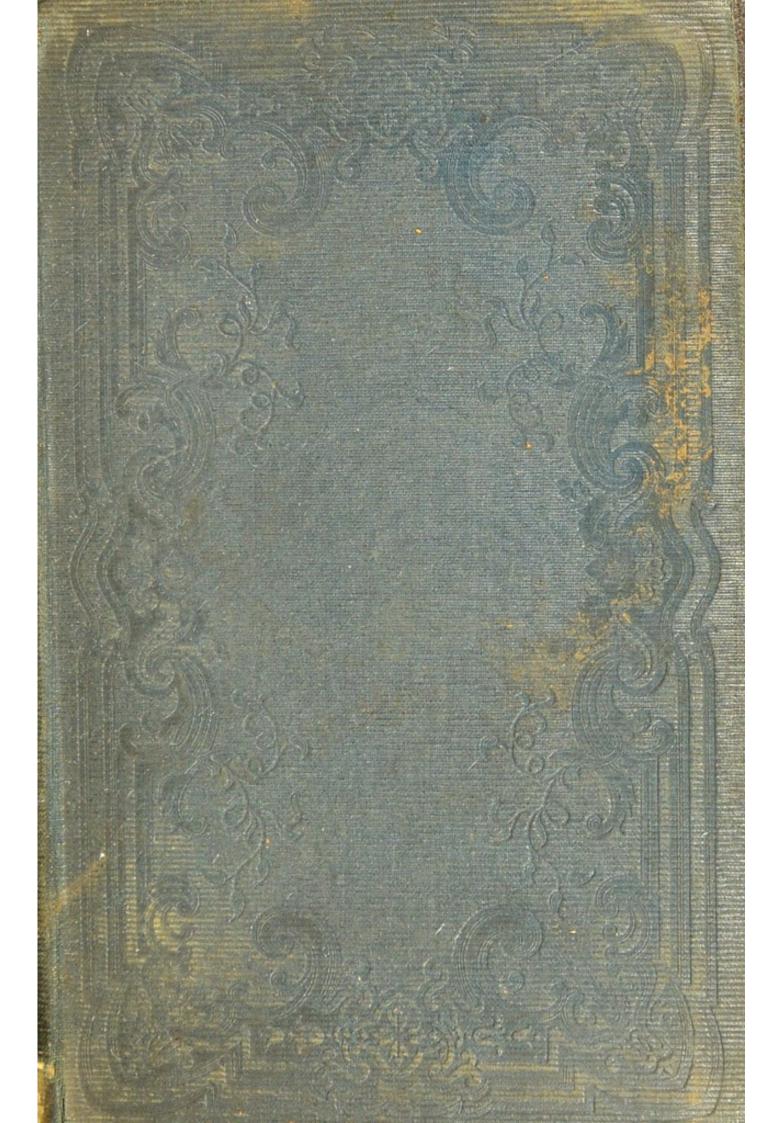
Dr. Satchwell is equally unfortunate, I think, in impressing his readers with the belief, that the prevalence of periodical fevers "throughout Raleigh and vicinity," in the years 1846, '47,. and '48, was owing to the emanation from mill-ponds in the neighborhood. The mill-ponds which, "according to the opinions of the Raleigh Physicians, of that day," produced the fevers in 1822, '27, and '28, had been destroyed for more than twenty years, and none others had been erected; yet Raleigh, and the whole surrounding country, including places where the disease had hitherto never made its appearance, was more sickly than at any former period, even in the days of the mill-ponds.

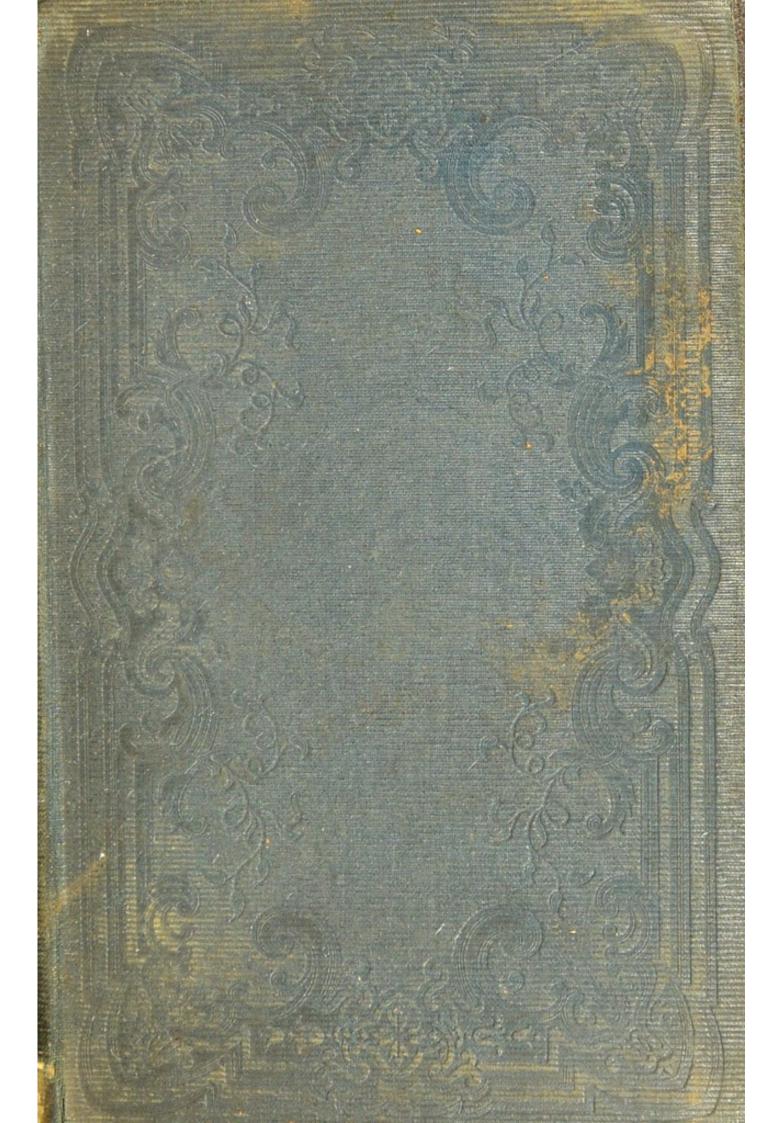
But I shall now leave these learned doctors to settle their own differences—non nostrum tantas componere lites—and proceed to the consideration of the second division of my subject, wherein I propose to





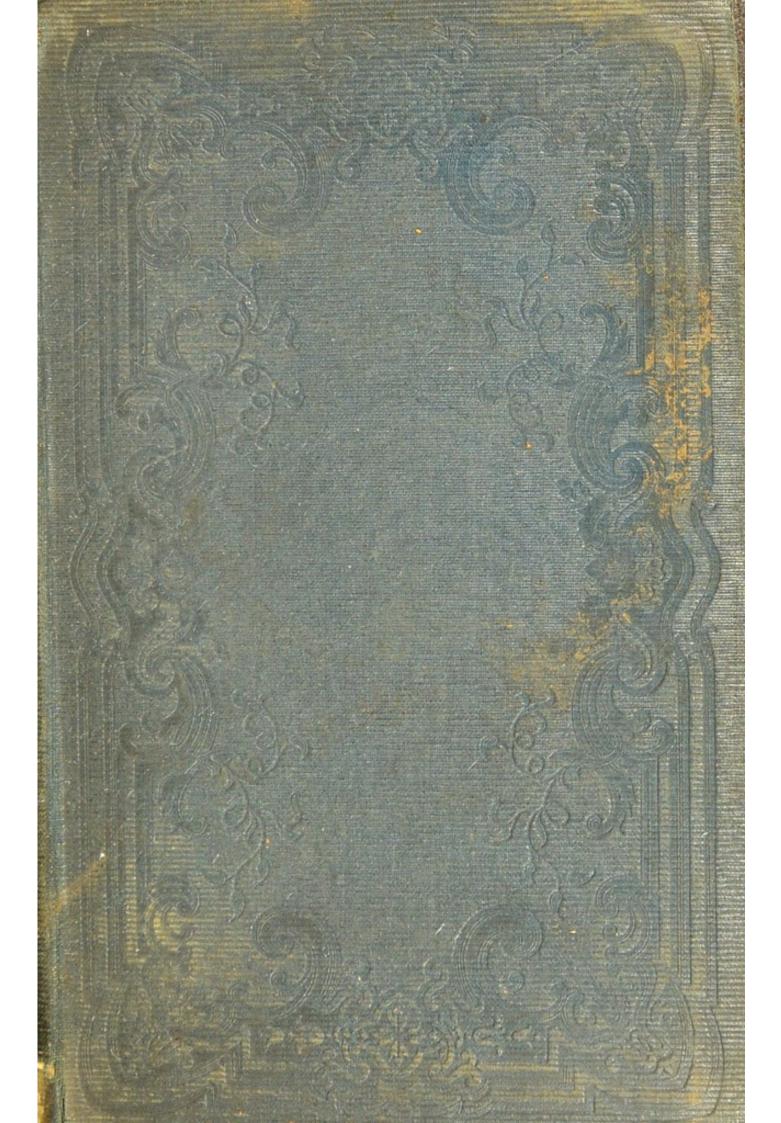


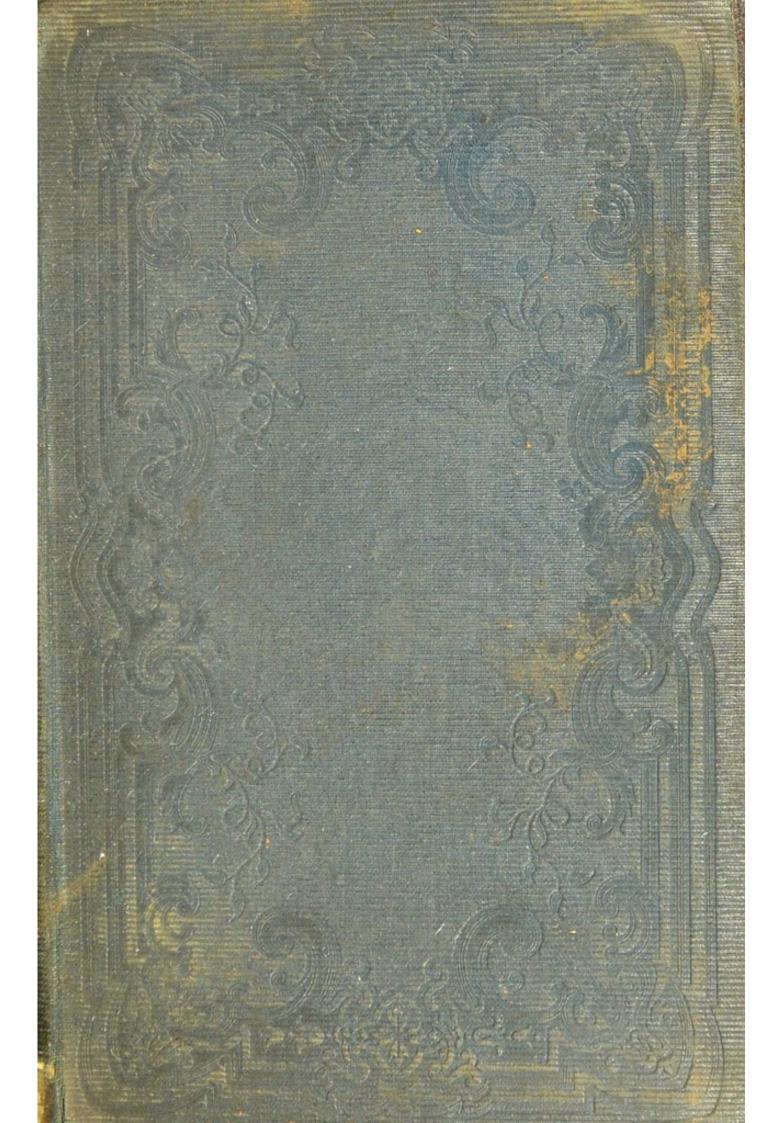


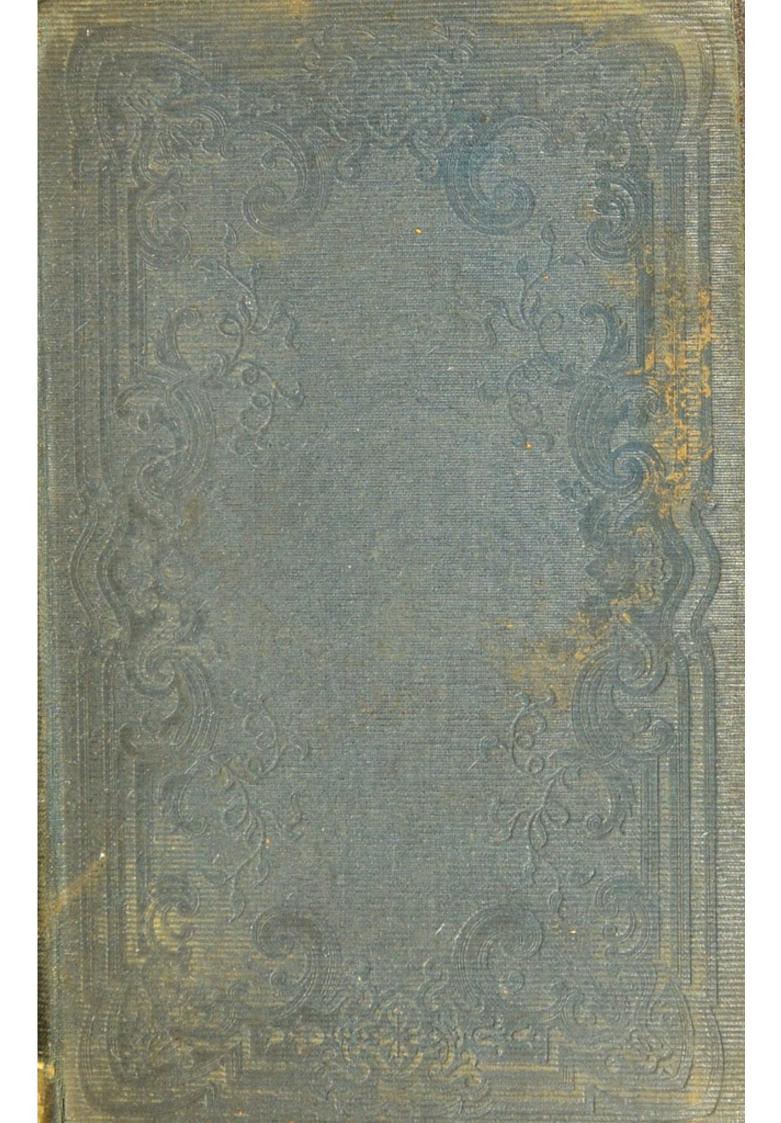


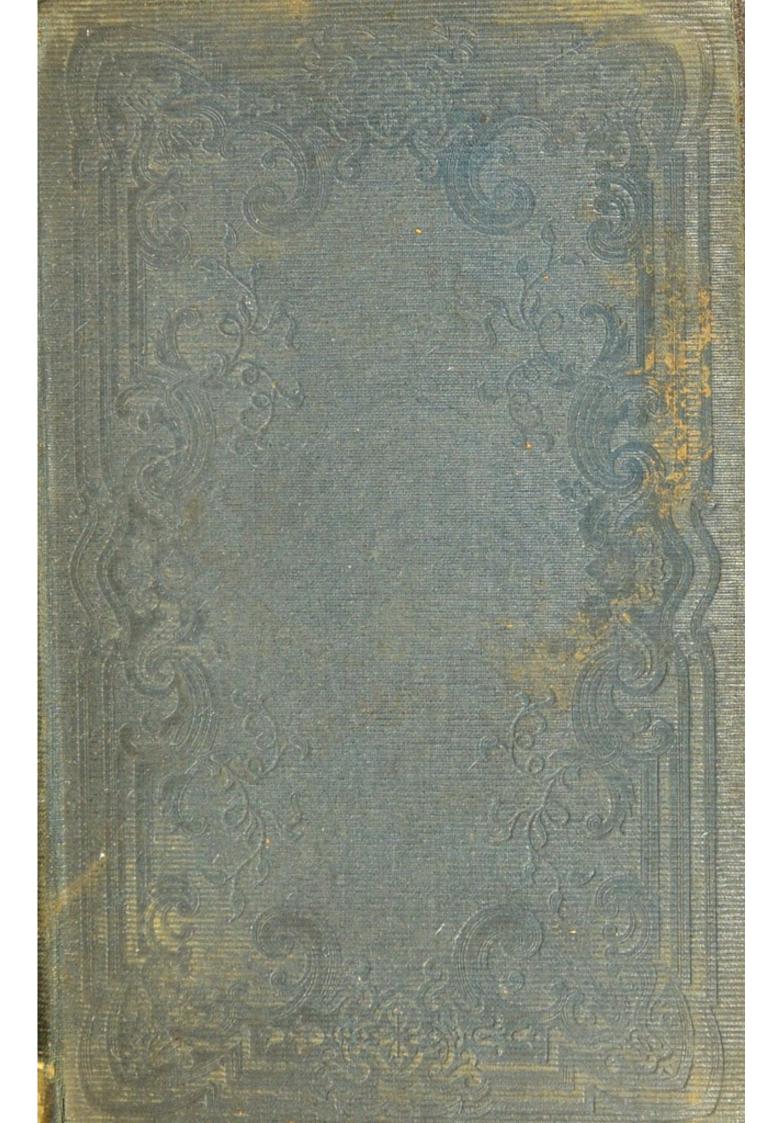
ern or paludal portions of North Carolina, and after the opening, some years before, of a new inlet into Pamlico Sound, which rendered the inland waters, for a considerable distance from the ocean, quite saltish.

So far, so good. Here is a concurrence of events, and if the healthiness of these portions of North Carolina had certainly and immediately followed upon the opening of this new inlet, as stated by Dr. Satchwell, and remained so, and that too, after the same district of country had been as certainly rendered insalubrious by the closing of the old inlets, then we should have had something like what a cause and its effects should be to challenge our admiration and respect. But, in reality, how does the matter stand ?-Did the unusual amount of health enjoyed by these sections of our State, immediately and certainly follow upon the bursting open of this inlet? It certainly did not; but rather preceded it. This cyrcle of comparatively healthy years began before the inlet was opened, and terminated whilst it was still as open as it had ever been, thus showing that there was no connection of cause and effect in this instance, but only a coincidence. This cycle of healthy years began in 1845, a year or two before the inlet was opened, and terminated with the summer and autumn of 1851, just prior to the delivery of Dr. Satchwell's essay on malaria. But he did not know this fact. How could he know it? The sickly season of the year 1852,





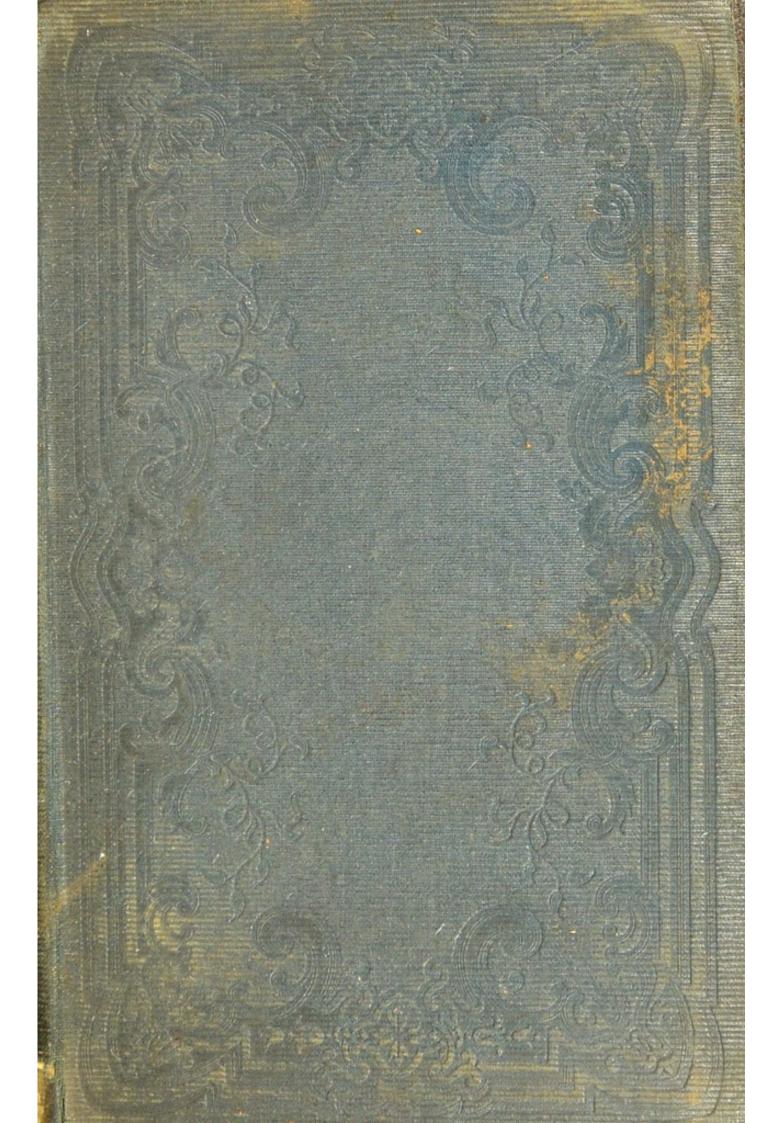


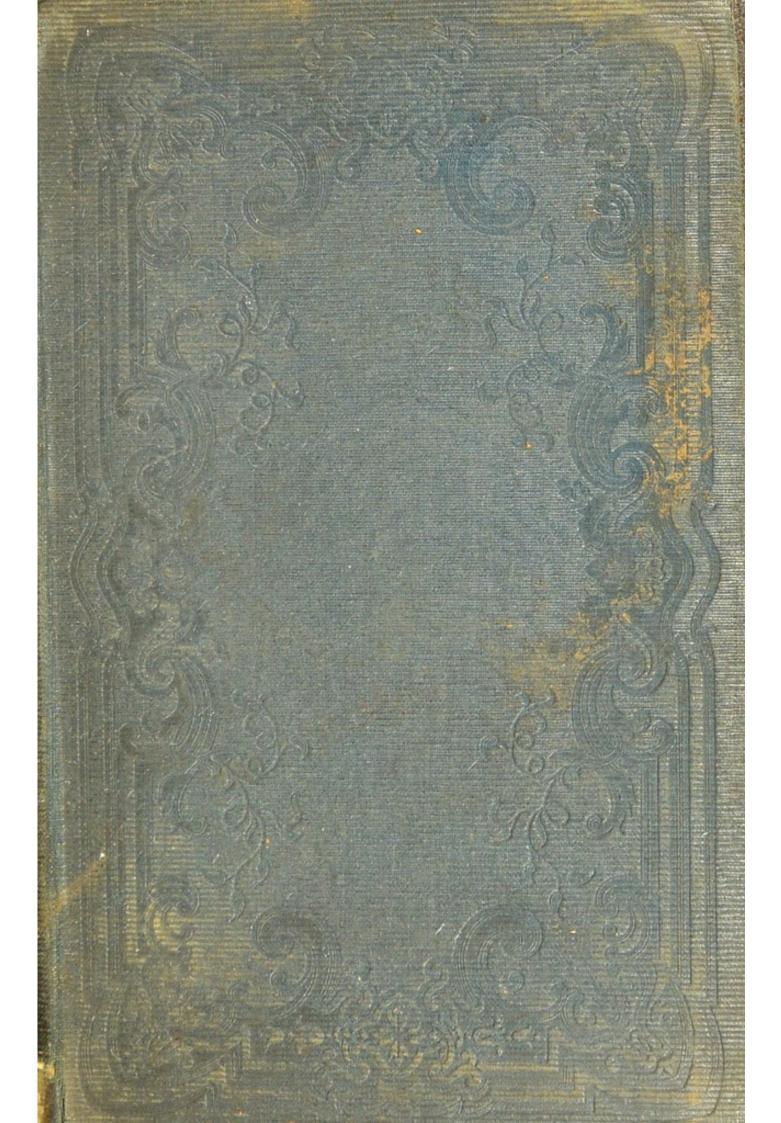


on Tropical Climates, for the Ganges. "Overflowing," he says, "the banks as it does, and filling the pools and bottoms at some distance back, the water stagnates. The vegetable matter is thus acted on for weeks, under the most favorable decomposing circumstances."

But the overflowing of the banks of rivers, lakes or other collections of fresh or salt water, during hot weather, particularly after the receding waters have fallen within their natural limits, or bounds, has always, and everywhere, from the days of Lancisi to the present time, been considered by the miasmatists to be a fruitful source of febrific exhalations. Thus Copland, in his Dictionary of Practical Medicine, article Endemic Influences, says: "Inundations, whether from the sea or the swelling of rivers, or from an admixture of sea with river water, render low grounds particularly insalubrious upon their being exposed to the action of the sun's rays."

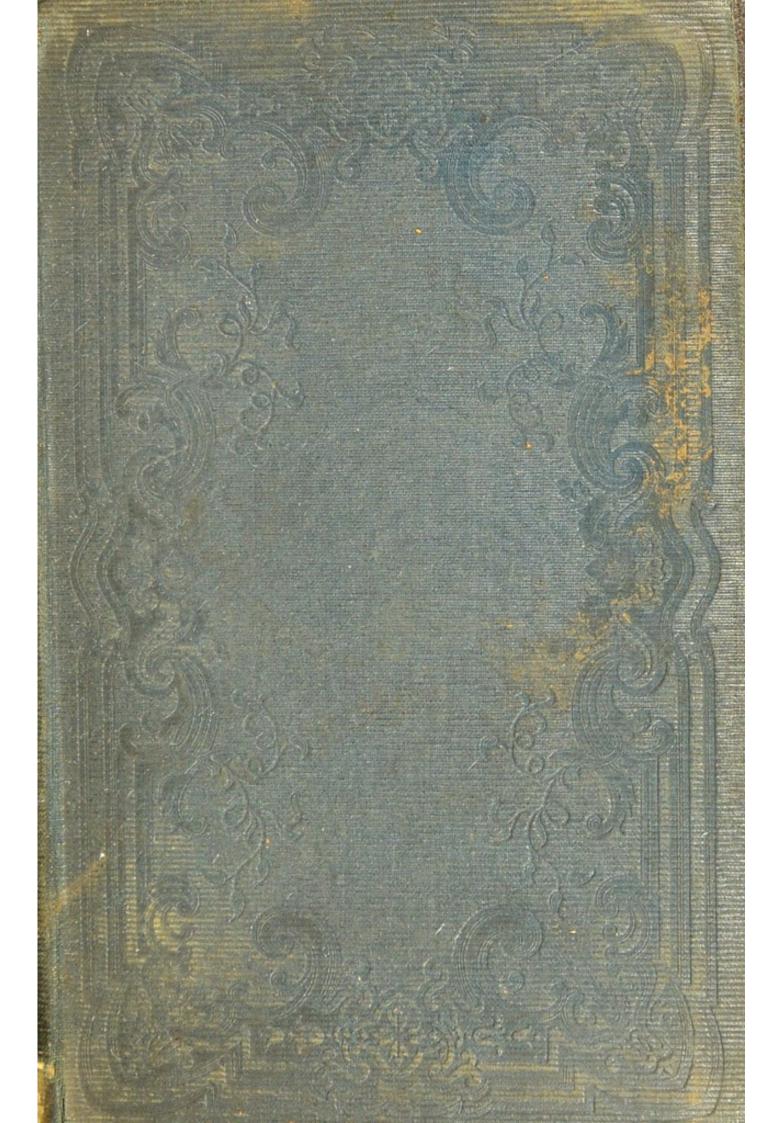
As to the sickness which occurred on Mr. James C. Johnston's plantation on the Roanoke, it may be remarked that the simple circumstance of his letting the water into his mill pond from the river, and the subsequent exhaustion of it during the early part of November, could not be the cause of disease. This pond gets empty nearly every year during the latter part of summer, and under the drying process, according to the best accredited views of the miasmatists, furnishes an abundance of material for febrific

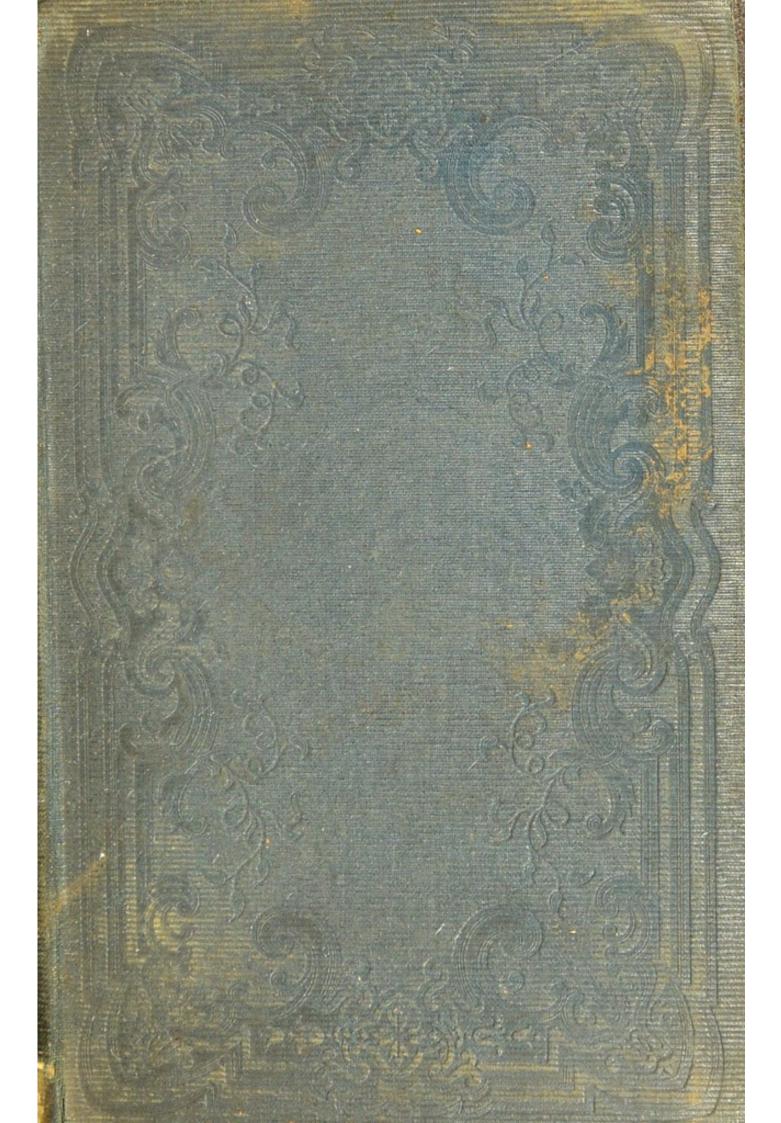


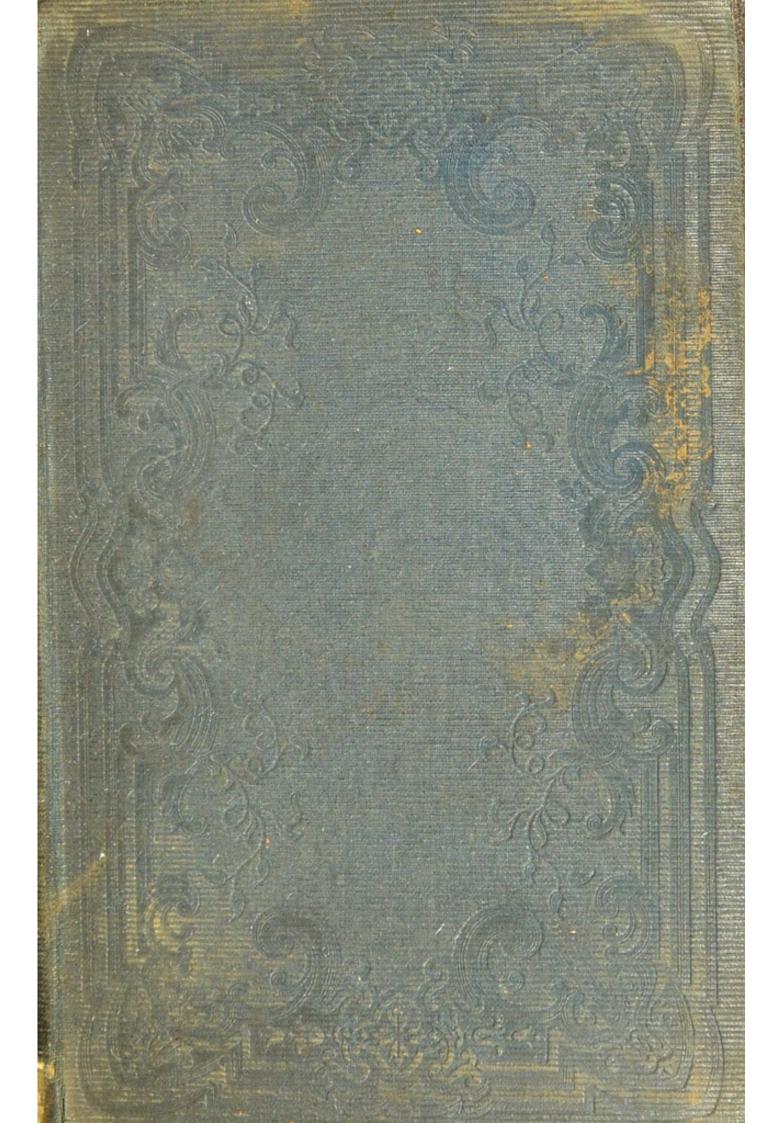


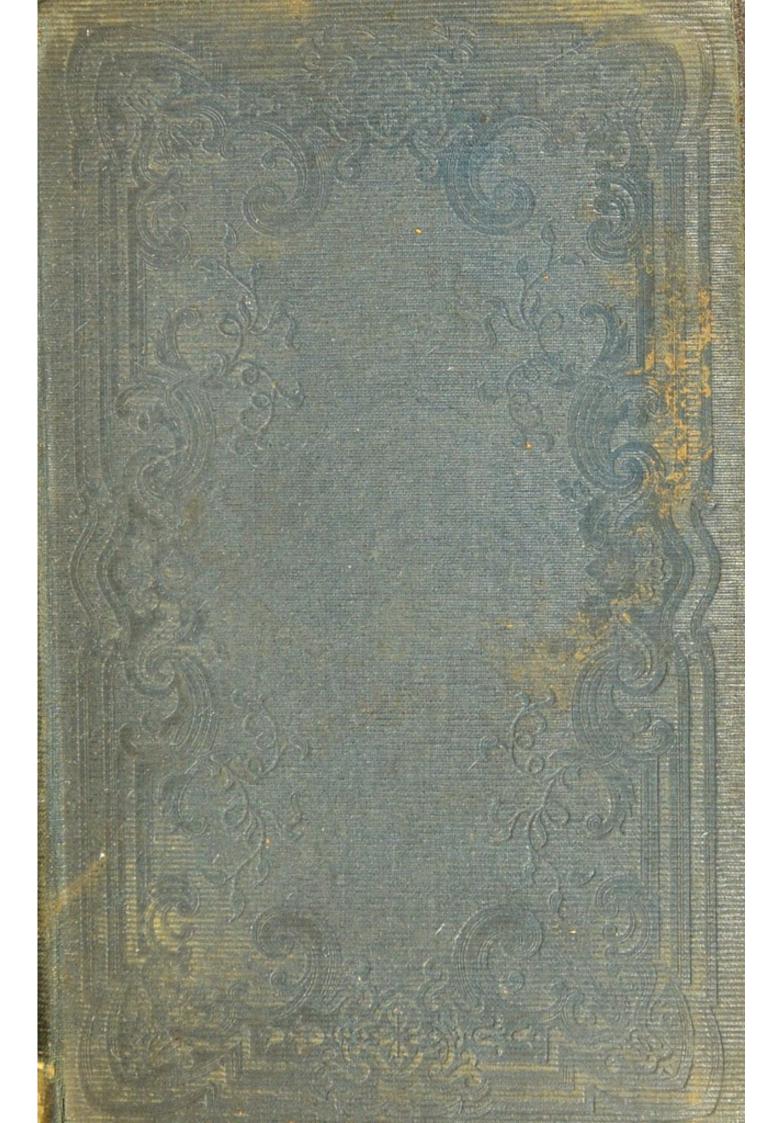
Eastern North Carolina. Thus, Mr. James McDonald, who had charge of the fifty or sixty laborers who were engaged, during the summer of 1853, in constructing that portion of the Wilmington and Manchester railroad, which crosses Eagles Island, opposite to Wilmington, informs me that they were remarkably healthy, no one of them losing more than two or three days, during the entire period they were engaged in this work. The line of road, he says, was sixty feet wide, and passed along cypress swamps and old neglected rice fields with a deep alluvial soil, over which heavy fogs would settle every night, completely drenching the clothes of the workmen, most of whom would go out and sleep upon the cross ties of the road, so that in the morning, when called up, their clothes would be as wet as though they had been in the rain. In this condition, these men, who were mostly foreigners, and who were spending their first summer at the south, would begin their work, and prosecute it through the long summer days, under the sickening influence of a southern sun, and yet there was not a single case of ague and fever among them.

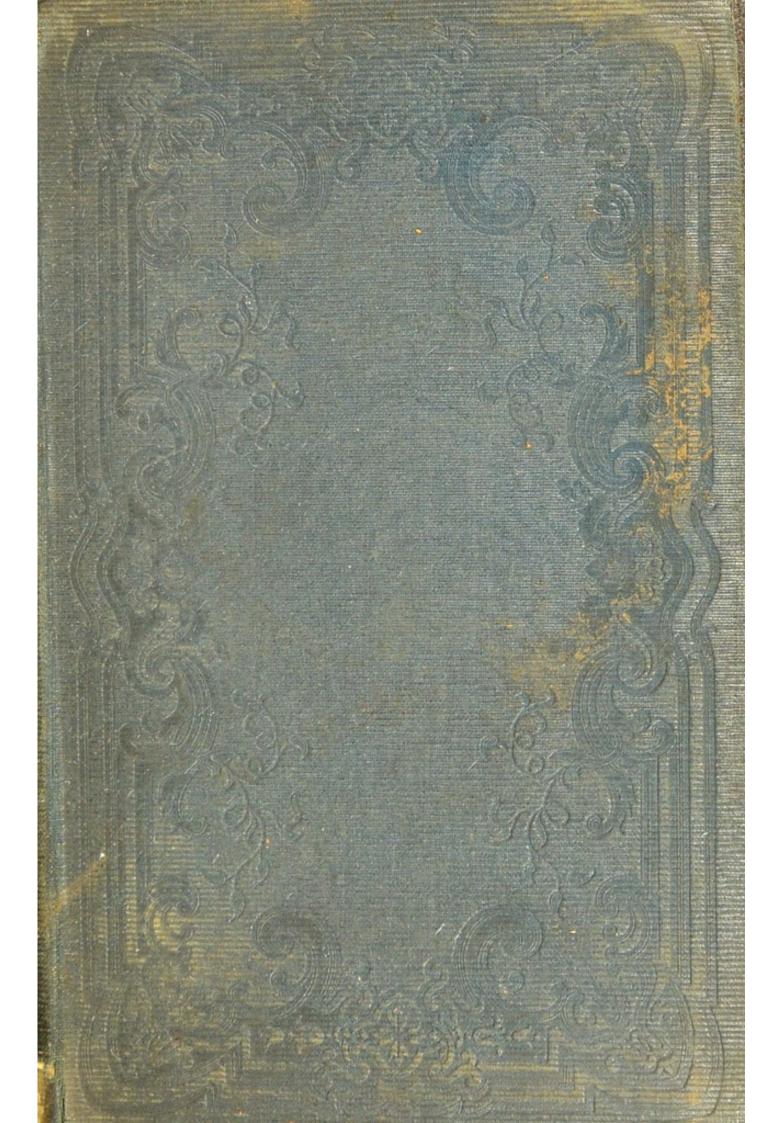
Dr. Satchwell thinks the escape of the workmen from sickness, while engaged in ditching and canaling our public lands, was owing to the great amount of water in the soil, before the "canals were completed from Pungo and Alligator Lakes to their outlets in Pungo river and Rutman's creek." Now, this cannot

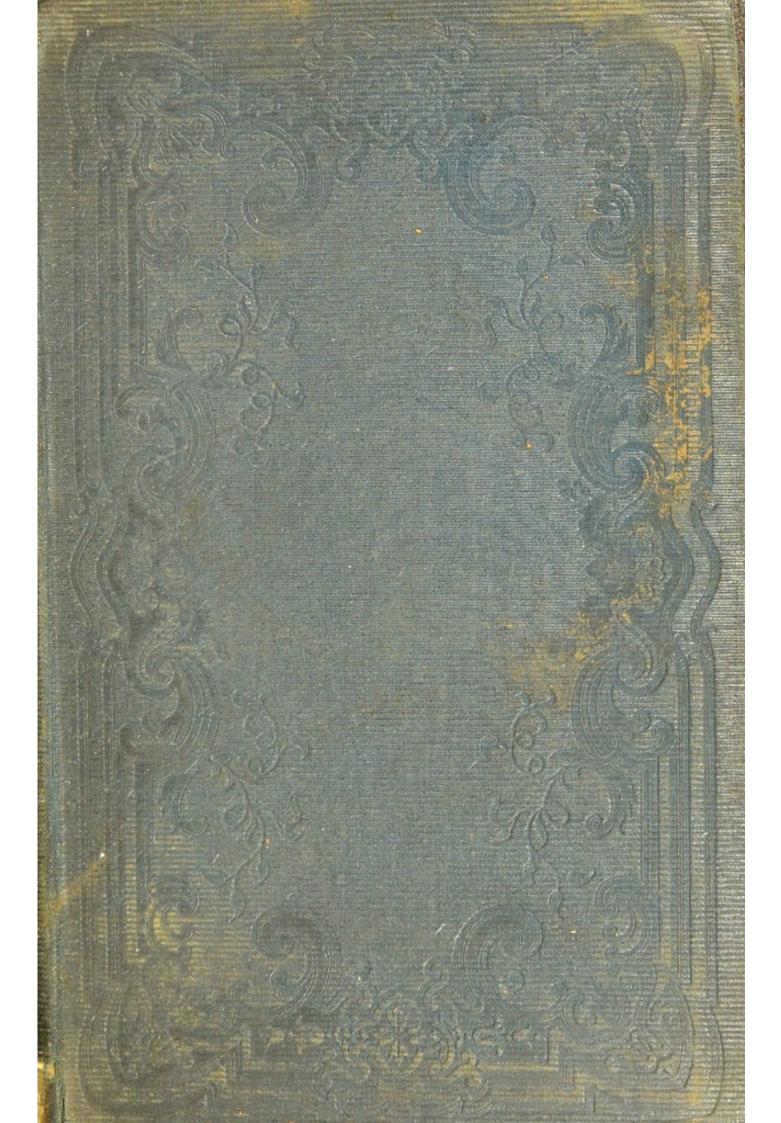


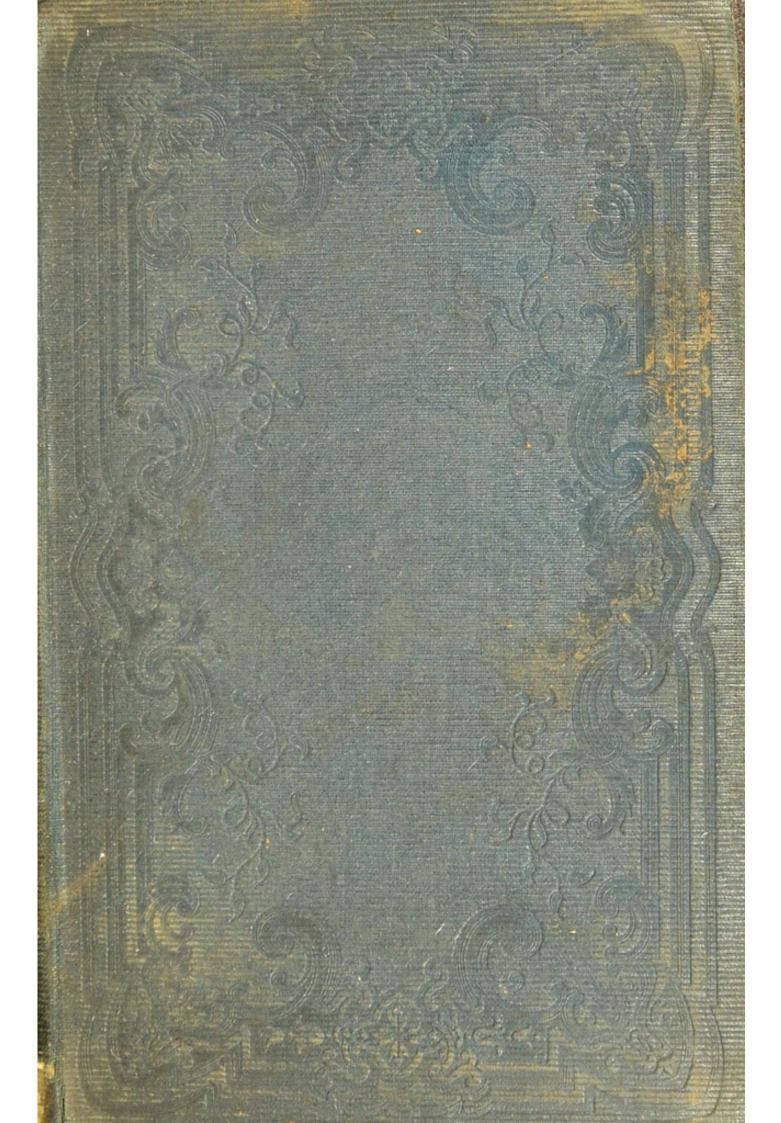


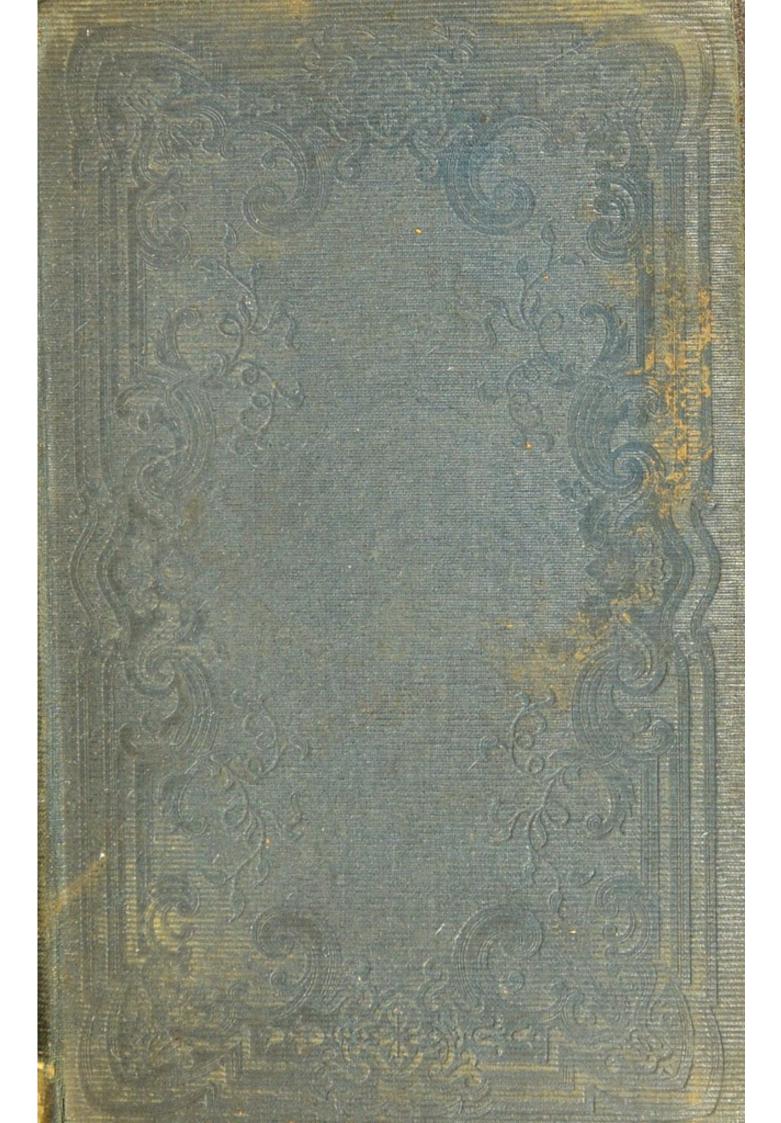


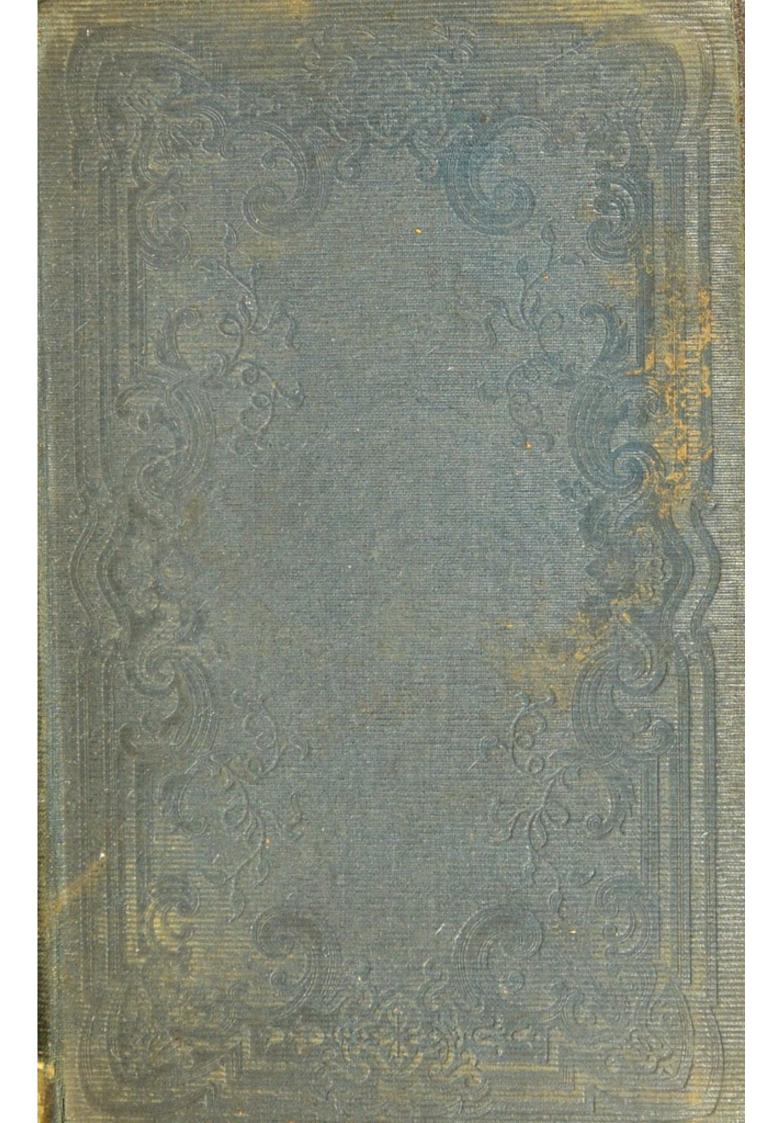


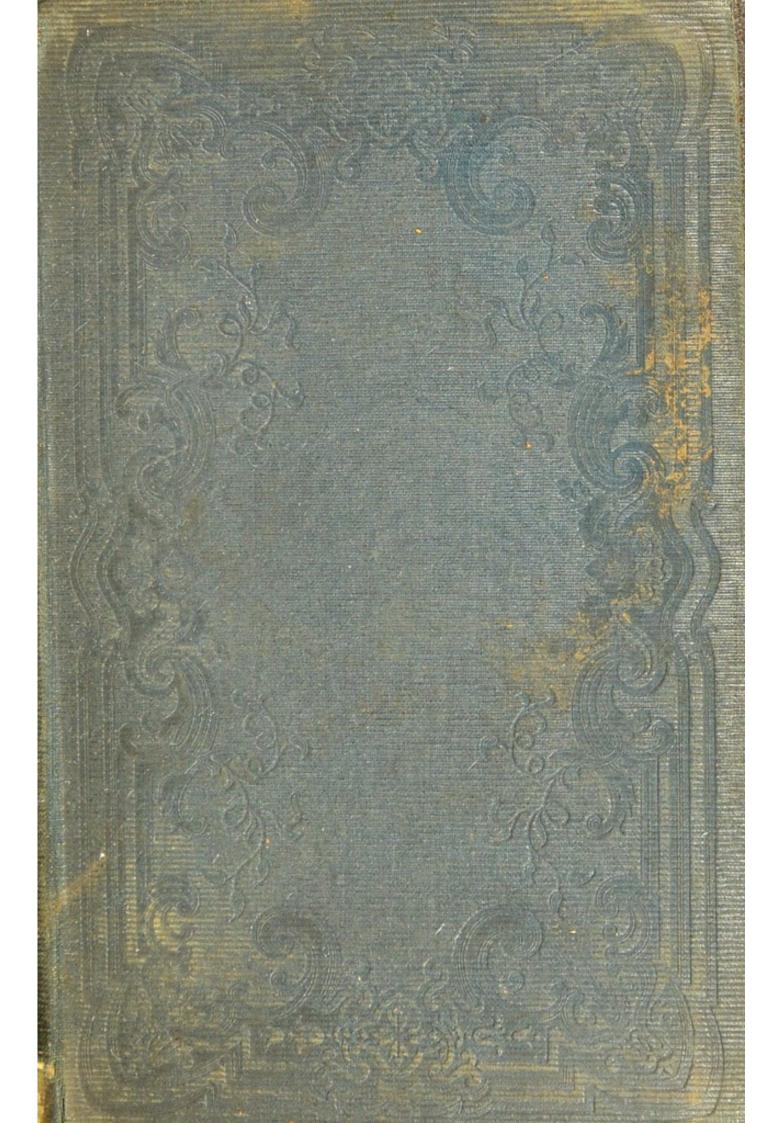












jurious to the health of those who drank it, and that the emanations from it were not unhealthy.

According to the prevailing opinion, it is only to be found where there are marshes, stagnant pools, swamps, or wet rich grounds.

Dr. Jas. Johnson says that the same malaria arises from the summits of the mountains in Ceylon, which is found on the marshy plains of Bengal.

Dr. Dickson, of Charleston, S. C., a popular writer of this country, says:

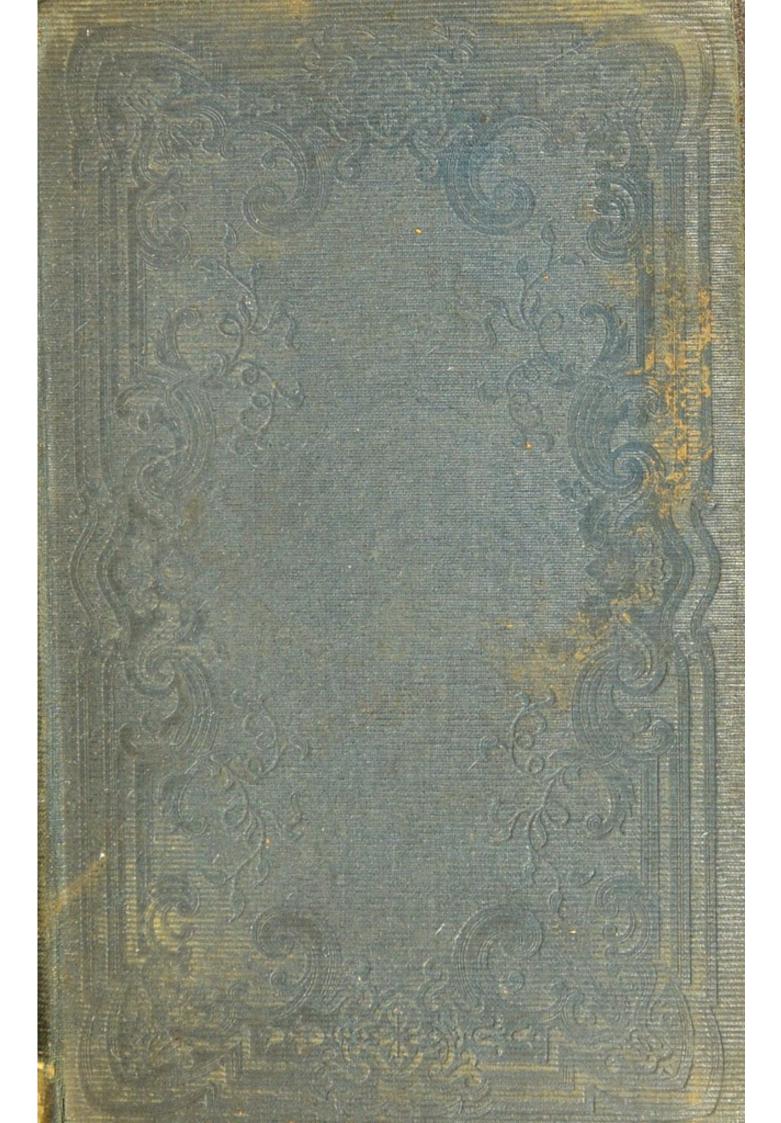
"A very dry summer and spring are apt to be healthy," and Folchi and others agree with him.

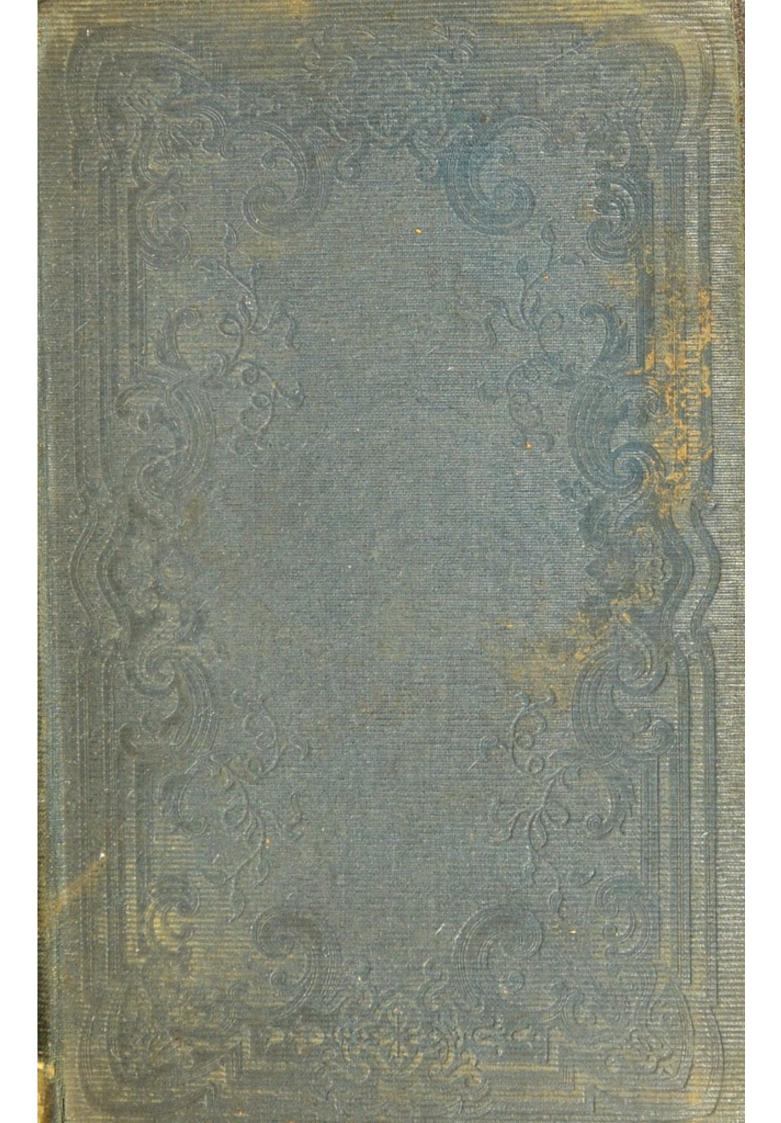
bed of intermittent fevers, is to furnish it with ponds and steep hemp in them.

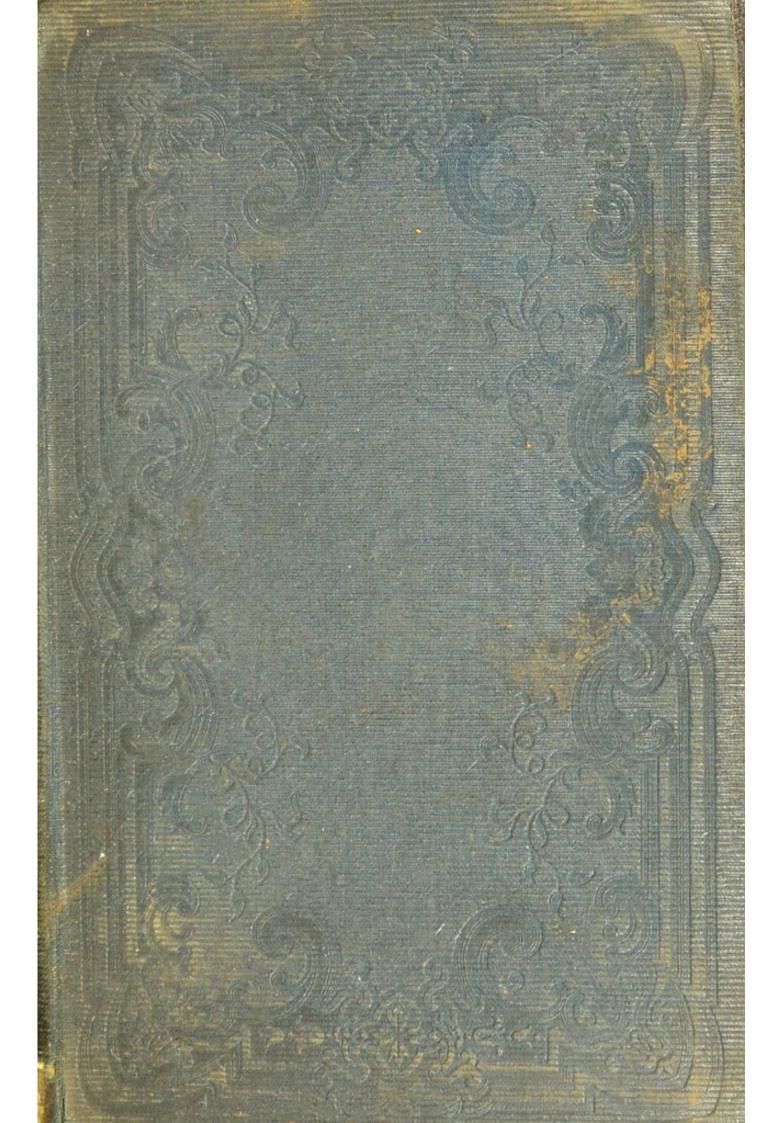
Dr. Macmichael says, Trichori, in the Gulf of Volo, in Greece, a dry limestone rock, is notorious for its malaria, which is likewise true of one of the Isles de Loss, according to Boyle.

McCulloch asserts that in every instance where it is found on the hills and mountain ridges, it always arises from the wet ground at their base, or at no very great distance off.

Ferguson says: "a year of stunted vegetation, through dry seasons and uncommon drought, is infallibly a year of pestilence to the greater part of the West India Islands.







The miasmatists, generally, believe that the dews of insalubrious localities are loaded with the miasmatic principle, which has been brought down and precipitated with the aqueous vapor of the atmosphere.

Sir John Pringle and others assert that this poison is connected with a most noisome and dreadful smell.

The prevailing opinion among the miasmatists is that it is not contagious, though some believe it is capable of hereditary transmission.

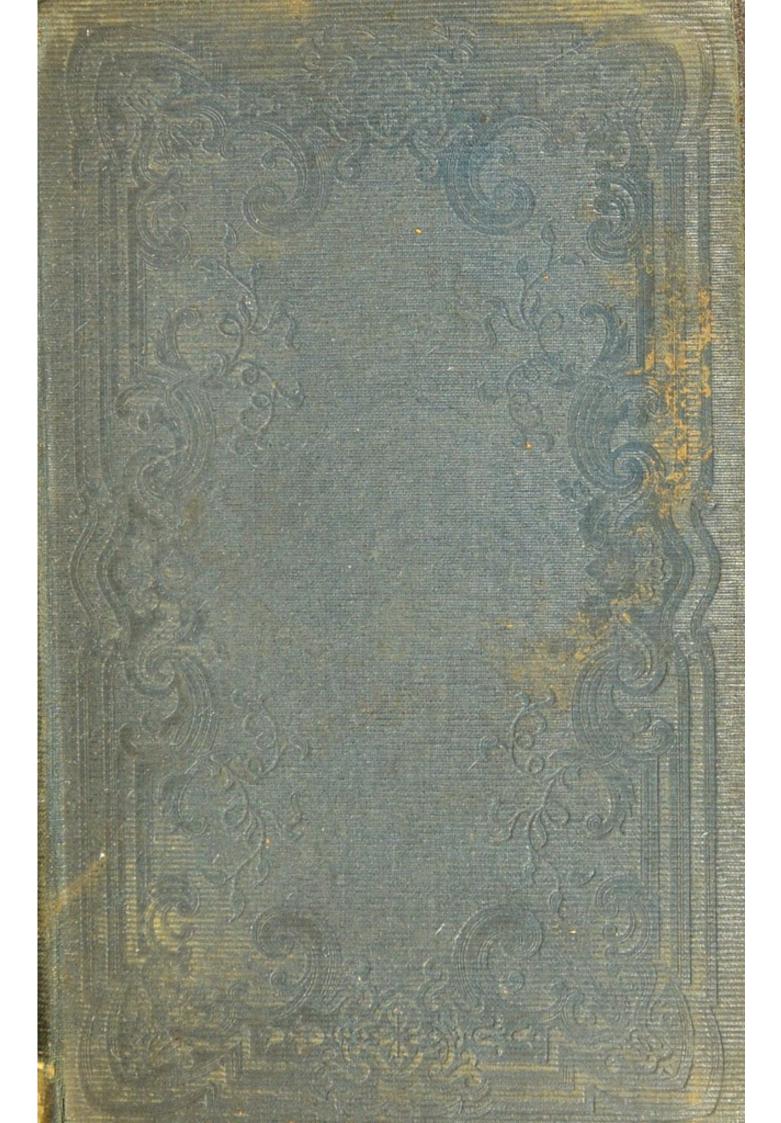
Fordyce, SirJohn Lind, Dr. Dundas, the French the abstract theory that

Dr. Minzi, of the Central Hospital, Terracina, with the view of testing this matter, together with others, drank freely of the dews of such localities besides washing abraded surfaces and the sores of peasants with it, without evil effects.

Ferguson says a most noisome and disgusting odor, arising from the decomposition of vegetable matter, pervades the town of New Amsterdam, Berbice, but it does not produce disease.

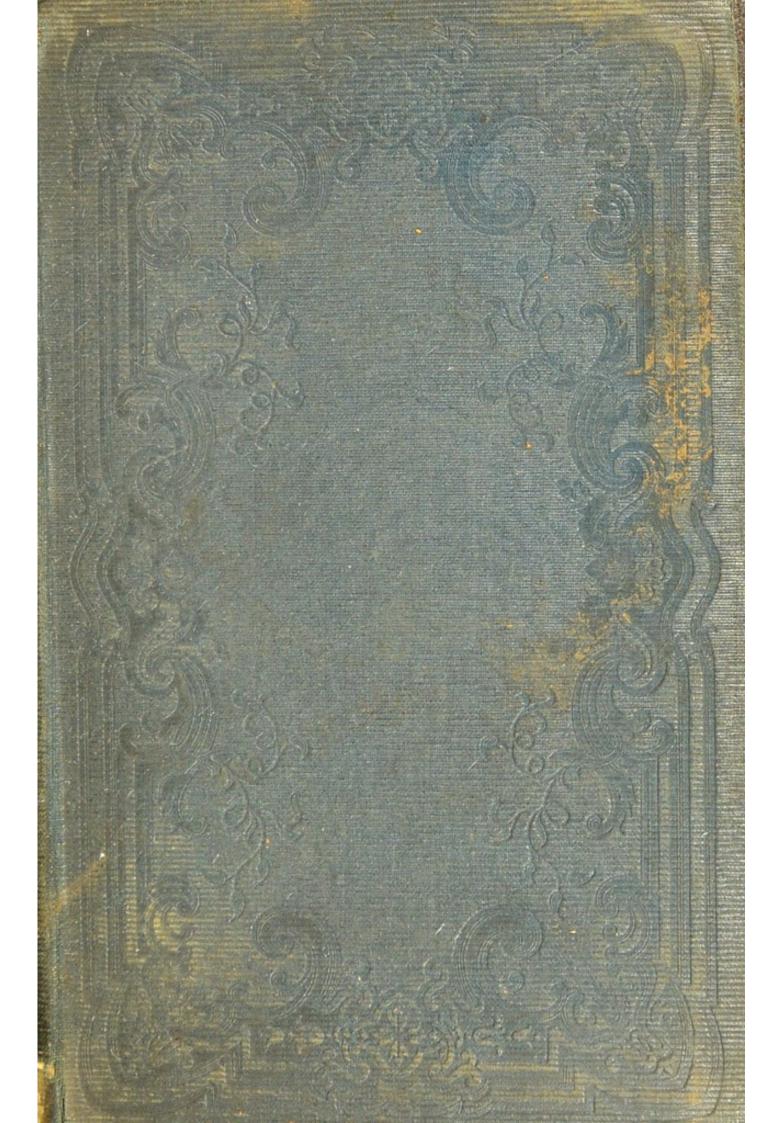
Bailly and Audouard, in France, and Cleghorn, Fordyce and Brown, in Great Britain, think that it is communicable by contagion.

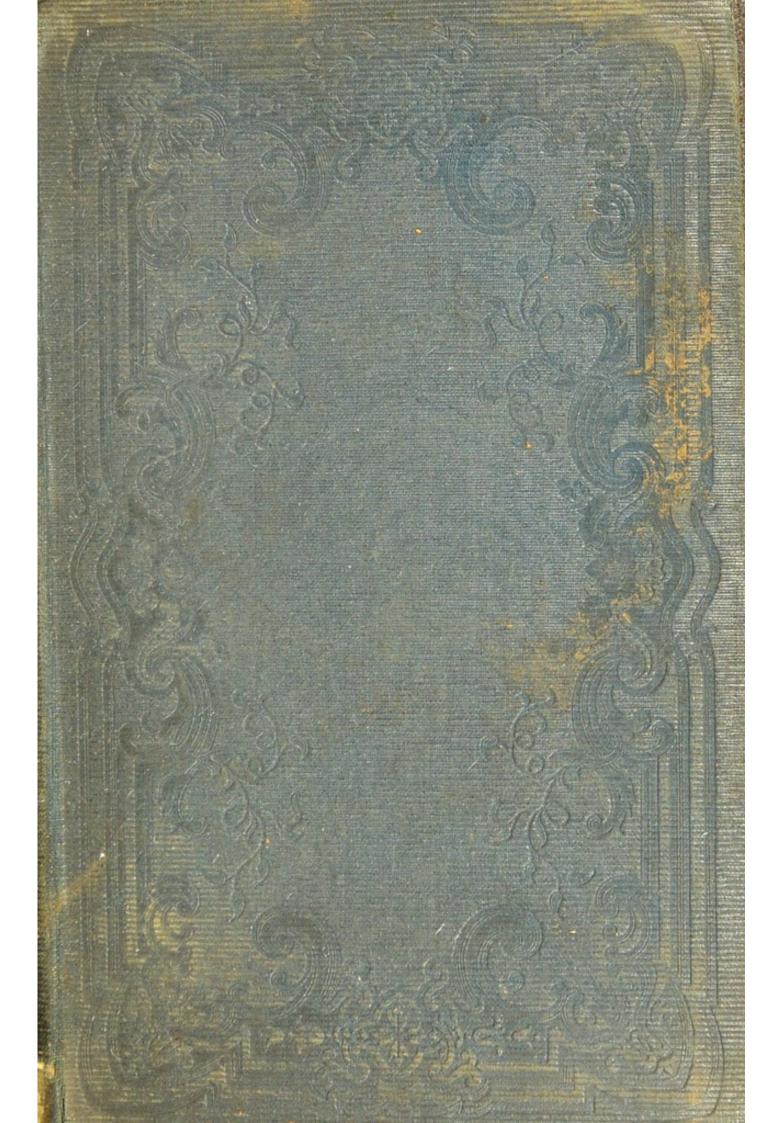
Those who advocate

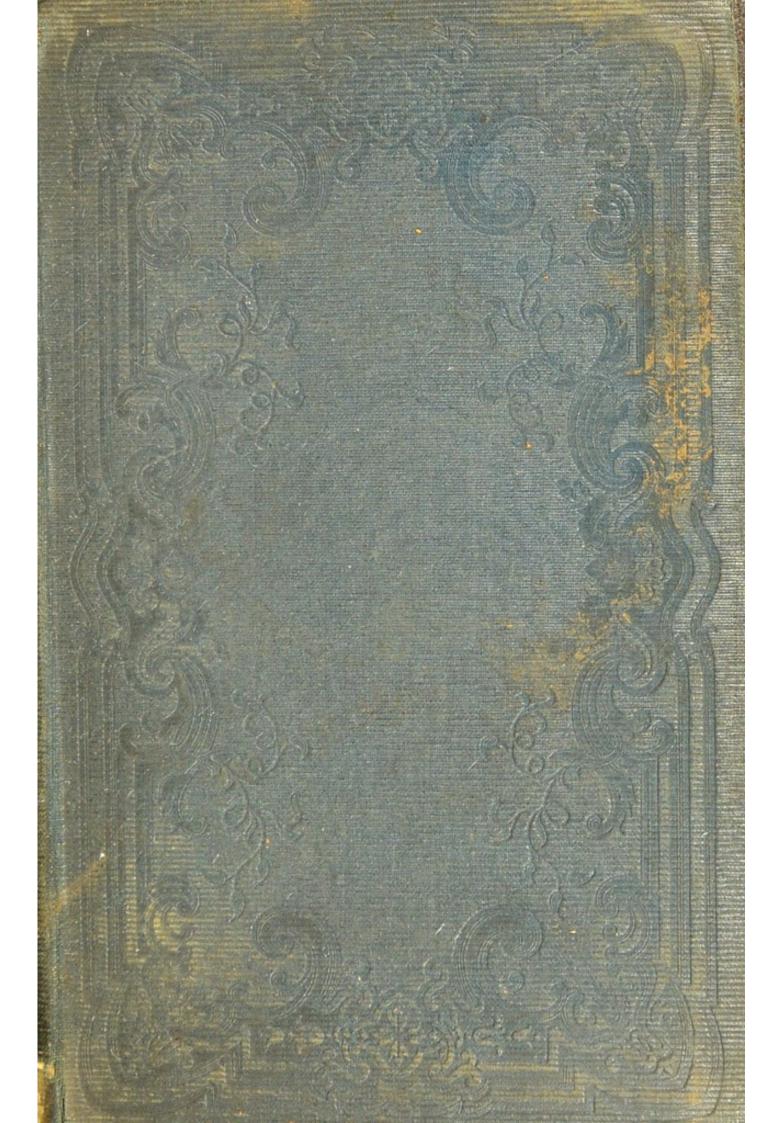


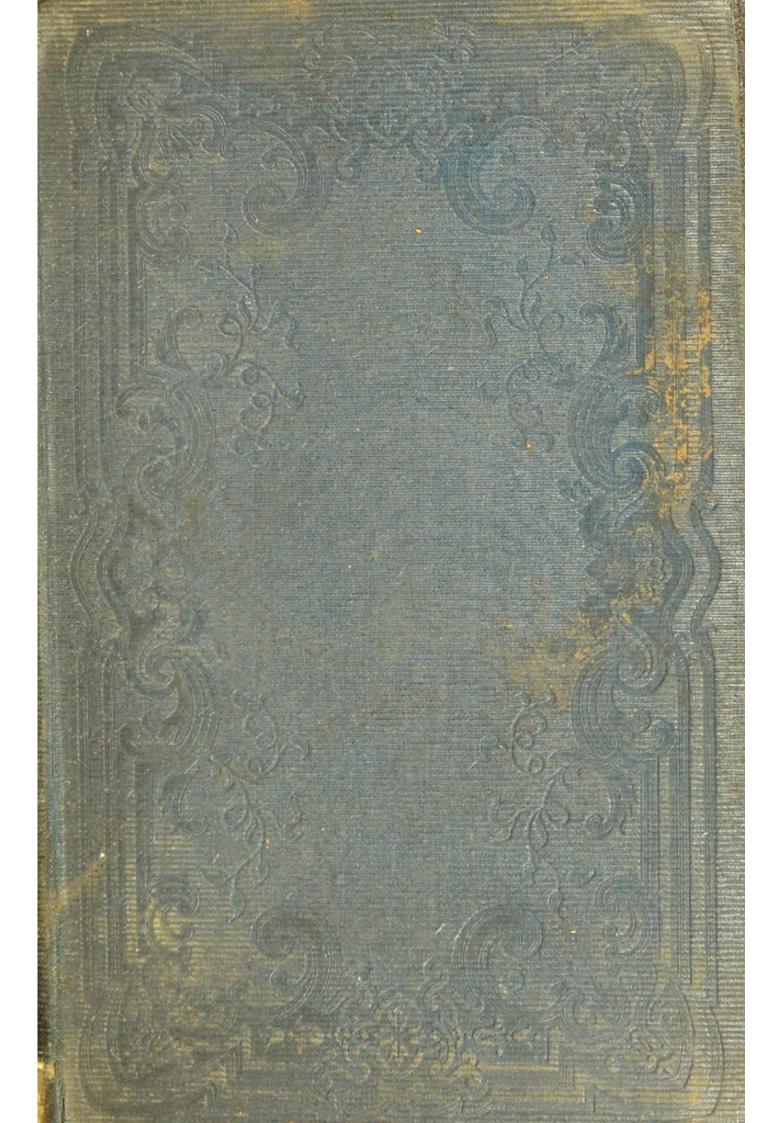
for on the principle of natural causes. And that atmospheric disturbances, such as the variations of temperature, by whatever means effected, but as manifested more particularly by the varying degrees of heat during the different hours of the day, and in the night-time, in the same locality, and at the same season of the year; hygrometrical influences, atmospheric pressure, electrical tension and states of the air and earth's surface, as affected by the foregoing enumerated conditions of the atmosphere, and upward radiation of heat, especially at night, are the exciting causes of periodic fevers, of which intermittents are, in my opinion, the primordial type. On the other hand-want of light, want of ventilation, impure air and noxious vapours, from whatever source arising; scanty diet, impure food, inattention to personal cleanliness, want of comfortable quarters, over-exertion, dissolute habits, an irregular and artificial mode of life, by enervating and otherwise spoiling the natural tone and healthy vigor of the system, become predisposing causes, rendering it more or less liable to be affected by the exciting cause.

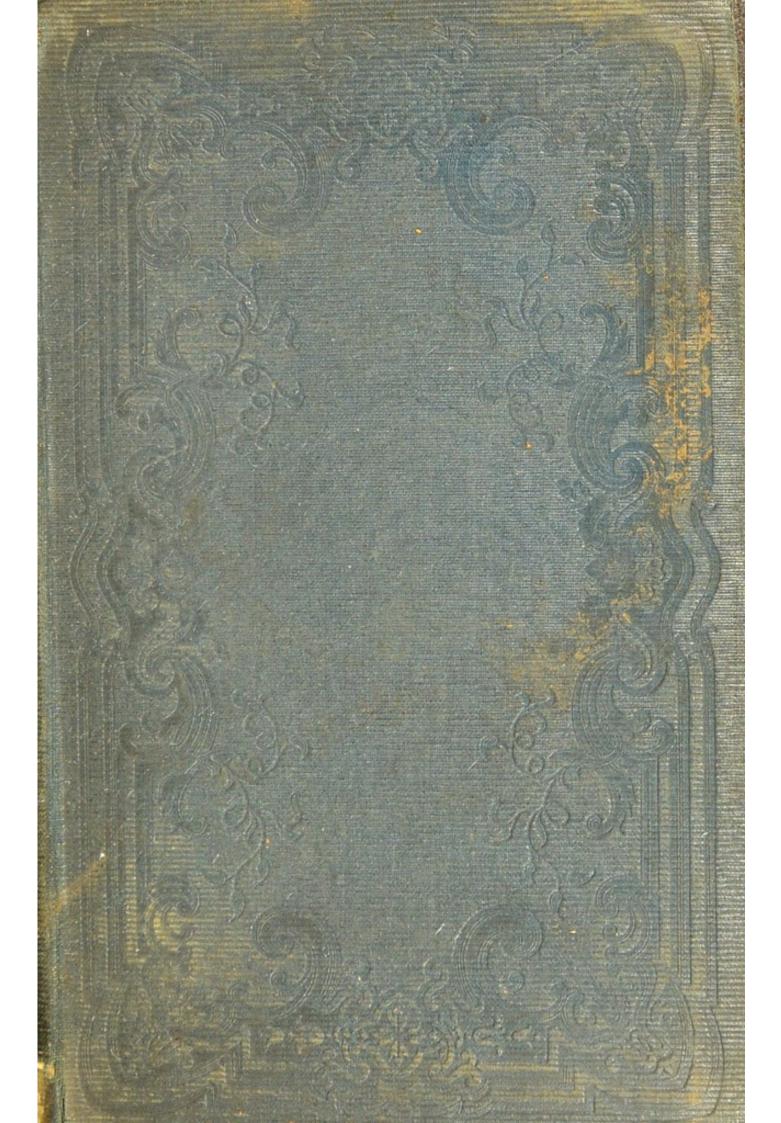
P. S. Since the above was written and delivered, I have seen and carefully read the recent very learned and elaborate work by R. La Roche, M. D., of Philadelphia, on "Pneumonia, its supposed connection, pathological and etiological, with autumnal fev-

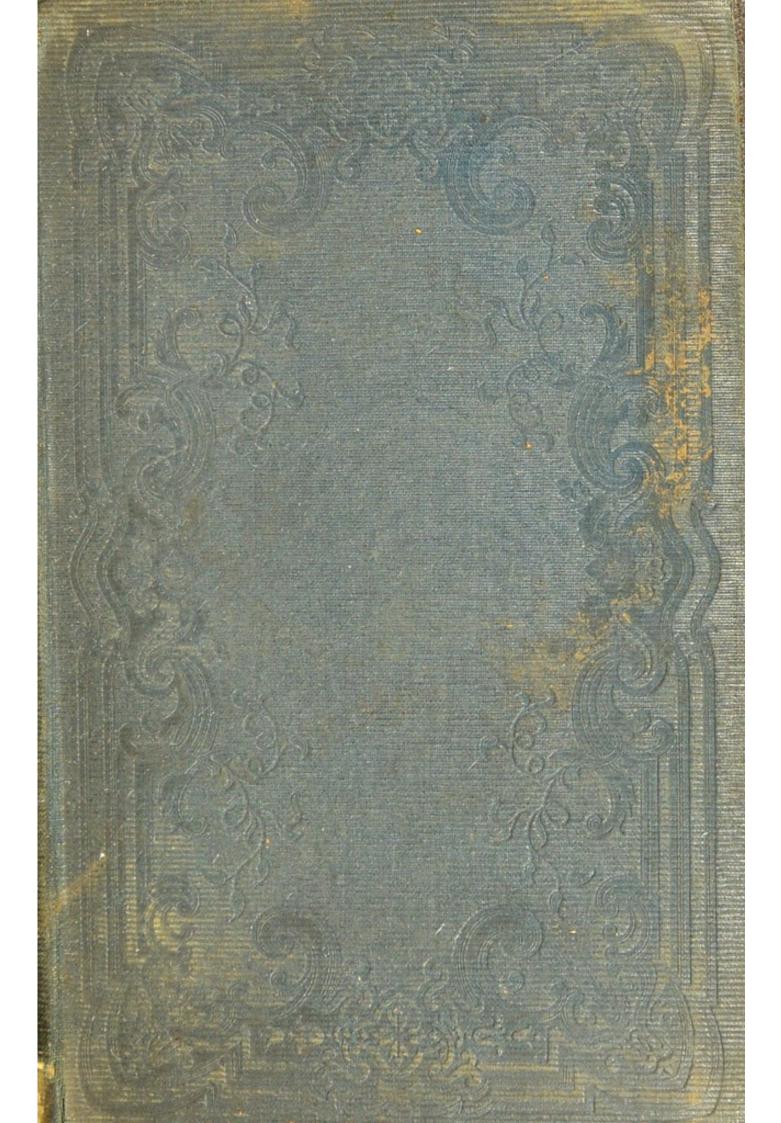


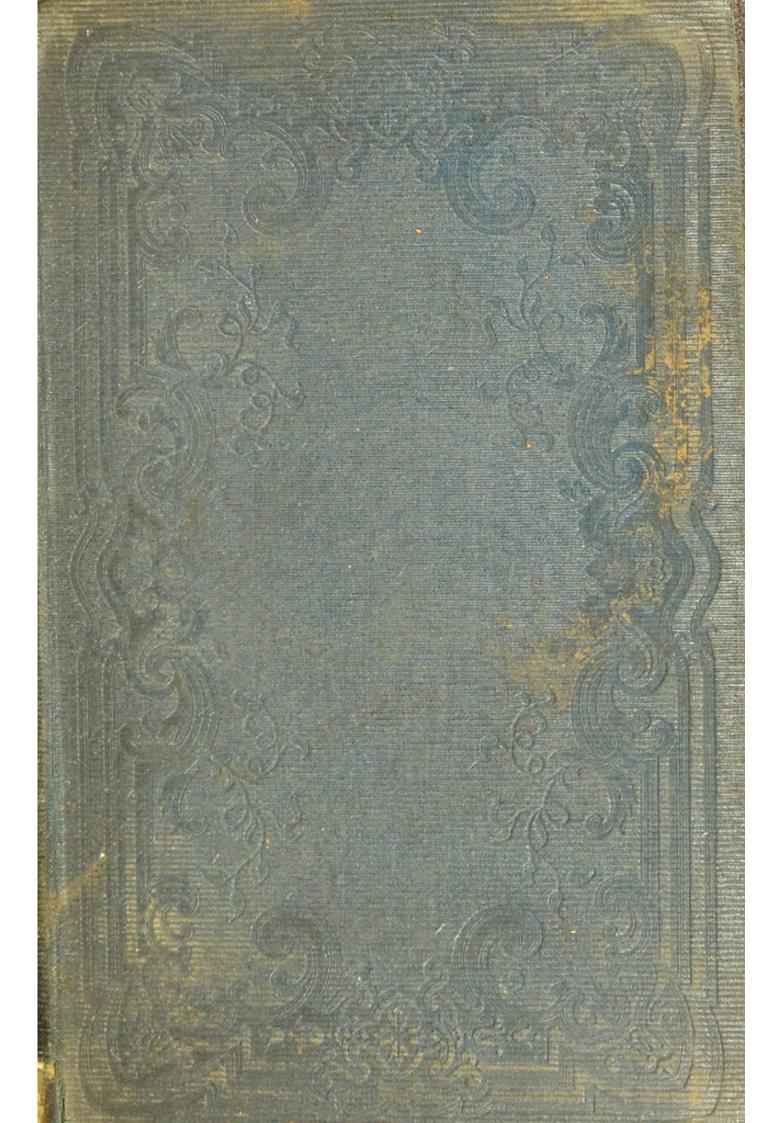












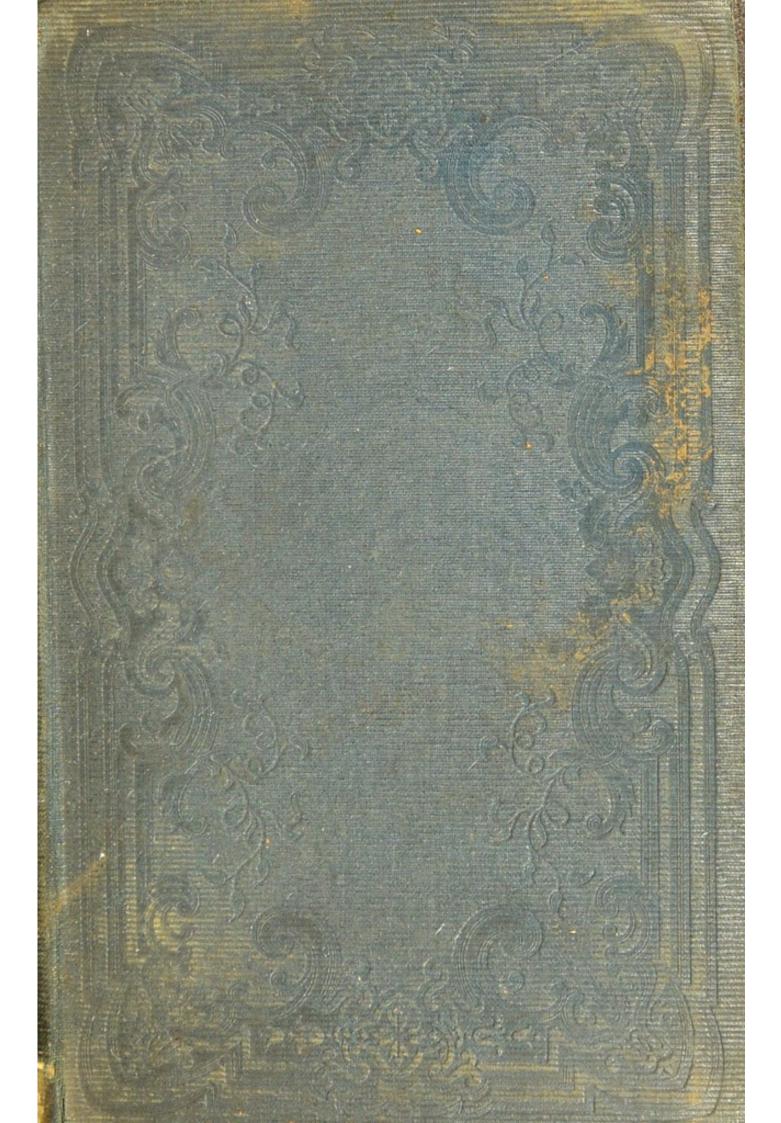
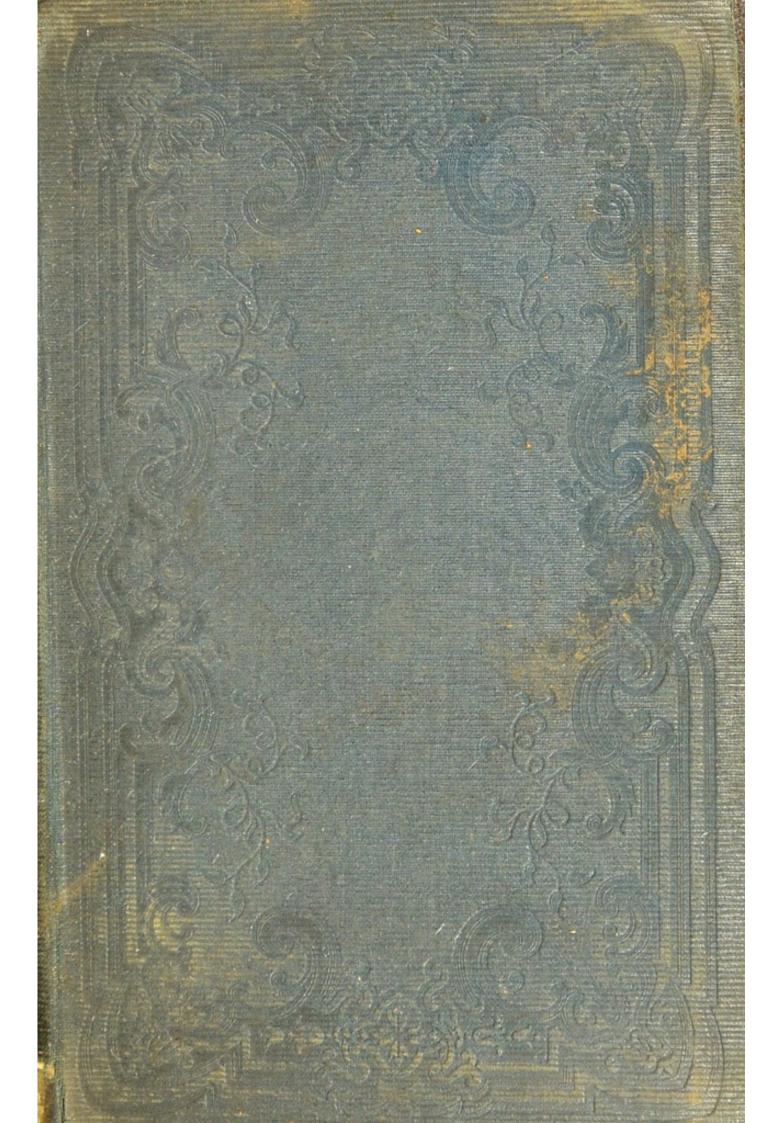


table and other decomposition" on land "prove completely, or to a great extent, innocuous in certain seasons, and even during a succession of years," because the effluvia from them are harmless unless aided by high and long continued heat; a certain hygrometoical condition; the season of the year when these diseases usually prevail; and a suitable epidemic constitution of the atmosphere. What a theory of causation! In the first place, he assumes the existence of a cause, an indispensable something, with neither appreciable qualities, nor capable of demonstrable being; yet, without which, as he assures us, periodical fever could not exist. And then, in the second place, finding himself unable by this means to solve the certain difficulties, which arise on either hand demanding an explanation, he claims the presence and aid of a series of contingencies, most of them palpable facts or appreciable agents. Thus, in violation of all the just rules of philosophizing, he superadds a hypothetical to known causes, which known causes other etiologist in a more philosophic spirit believe of themselves capable of producing these diseases; while the absence of any one of them, especially the last, itself an unknown condition of things, may render Dr. La Roche's whole theory a baseless fabric, and this primum mobile et causa sine qua non totally inoperative, and therefore a nonentity, since it is only by its supposed effects that he even assumes to know certainly of its existence.



furnishing those who have not the time or inclination to study out this question for themselves, an easy and agreeable acquaintance with those eminent medical men who have written upon this subject.

THE END.

