An inaugural dissertation on intermittent fevers : submitted to the public examination of the faculty of physic, under the authority of the Trustees of Columbia College, in the state of New-York, William Samuel Johnson, LL.D. president ; for the degree of Doctor of Physic, on the sixth day of May, 1794 / by Edmund Ludlow, citizen of the state of New-York.

DR. SAMUEL W. FRANCIS,

AN

INAUGURAL DISSERTATION

ON

INTERMITTENT FEVERS.

SUBMITTED TO THE PUBLIC EXAMINATION

OF THE

FACULTY OF PHYSIC,

UNDER THE AUTHORITY OF THE

TRUSTEES OF COLUMBIA COLLEGE,

IN THE

STATE OF NEW-YORK,

WILLIAM SAMUEL JOHNSON, LL. D. Prefident;

FOR THE DEGREE OF

DOCTOR OF PHYSIC,

ON THE SIXTH DAY OF MAY, 1794.

By EDMUND LUDLOW,
Citizen of the State of New-York.

Ad utilitatem vitæ omnia conſilia factaque noſtra dirigenda ſunt.
TACIT.

NEW-YORK:

Printed by T. and J. Swords, Printers to the Faculty of Phyſic of Columbia College, No. 167, William-Street.
—1794.—

TO

RICHARD BAYLEY,

PROFESSOR OF ANATOMY

IN

COLUMBIA COLLEGE,

HAVING pursued my Medical Studies under your Auspices, permit me to dedicate to you the First Fruits, as a mark of the respect and esteem of

Your Friend and Pupil,

EDMUND LUDLOW.

TO THE

MEDICAL FACULTY

OF

COLUMBIA COLLEGE,

THIS

DISSERTATION

IS INSCRIBED

AS A MARK OF RESPECT.

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A

DISSERTATION

ON

INTERMITTENT FEVERS.

THE obvious revolutions taking place in the regions of ſcience, at the preſent day, when deſcribed to future ages, will deſignate this happy æra, and adorn with brilliant rays its great promoters. Theſe arduous improvers of ſcience have drawn it from the hidden receſſes of obſcurity, illumined its myſterious phænomena, and expoſed to view the extenſive and curious operations of Nature's economy.

It muſt doubtleſs afford the higheſt gratification to the reflecting mind, who views theſe efforts of

of modern induſtry; and produce a laſting regret in him, whom Nature has not calculated to lend a mite to the general fund of riſing ſcience.

Phyſic ſeems to have derived her proportionable ſhare of elucidation from this important change, and is ſimplified by the few heads under which diſeaſes are now arranged.

In contemplating the variety of diſorders incident to human nature, from the tender and delicate organization of her parts, we may, with propriety, compare her to a well regulated machine, whoſe complex parts are yet ſeverally liable to be impeded by cauſes apparently the moſt trivial, which, from the general dependency of all thoſe parts, render it incapable of performing its minuteſt functions. Thus, man formed by Nature for each ſocial enjoyment, juſtly ſtyled *Lord of the Creation*, bleſſed with each requiſite to make pleaſant thoſe few fleeting years allotted for his tranſition through life, we repeatedly obſerve eaſily

tranſported

tranſported from his happy career into the boſom of diſeaſe, and there transformed into a child of miſery, until he returns to mother earth.

Theſe conſiderations naturally lead the indefatigable and accurate obſerver of human nature, to an inquiry into the cauſes of diſeaſe, upon which their prevention and cure totally depend. This is the office of the Phyſician, the end of whoſe labor is the attainment of means for the relief of the numerous diſeaſes incident to his fellow creatures. *Intermittent fevers* have particularly excited the attention of many, with a view of inveſtigating the nature and particular operation of *miaſmata*, or *marſh effluvia*, in the production of its ſingular effects. This diſeaſe, originating from its influence, and frequent in many parts of this country, is well worthy to be known and underſtood, ſince few are the happy climes which can boaſt of being exempt from its ſcourge, and many are the victims who fall a ſacrifice at its ſhrine.

Hiſtory of the Diſeaſe.

PRINGLE obſerves, that the inhabitants of a great proportion of the United Provinces, with Dutch Brabant, are equally ſubject to intermittent fevers with thoſe of Flanders. But he remarks it more frequent in the province of Zealand, from its ſituation being naturally low and watery; the beaches of eaſtern and weſtern Scheld, and the marſhy parts of that country contributing to this effect. From this circumſtance, almoſt every breeſe carried to it, adds a large proportion to its native moiſture; and what increaſes ſtill more the unhealthineſs of the ſituation, is the ſoil being overflowed during a great part of the year. As the water is evaporated by the heat of the ſun, a muddy and ſlimy ſurface is expoſed, together with a great quantity of putrifying animal and vegetable matter, increaſing the unſalutary tendency of the climate, by tainting the atmoſphere with impure and noxious vapours. He likewiſe

likewiſe obſerves, that in proportion to the mildneſs or heat of the ſummer, diſeaſes of this nature aſſume a more dangerous, or favorable appearance.*

Theſe noxious and moiſt exhalations, operated upon by heat, have been obſerved to be alone ſufficient for the production of intermittent fevers: when exhalations are of the more mild kind (*i. e.* impregnated with a leſs quantity of *azote*, and more of *oxigene gas*, which we have reaſon to believe is its compoſition, attended with a moderate degree of heat and moiſture,) intermittents then appear in the form of a mild tertian. This kind I ſhall more particularly notice, ſince it has come under my obſervation in the ſuburbs of the city of New-York, more eſpecially in the vicinity of the Freſh Water Pond. This pond is ſituated in a low

* See Pringle on the Air and Diſeaſes of Low Countries, ch. i. p. 2, 3, 6.

Linn on Diſeaſes in Southern Climates, ſect. x. p. 54. is of the ſame opinion with Pringle, that heat and moiſture ſeldom fail of produing intermittents.

low marſhy place, and ſerves as a reſervoir to collect the waters of the adjacent meadows. It is rendered more filthy by the conſtant ablution of putrid hides, by the tanners, who have a number of vats on the borders of the pond. The ſurrounding atmoſphere is frequently impregnated with the exhalations ariſing from this water, and its marſhes; and great numbers of the neighbouring inhabitants experience its unfriendly effects in ſummer and autumn, the ſeaſons moſt favorable for its operation.

Diagnoſis.

INTERMITTENT fevers are placed by the celebrated CULLEN, in his arrangement of diſeaſes, in the claſs *pyrexia*, order *febres*. His definition is—

" Febres, miaſmate paludem ortæ, paroxyſmis
" pluribus, apyrexia, ſaltem remiſſione evidente
" interpoſita,

" interpoſita, cum exacerbatione notabili, et ple-
" rumque cum horrore redeuntibus, conſtantes:
" paroxyſmo quovis die unico tantum."*

It may be neceſſary, in the firſt place, to point out in what particular theſe fevers differ from all others; that, upon their occurrence, they may, with more facility, be diſtinguiſhed. They are known to return at regular periods, with increaſed exacerbations, after the patient has been free from them for one or more days.

The perſon, upon the firſt attack, is obſerved to be effected with the following ſymptoms: a ſenſe of uneaſineſs, and difficulty of motion—recollection a little impaired—a diminution of ſtrength—a paleneſs of the countenance—a conſiderable degree of thirſt—a dryneſs of the mouth—the colour of the urine pale—with a roughneſs of the ſkin, commonly called *cutis anſerina*—a heavineſs and pain in the head, back and loins—

a cold-

* Culleni Synopſis Noſologiæ Methodicæ.

a coldneſs of the extremities—a violent ſhaking of the limbs and trunk of the body—a loathing of all kinds of food, particularly animal—vertigo—nauſea, and frequently attended with a diſcharge of bilious matter from the ſtomach, and often by ſtool: under theſe circumſtances the functions of the body are generally impaired, and more particularly thoſe which are termed natural. When moſt of the above ſymptoms have abated, the hot ſtage ſucceeds, and the ſkin becomes dry and parched, which is uſhered in by alternate warm fluſhings and chills—the urine becomes high coloured, but depoſits no ſediment—as the heat increaſes, there is a fulneſs and tergeſcence of the face—a warmth is felt throughout the whole body, and the ſkin aſſumes more of its natural appearance—at length the ſweat breaks out, firſt on the forehead, then extends itſelf gradually over the whole ſurface of the body. After a copious flow of perſpiration for ſome time, the heat of the body gradually diminiſhes; and this takes place ſooner or later, according to the quantity of the perſpiration.

perſpiration. If the ſweating be profuſe, the fever ſooner terminates; whilſt a ſcanty perſpiration protracts it to a more conſiderable length. Theſe ſymptoms ceaſe, and the functions ſlowly return to their natural ſtate, leaving the patient in a ſtate of indirect debility. Such are the appearances which conſtitute what is generally called a paroxyſm, or fit of an intermittent fever, and is divided into three ſtages, known by the names of the *cold*, *hot* and *ſweating* ſtages; during all which time the reſpiration is difficult, and becomes relieved towards the concluſion of the ſymptoms.

This leads us to inveſtigate the changes produced in the vital functions, which are the following: the pulſe is obſerved to be ſlow, and irregular, on the commencement of theſe ſymptoms; and, as the heat advances in its progreſs to the ſweating ſtage, the pulſe becomes more regular, hard and full, and returns upon the approach of the ſweating ſtage, nearly to its natural ſtandard,

ſtandard, which is known to be about ſeventy ſtrokes in a minute.

A fever, conſiſting of a ſingle paroxyſm, ſeldom occurs; the time which elapſes from the end of one paroxyſm to the beginning of another, is termed an *intermiſſion*, and from the beginning of one paroxyſm to the beginning of another, an *interval*; when they conſiſt of more than one paroxyſm, the intervals are nearly equal.*

There are three genera of intermittent fevers, known by the general appellation of the *Tertian*, *Quartan*, and the *Quotidian*; each of theſe are characteriſed by the frequency of the return of its paroxyſms.

1ſt. The *tertian*, being the moſt frequent in kind, will be more particularly attended to; the duration of its paroxyſm is obſerved to be about

* Cullen's Firſt Lines of the Practice of Phyſic, p. 11, 12.

about twelve hours, beginning with an interval of forty-eight hours, returning every third day, commencing its attack at noon: theſe ſymptoms form the regular tertian; though ſometimes the paroxyſms will continue for a ſhorter or longer time, and vary in their return: theſe deviations will conſequently form *varieties*, and, from their ſeldom appearing, will be paſſed over without farther notice.

2d. The *quartan* preſents itſelf on the fourth day, with a ſimilar paroxyſm to the Tertian; but differs in its interval, which is moſt frequently ſeventy-two hours, having the acceſſion in the afternoon.

3d. We next proceed to an enquiry into the *quotidian*, which ariſes every day and is obſerved with ſimilar paroxyſms, with an interval of twenty-four hours, coming on in the morning; we not unfrequently find this, as well as the other forms before noticed, complicated with a

variety of diſeaſes, unneceſſary, for the purpoſe of this confined ſketch, to enumerate.

It may be obſerved, with reſpect to the form or type of fevers, that the quartan, while it has the longeſt interval, has, at the ſame time, the moſt violent cold ſtage, but the ſhorteſt paroxyſm: the tertian, having a ſhorter interval than the quartan, has likewiſe a ſhorter and leſs violent cold ſtage, but the paroxyſm much longer; the quotidian has the ſhorteſt interval, the leaſt cold ſtage, but the longeſt paroxyſm.*

Cauſes.

A DIVISION of theſe into *remote* and *proximate*, may appear the moſt proper. The remote includes the *prediſponent*, and *exciting* or *occaſional* cauſes. Theſe require the immediate ſkill of the Phyſician, as being evidently of the utmoſt importance in the reſtoration of the patient to health.

Prediſponent

* Cullen's Firſt Lines, p. 15.

Predisponent Causes.

THESE are numerous: a few, therefore, will be related, as sufficient to designate them from the exciting causes.

Debauches of all kinds.

Nocturnal watchings.

Fatigue of long continuance, either of mind or body.

Depression of the spirits.

Exposure to the vicissitudes of the weather.

Food not sufficiently nutritious, and in small quantities.

The sedative power of cold.

Those enfeebled by labor and want of nourishment, are observed to be more exposed to attacks of intermittent fevers than others, who, on the contrary, are well clad, and frequently cheer themselves with the bottle.* In fact, any operation upon the mind, or body, capable of producing debility, is sufficient for the purpose of predisposition.

Exciting

* Brown's Elements of Medicine, p. 278.

Exciting Cauſes.

THESE may be referred to *marſh effluvia*, or *miaſmata*, ariſing from fens, or low marſhy places, in which animal and vegetable matter reſides in a rotten ſtate, and by the aſſiſtance of a certain proportion of caloric, enables the unhealthy proceſs of putrefaction to be carried on, in the greateſt degree, as conſequent to fermentation. In this diſſolution, we have reaſon to believe there is diſengaged a much greater quantity of thoſe gaſes found by experiment to be unfit for reſpiration, which reſide in a greater or leſs degree in all animal and vegetable bodies, viz. *azote*, *carbone* and *hydrogene* than of *oxigene*, which, upon life being extinct, exiſts in a ſmaller proportion than the others, though indiſpenſably neceſſary for the purpoſe of reſpiration. The contagion, when generated in the above manner, is abſorbed by the ſurrounding atmoſphere, as we know it holds in ſolution, every thing that is capable of being volatilized from off the earth; and when it becomes

comes ſuperſaturated with the atmoſphere, and meets with a ſufficient degree of heat and moiſture, it is rendered active, and is capacitated for its operation on the human body, in what preciſe manner I ſhall not pretend to ſay, any farther than the general ſuppoſition, which is from its ſedative effects producing a greater or leſs degree of fever, in proportion to the virulence of the contagious matter applied to the human body.

Proximate Cauſe.

HAVING examined into the remote cauſes, our next inquiſition is into the *proximate* cauſe.

Many opinions have been offered to the world, to account for the cauſe of intermittent fevers; but, being merely ſpeculative and illy ſupported, have conſequently fallen to the ground; one is, that a noxious matter was generated within the body, and, in conſequence of the efforts

of

of nature, called by CULLEN, the *vis medicatrix naturæ*, to expel the matter, fever was produced. Others have aſſerted, that bile was the cauſe, from the circumſtance of its being evacuated, in large quantities, on the commencement of the fit; together with many other opinions equally futile. Theſe ideas are now thoroughly exploded, and the diſcharge of bile can be accounted for by the violent action of the ſtomach, emulging the biliary ducts.

As a ſolution of this cauſe cannot be exactly aſcertained, and appears to have been a ſubject of much ſpeculation among men of the greateſt talents, in the medical line, and ſtill remains involved in the utmoſt obſcurity, we muſt permit it to reſt, in its preſent unrevealed ſtate, and continue to grovel in the dark, with the feeble aid of hypotheſis to guide the purſuit.

There appears an evident dependency of cauſes throughout the diſeaſe: thus a ſedative power, known by the name of *miaſmata* in the ſchools

of

of phyſic, is applied to the human body, in what particular form we know not; neither can its mode of reception be aſcertained: ſome have ſuppoſed it to be taken immediately into the lungs in the act of reſpiration, others through the pores of the ſkin, or through the medium of the *ſaliva*, I will not take upon me to determine which of the three opinions is the moſt probable, but am rather inclined to think it is received through the pores of the ſkin, ſince, in dropſy, we find a great diſpoſition for abſorption from the atmoſphere by the abſorbents on the ſurface of the body, which, in this manner, operate on the nervous ſyſtem. It is well known, that in dropſical habits a much greater quantity of water is collected in a given time, than is taken in at the mouth; this can be accounted for but on two principles, either by abſorption from the atmoſphere, as before-mentioned, which, when the moiſture is greater, it has been frequently determined more water will be collected and *vice verſa:* or, in conſequence of the chemical change that takes

place

place within the body, when, in reſpiration, *oxigene gas* is taken into the lungs, it there meets with *hydrogene*, and, by their union, form water, which we know is its compoſition. In either of theſe ways the increaſe may be accounted for; but the former hypotheſis I am inclined to adopt, ſince through that channel it appears to me contagion may more readily exert its baneful influence, in producing the cold ſtage, upon which the hot depends; for by curing the cold we produce a diſſolution of the diſeaſe.

From a view of the phænomena attending this diſeaſe, it muſt appear, that the proximate cauſe ought to be ſought for, in the cold ſtage; and muſt therefore be traced, to a peculiar kind of debility. This cauſe ſeems to operate as a powerful ſedative, in diminiſhing the action of the heart and arteries: thus, *the warm ſtage* is cauſed by the *cold*, and the latter by *debility*, which circumſtances evince the immediate connection between the three different ſtages.

Whether

Whether the contagion, after its reception into the ſyſtem, continues in a paſſive ſtate, or commences its operation immediately, I cannot learn: though a knowledge of it may be of great moment in checking fevers in the bud.

Prognoſis.

TO determine with accuracy and preciſion, the various terminations of intermittents, may be of ſome conſequence to the Phyſician, ſince true or falſe predictions may have a tendency either to increaſe or diſparage his ſkill in the public opinion: this leads him to note every particular occurrence, during the progreſs of the diſeaſe, to enable him the more readily to form his opinion with reſpect to the reſult, and ward off each impending miſchief.

It has been obſerved not unfrequently to change its form into a dangerous continued fever, which is more peculiar to plethoric habits, and occurs in the fall of the year. At other times it ends in jaundice of various ſpecies, and ſometimes in *phthiſis pulmonalis*.

A *coma* frequently occurs, and is ſuppoſed to be owing to a compreſſion of ſome portion of the ſubſtance of the brain, or of its medullary fibres. Some think it probable that a *lentor* of the fluids, in the veſſels of the brain, is the cauſe: others attribute the compreſſion to an increaſed *impetus* of the blood to thoſe part. This, it may be allowed, is approaching nearer the mark in accounting for *coma*.

The occurrence of *delirium* may be explained upon the principle of a diminution of the energy of the brain. In three caſes, related by PRINGLE, when ſome of his men were attacked with intermittent

mittent fevers, he ordered them immediately to be blooded; the conſequence was a high degree of delirium about two hours after. This ſhows that the energy of the brain was diminiſhed by this treatment, in addition to that already induced by contagion.

It rarely terminates in death, but, when it does, it depends upon the want of a ſufficient degree of excitement in the nervous ſyſtem, and happens in the cold fit. It may, however, on the contrary, deſtroy life by proving too great a *ſtimulus*; or, agreeable to BROWN, deſtroy the excitability.

If the pulſe be frequent, it is difficult to determine whether it depends upon irritation or debility. We judge of the exceſs of *ſtimulus* from the fulneſs and frequency of the pulſe; when frequent and ſtrong at the ſame time, the contents of the heart are ſuppoſed to evacuate at each pulſation; and when it continues at one hundred and eighteen or twenty for ſeveral days; or when there

there is that peculiarity of pulſe called the intermittent, which is known by its conſtantly varying as to the ſtrength and fulneſs of each pulſation, alternating from quick to ſlow, from full to hard, and beating at irregular intervals, with a tendency of the fluids to putrefaction, from the cadaverous ſmell of the body, fætid ſtools, diſagreeable breath, *petechæ* on the ſkin, and *hemorrhage* from different parts. Theſe are inevitable proofs of approaching diſſolution.

When thoſe fevers which have come under my obſervation have terminated favorably, I never obſerved them to take place at ſtated periods, called by HIPPOCRATES critical days, neither could I diſcover any remarkable evacuations; they were noticed to ceaſe in the ordinary way of a paroxyſm, with ſome trifling deviation; ſuch as the patient having a better night's reſt than uſual, and not being attended with delirium; or by profuſe ſweats, terminating the paroxyſm without any farther return of the diſeaſe.

They

They ſometimes terminate in *mania*, of which inſtances are not rare.

Method of Cure.

IN the cure of diſeaſes, it is neceſſary to keep conſtantly in view the train of cauſe and effect; ſince, by the removal of the cauſe, the effect ceaſes, and the diſeaſe ends.

One of the firſt indications is to ſhorten the length of the paroxyſms; another is to remove all things that may have ſtimulant effects, thirſt particularly, which may be obviated by indulging the patient with cool diluting drinks; and another to remove the contents of the ſtomach, particularly if there be reaſon to believe the preſence of bile, which frequently is thrown up in large quantities,

and

and, from its ſedative effects, increaſes the diſeaſe. The ſymptoms will then be the following, a foul appearance of the tongue, with the ſurface rough, a bitter and diſagreeable taſte in the mouth, attended with frequent retchings, and diſlike to all kinds of food. At this time, we ſhould have recourſe to gentle emetics, ſuch as the emetic tartar in ſmall quantities, or ipecacuanha; perhaps the latter may have the preference, as its effects are not ſo debilitating: theſe may be uſed with another advantage, which is determining to the ſurface, and bringing on a free perſpiration. Many of the diaphoretics may be uſed with the ſame intent; among which are the celebrated James's powders, the principal part of the compoſition of which is ſuppoſed to be antimony, united to a ſmall portion of nitre, the good effects of which are frequently ſeen, given in the doſe of ten or fifteen grains, at the commencement of the warm ſtage, or latter end of the cold, by its producing a different action in the ſyſtem, determining to the ſurface, and bringing on the

ſweating

ſweating ſtage. It is ſeldom neceſſary to repeat it more than two or three times.

The uſe of opium, obtained from the *papaver ſomnifera* of LINNÆUS, is very valuable, and will not be paſſed over unnoticed, in taking off the irritability of the ſyſtem frequently accompanying intermittents, together with its diaphoretic qualities, given at the time of acceſſion.

RUSH, of Philadelphia, in his treatment of intermittents, appears to be much prejudiced in favor of blood-letting in a moderate quantity, in the advanced ſtages of the diſeaſe: when the bark and other remedies have proved ineffectual, he has found it yield to this alone.

It is a doubt with me, whether it may be practiſed, in the advanced ſtages, with any degree of ſafety, ſince the debilitating effects of the fever already induced in the ſyſtem, may ſeem too great to warrant it; if practiſed at all, it would appear

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the moſt proper in the early ſtages, and confined to thoſe caſes in which a great degree of *inflammatory diatheſis* is preſent, by removing it, to prepare the ſyſtem for the reception of the bark, with other tonic and aſtringent medicines, among which are the *gentian*, *columbo* and *camomile*. The *ſerpentaria virginiana*, poſſeſſes the joint qualities of tonic and antiſceptic, and, as an aromatic ſtimulant, may be given with greater advantage when joined with the bark.

Bitters of the common kind may be adminiſtered with a good effect, ſuch as HUXHAM's or STOUGHTON's elixirs, as tonics. Cold bathing may be uſed as a powerful tonic, by ſuddenly immerſing the patient, and not ſuffering him to ſtay too long in the bath. But the moſt efficacious of all the tonics yet mentioned, is the Peruvian bark, given in large doſes, at any time in the diſeaſe, nearly as much as the ſtomach will bear, and is in ſubſtance, preferable to decoctions or infuſions, as great part of its ſtrength is carried

off

off by expoſure to heat in the form of fumes. Its well known efficacy is ſufficient to recommend it, without entering into any farther detail of its virtues.

The well tried effects of the white poplar bark, ſet on wine, adminiſtered previous to the time of acceſſion as a diaphoretic, is worthy of notice, with a view of affording relief when the Peruvian bark has either failed or cannot readily be procured.

By a ſtrict attention to this ſketch of the method of cure, and perſevering in the uſe of either of theſe barks, there will be, no doubt, a ſolution of the diſeaſe.

Cleanlineſs may have a great ſhare in expediting the cure of the patient, by frequently ventilating his chamber, and permitting him to breathe pure and wholeſome air, the properties of which have not been vitiated by reſpiration, or impreg-

nated with *mephitis*; together with a frequent change of bed-clothes and linen.

It may be adviſable to rear a number of plants, in the vicinity of unhealthy habitations, for the purpoſe of abſorbing the proportion of *mephitic* air ariſing from a ſuperſaturation of the atmoſphere, and, by changing its nature, act as a preſervative, ſince, in the proceſs of vegetation, they are known to emit a conſiderable quantity of vital air, neceſſary for human reſpiration, when under the influence of the ſun, and, by imbibing the *azotic* or *mephitic* part, over and above ſaturation, will prevent its operation on the human body.

The ſurrounding atmoſphere, from this chemical operation, will derive an advantage of ſufficient importance, in the ſcale of health and diſeaſe, to claim the attention of each inhabitant of an unhealthy ſpot; and in a great meaſure, if not totally obviate the pernicious tendency of unſalubrious exhalation.

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This concludes my obſervations on the method of cure, and completes the different heads of this diſſertation. The diſeaſe has been traced to its origin; its ſymptoms and *genera* deſignated; its varied cauſes endeavoured to be diſcovered; the *data* eſtabliſhed in order to form an opinion of its probable termination; and remedies ſuggeſted for its removal. Theſe few ideas on the ſubject, haſtily collected and imperfectly arranged in the midſt of academic purſuits, I flatter myſelf, will ſufficiently apologize, to the candid and liberal, for the many inaccuracies of this production. Should it reflect the ſmalleſt ray of light on a ſubject ſo important to the human race, my intent will be amply accompliſhed, and then I cannot but attribute it to the attentive aſſiduity of thoſe gentlemen under whoſe guidance my profeſſional ſtudies have been purſued.

FINIS.