Suckley (J. L.)

SECRETION

THE SOURCE OF

PLEASURABLE SENSATIONS:

A Thesis,

SUBMITTED TO THE EXAMINATION OF THE PROFESSORS OF

THE COLLEGE

OF

PHYSICIANS AND SURGEONS,

AND PUBLICLY DEFENDED BEFORE THEM, IN THE CITY OF NEW-YORK, MARCH, 1823,

BY JOHN L. SUCKLEY,

A CANDIDATE FOR THE DEGREE OF M.D.

NEW-YORK:

PRINTED BY J. AND J. HARPER,
NO. 230 PEARL-STREET.

1823.

J. Anderson.

B04

SECRETION

THE SOURCE OF

PLEASURABLE SENSATIONS:

A Thesis,

SUBMITTED TO THE EXAMINATION OF THE PROFESSORS OF

THE COLLEGE

OF

PHYSICIANS AND SURGEONS,

AND PUBLICLY DEFENDED BEFORE THEM, IN THE CITY OF NEW-YORK, MARCH, 1823,

BY JOHN L. SUCKLEY,

A CANDIDATE FOR THE DEGREE OF M.D.

NEW-YORK:

PRINTED BY J. AND J. HARPER,
NO. 230 PEARL-STREET.

1823.

THE

FOLLOWING PAGES,

ORIGINALLY SUBMITTED TO THE

PROFESSORS

OF THE

COLLEGE OF PHYSICIANS AND SURGEONS,
IN NEW-YORK,

DISTINGUISHED ALIKE AS

INVESTIGATORS OF NATURE;
SUPPORTERS OF TRUTH;
AND GUARDIANS OF SCIENCE;

ARE NOW

MOST RESPECTFULLY DEDICATED

(BY PERMISSION)

TO WRIGHT POST, M.D.

PRESIDENT OF THE COLLEGE, &c. &c.

Tam scientiâ claro,
quam
Virtute venerando.

BY HIS GRATEFUL PUPIL,

THE AUTHOR.

PREFACE.

THE appearance of novelty may at once stamp this Essay as the senseless effusion of a young theorist. But, gentle reader, be not alarmed when you are told, there is no novelty here; every fact recorded is an old inhabitant of this globe; every conjecture has been suggested by wiser and older heads than the author's, and every deduction is no more than the natural catenation resulting to every thinking mind. The practical inference which is desired to be inculcated is, that *health* is the consequence of regularity in the secretions.

The opinion that the secretion of saliva is the source of pleasure in using masticatories, &c. has been long publicly taught by Dr. Mitchill. To him is the originality of the following pages due rather than to the author; and to him thanks are thus publicly tendered, not only for the subject, but for his urbanity in furnishing every assistance required.

Now, gentle reader, with an affectionate grip, we'll let the pass-word be—VALE.

When a person little accustomed to metaphysical speculations is told, that, in case of volition, there are certain invisible fluids propagated from the mind to the organ which is moved; and that, in the case of perception, the existence and qualities of the external object are made known by means of species or phantasms, or images, which are present to the mind in the sensorium; he is apt to conclude, that the intercourse between mind and matter is left more mysterious than he had supposed; and that, although these expressions may not convey to him any very distinct meaning, their import is perfectly understood by philosophers.

Stewart's Elements, p. 87.

SECRETION

THE SOURCE OF

PLEASURABLE SENSATIONS.

PLEASURE and pain are relative terms. Circumstances, which in one instance afford pleasure, would in another produce pain. Thus the man who has ever been accustomed to have his wants supplied, and with a nod to command any new enjoyment or gratification, would feel the severest torture in being obliged to venture out on a stormy day—a bad road, poor horses, and indifferent entertainment on his way, would not fail to render a journey, in his eyes, insupportably tedious; while the beggar enjoys, not only a degree of satisfaction, but even of pleasure, in being well clad in rags. Let the tempest howl as it will, a ride on an ox-cart would

be to him a source of gratification—and happy would he be, if the publican would permit him to rest his wearied limbs in the kitchen corner—and grateful indeed if his allowance might be but the offals of the rich man's table. We may then define pleasure and pain, if taken together, thus—*The one is the absence of the other*—Hence the contented state of existence, which is the lot of most men, depends on a peculiar neutralizing combination of these two ingredients. The assertion will not be found contradictory to reason or to fact, that pleasure relieves, banishes, or destroys pain. Assuming this position as *datum*, we proceed to examine the merits of the hypothesis, that "Secretion is the source of pleasure."

If we refer to fact, as it stands recorded in the chronicles of ages, or as it appears to us in every day's observation, we must be satisfied that a stimulus applied to any living animal, produces pain. The goad renders the ox uneasy, and in order to change his

situation, he hurries onward; thereby gratifying the desire of his master in making more despatch. We cannot at once see any connexion between the ox-goad and a *stimulus*, unless we recollect, that the term is derived from this very circumstance. It may be considered as the cause, producing that excitement, which is the effect of *dead* acting on *living* matter. Thus a stimulus to the body is supposed to accelerate the motion of the fluids, by producing an irritation, which by sympathy, or some *nameless* means, is communicated to the vessels containing them. Hence arise all the phenomena of a rapid circulation. We can conclude with the utmost propriety that a stimulus is painful; else why does the child cry when a pin or the nails of its cross nurse are goading its young and tender flesh?—why dreads the schoolboy his master's ire?—why screams he when the lash is used?—why is not a bed of thorns as comfortable as the downy cushion of royalty?

Stimuli may be applied in various ways, in each producing pain, and in each relieved by secretion. Extraneous substances in the skin induce tumour, redness, and all the phenomena of inflammation, and, in a particular manner, pain. We will not at present enter into a disquisition, whether pain is the cause or the effect of inflammation—if decided in either way, it will not militate against the assertion, that secretion relieves pain; for facts will prove beyond dispute, that when pus is formed, every painful feeling is removed. This is evident, not only in phyma, but in every species of inflammation. A case, which on first view would seem to be an exception, is the existence of a collection of purulent matter under strong aponeuroses, or under the theca of tendons; but the least enlightened will be satisfied, that in this case the pus can act in no other manner than as an extraneous substance, becoming in itself a stimulus; because at the commencement of its secretion no pain was perceived. Only

when the matter secreted has accumulated so as to distend the firm covering, are we sensible of any disagreeable feeling.

Not only do stimuli, applied to the skin, induce secretion, but, when applied to any other parts, they are succeeded by similar consequences. Particles of dust or sand, when in contact with the adnata of the eye, cause an immediate increased flow of tears, which at once relieves, by counteracting the pain, and discharging the offending material. The irritations produced by savin, hellebore, and tobacco, on the schneiderean membrane, are followed by the same happy effects of an increased secretion. We may add that all the mucous and serous tissues of the body; as the internal coat of the intestines, the lining membrane of the urethra, bladder, ureters, and biliary ducts, with the *dura mater*, peritoneum, and pleura, are all excited to the deposition of an augmented quantity of their peculiar fluids, on the application of any excitement. This accumulated fluid is not

merely to act as a diluent or detergent, as in the familiar instances of the eye and the nose, where the acrid and offending ingredient is dissolved or washed away by a rush of waters which itself had formed; but the very formation has a particular influence: or why should pain be often relieved by a secretion taking place at a distance from the part afflicted? Why, in nausea, should the saliva be produced in an unnaturally large quantity? Why is the perspiration increased? Why is nausea produced on the passage of a calculus through the ducts of the liver or kidney? Surely not to vomit off the cause of agony! Why does a strangulated hernia nauseate the stomach of the sufferer? It may be answered; to excite secretions, and thus to give ease by counteracting the violence of pain; to change the contortions of anguish into the placid smiles of joy. Had we need of stronger confirmation of our opinion, to nature we might exultingly refer. We could find, in her museum of recorded

events and transpiring actions, the tears of the aged, as well as those of the infant, relieving distress of mind without removing the cause. Great indeed is that grief, which cannot be relieved by lachrymal secretion. Well and truly has it been said that "'tis the tearless grief that cuts the heart-strings."—Poverty may still depress, unkind friends may still harass, and ingratitude and malevolence may use all their weapons of hostility; yet the tear drowns every sorrow, and brightens every gloomy prospect.

Let it not be, for one moment, suspected that we are blind to every other use of secretion—or that we imagine that the glandular apparatus was only formed for the production of pleasurable sensations—such an inference is far from our thoughts. The uses are various, important, and even necessary.

In the stomach a fluid is formed, possessing the most remarkable properties. With qualities, neither of an acid nor alkaline na-

ture, it neutralizes both—checks fermentation at once, and, above all, produces the first change which *dead* matter undergoes to become *living*. By it the food is converted into chyme, from which, by the intervention of another secretion, chyle is separated, which, by absorption, enters into the circulation and becomes living blood. This fluid is called *gastric juice*. It does not act on living matter, thus intimating, it would seem, that to such its vivifying influence is unnecessary. Worms have lived uninjured for months in the stomach, and the parietes of that viscus are never affected during life, though they may be corroded after death has palsied every vital principle, save that which this miraculous juice is enabled to exert.

We have already mentioned the detergent effects of secretions, as in the eye and nose; we may also add the mucous discharge from the intestines, carrying off the offending materials. Where the irritant is so fixed as

not easily to be removed, the quantity of this mucus is greatly increased; and in many instances, where there is a morbid cause acting, it is only effectual as it relieves the distress by secretion.

They, in many instances, form the most perfect anti-attritions; as where parts rub upon one another, and especially on the cartilages covering the articulating surfaces of bones.

Some are demulcent, as the cerumen of the meatus auditorius externus: others are excrementitious, whose principal use is to purify the system, as of carbon from the lungs—of carbon and saline materials from the skin—and of saline materials from the kidney. The carbon is conveyed from the lungs—where as an impurity it is collected—by combining with oxygen and caloric, thereby forming carbonic acid gas. This gas, having antiseptic properties, may prevent the action of contagion; hence the

plausibility of the opinion that contagion affects the stomach rather than the lungs.

Fat is another secretion, the use of which is not exactly known; but supposed to be to give rotundity of form to the animal machine. Not only fat, but every part of the body, is secreted; as bone, cartilage, tendon, ligament, and muscle. By this action growth is accomplished, and waste is continually repaired. Some secretions are exclusively for nourishment, as Lactation. Other uses it is needless here to recapitulate—that for the purpose of generation, cannot however be left in perfect silence, inasmuch as it establishes in a peculiar manner the *Quod erat Demonstrandum.*

In reviewing the various uses of secretion, we meet with none whose only and particular use is gratification; except indeed it is that of fat, as they who give themselves up to ease and enjoyment, are

most apt to be encumbered with this material. And the adage, "Laugh and grow fat," would seem to stamp the idea with the gravity of antiquity. This phrase is not to be slighted, because it is in vulgar mouths. It evinces much just observation. Look where we will, we must observe that the fat man always possesses an uncommon share of good nature. His countenance is always placid, his mind always easy. Yet the correctness of our views on this subject, does not rest on the establishment of the existence of a gland, the sole intention of which is giving pleasure. It comports with the genius of man, and probably (with reverence be the assertion made,) with the intention of man's Creator, that pleasure should be derived from nothing but that which holds up a prospect of usefulness. The debauchee would soon forsake his favourite riots, did not an inebriated fancy picture to his mind some future benefit as resulting from his conduct.

Our task would be finished, if, by unravelling the organs of secretion, we could detect the design of the great Architect. Though glands have been injected, I had almost said, *ad infinitum;* yet the veil, which is partly withdrawn from the machinery, covers its actions and sets scrutiny at defiance. Many theories have been formed, and on this subject theories may, for want of facts, be allowed. They may allure their framers to give that attention to the operations of nature, which may bring to light facts in elucidation of the whole subject. What species of knowledge—what improvements in the Arts and Sciences, may we not hope for? By proper research the mysteries of generation may yet be unfolded; but before mankind can expect a developement of this abstruse subject, many less important processes are to be investigated. Facts may at this day be on record, which only require the genius of a Hervey to arrange them in that mode,

and with that *lucidus ordo*, which will dissipate the clouds of conjecture, and make manifest the true operations of the glands. Yet it is highly probable, that this subject may be kept concealed, as a stumbling-block to materialists, compelling even them to bow in reverence to the Great First Cause. In investigating this subject, however, we should pay attention to the operations of some gland, whose steps are most distinct, and not so hurried into one another as not to be distinguished. As we have the authority of a Darwin for considering the whole alimentary canal as a gland, we may select this as our model. Here we behold the food, whether animal, vegetable, or a mixture of both, deposited in the stomach, acted upon by the magnetic,*

* These various epithets are used to show how very little we know about the kind of influence exerted. Between magnetism, galvanism, sympathy, and life, there is a wide difference; yet they all belong to one certain class of actions.—When better understood, they may clear up many mysteries, and enlighten many subjects.

galvanic, sympathetic, or vivifying influence of the gastric juice, and becoming one homogeneous mass—this proceeding into the intestines meets with the bile, which, combining with the feculent portion, is discharged *per anum;* while the chyle is left to be absorbed, and become part of the living system. Here we observe effects analogous to, yet the reverse of, those which are produced by glands in general. Here every variety of food is changed into one substance—*chyme;* in glands one substance—*blood*—is changed into every variety of material, from the ivory tusk of the elephant, to the impalpable odour issuing from the musk of the Asiatic deer. Taking the alimentary canal as an inverted gland, it may prove to us the thread of Ariadne, and lead us through the dark windings of this otherwise inextricable labyrinth.

Physiologists have, on this subject, as on every other, formed various hypotheses

concerning this process, some have imagined that glands possess a peculiar power of selecting and separating from the blood materials necessary to form their particular secretions. This faculty has, by the celebrated Darwin, been dignified with the title of *glandular appetency*—supposing them to have life, desires, and appetites peculiar to themselves, and being in fact little animals distributed about the body. Others, as Van Helmont, and Vieussens, thought that fermentation would account for all the phenomena. Descartes, Borrelli, and Charleton, supposed the glands to be nothing more than strainers, permitting only the finer parts of the blood to pass as secretions, while the grosser were retained in the circulation. This being the case, we might in vain look for secretions coarser than the blood, though all the solids should be immediately at hand. There are others again, who, observing that oiled paper only transmits oil—and paper

moistened with water or any other liquid, only suffers that liquid to pass through, by which it had been moistened, think the secretions are generated by a similar economy. The absurdity of this is at once manifest. It has also been supposed, that the velocity of the blood is much greater through glands, and that thus secretion is produced; this may, in a degree, be true; as the quality of the blood is evidently changed, under the excitement of fever. The length and curves of the vessels in glands, have been supposed to have a particular effect essential to secretion; but a straight vessel, one line in length, can work as effectual change on the fluid passing through, as can be done by the most convoluted and longest vessels. Witness the pure water absorbed by plants from the earth—before it has proceeded one line in the vessels of the vegetable, it becomes sap of a peculiar kind—We must refer, not to a contorted arrangement of

vessels, but to a peculiar action, for an explanation of this subject. Whether this peculiar action can be separated from life, we will not pretend to say; but it is more probable, it is the exertion of life alone, which effects such mighty changes. That same cause which converts the ovum into a fœtus, the chyle into blood, also produces a conversion in the blood, making it materially differ in all its properties. Here language limits the expansion of our ideas; for want of a term to express this peculiar action, we must confine our inquiries to this boundary. The most plausible expression that has been adopted, is sympathy; but this is too vague, and too general to be retained in the language of the experimental inquirer—it may "becloud his soul, and prevent her from piercing into nature's arcana."

Glands have received different names from various circumstances. But, as might be expected, we look in vain to this no-

menclature for an explanation of their *modus operandi*. We hear of the conglobate or lymphatic—the conglomerate or a collection of a number of small glands in a common envelope. Late writers have called such as consist of a number of sacs, or of vessels convoluted in the form of sacs, *Acinous*—the parotid, and other salivary glands, and the pancreas, are of this class. The structure of the liver is called penicillous—where the vessels converge together like a pencil of light. Cryptæ, Follicles, and Lacunæ, bedew every surface with a secretion. From these we can obtain no elucidation of our subject; but some future generation may hail the time when names shall be given, not merely to distinguish one from another; but to denote the gland, from the quality of its action. Some Lavoisier may yet arise, to render the paths of adenology as bright as those of chymistry.

From the imperfect knowledge our best physiologists have of secretion, we might in vain seek among their works for any thing conclusive on the subject under present consideration. Far be it from us to attempt establishing any theory on glandular action. "Be ours an humbler task,"—to cull from nature's garden a few flowers of truth, to decorate the assertion, that pleasure is one of the effects of secretion.

Let us inquire what inferences may be drawn from manners and customs. If we investigate the habits of mankind, we must remark, that all the gratifications to which he, in every state of society, accustoms himself, are such as cause increased secretion. This can be illustrated by numerous examples. The every-day practice of chewing tobacco need only be mentioned, and our thoughts recur to the immense quantity of saliva induced by the *quid*. Perhaps it would be within

bounds to say, that eight ounces of superfluous spittle is secreted, *per diem*, by every tobacco-chewer. Some, rather giving credit to the narcotic effects on the nervous system, may indeed object to the secretion being referred to as a cause of the enjoyment. That there is a considerable narcotic effect produced, none will attempt to deny; but, as this habit becomes more confirmed, the narcotic power must lessen; yet the desire and the enjoyment are greatly enhanced; because the glands are equally affected by the stimulus, after repeated applications, as at first. And let it be remembered, that in some countries, masticatories are used, which produce no narcotic effect. This is the case in the Eastern world, and particularly in China—here *chinam*, or quick-lime, is in general use to promote the salival secretion, and happy does the man think himself, who can procure a sufficiency of this article, though

its use is attended with the total destruction of all the parts of his teeth, which project beyond their sockets. Quick-lime is also in general use among the inhabitants of Quito and Popayan, as we are informed by Messrs. Humboldt and Bonpland—"Quick-lime is sold in the public markets for chewing, as an article of the first necessity." In the South Sea Islands, it is used with the *Piper Siriboa*, and in South America, it is combined with the *Erythroxylum Peruvianum*. We cannot pass over in silence the universal practice, in Eastern climes, of chewing the betel. A description of this psyalagogue preparation, is recorded by Dr. Mitchill and Dr. Miller, in one of their numbers of the Medical Repository for the year 1806. The account, which is extracted from a paper of M. Peron on the subject, we here transcribe. After a few pertinent remarks on the diseases of the climate, it thus proceeds—"What the tepid bath,

strong tea, ambergris, cardamoms, and other aromatic seeds, cloves, ginger, and other warm and stimulating spices, have been unable to accomplish, has, as M. Peron observes, been happily effected by a composition of four ingredients, called from the name of one of them, Betel. This, when chewed and swallowed, restores to the mouth, stomach, and intestines, and to *the great glands connected with them*, a due degree of vigour and secretory power. * * * * * * *.

"Betel is usually composed of the areck nut, (*areca catechu*) two parts, of quick-lime one part, of the burning leaf of a species of pepper (*piper betel*) and of the leaves of tobacco one part. These are well mixed together, to form a masticatory, or *quid* for the mouth: and the experience of its utility is so well established, that the natives have introduced it into general use in all hot climates, from the Moluccas to the Yellow River;

and from the Ganges and Indus to the shores of the Black Sea. It is not, however, equally prevalent in all these countries; for at Constantinople, for example, betel is more an *article of luxury among the rich*, than a national custom."

Let us return to our own country, and we shall find the antiquated matron, as comfortable over a few embers, seated on a tripod of poverty, if she only have her *pinch* of snuff, as she would be, without this sternutatory dose, seated in the chair of state—a compeer with empresses. Though Boreas howls without, and her raiment is tattered and rusty with age; yet, by applying to her nostrils pulverized tobacco, which induces secretion, she is happy, and enjoys all the contentment appertaining to her lot. And the poor old bachelor drowns the sorrows of an unfortunate love-scrape, and whiffs off the painful traces of a rejected suit, in a whirligig of tobacco smoke. And, if asked

the best method of rendering the thorny paths of life smooth and easy, he replies—

"There certainly are powers of doing this,
In some degree at least,—for instance, drinking
Champaign will bathe the heart awhile in bliss,
And keep the head a little time from thinking
Of cares or creditors—the best wine in town
You'll get from Lynch—the cash must be paid down.

But if you are a Bachelor, like me,
And spurn all chains, even though made of roses,
I'd recommend segars—there is a free
And happy spirit, that unseen reposes
On the dim shadowy clouds that hover o'er you,
When smoking quietly, with a warm fire before you."

CROAKER.

Our bachelor is more in character, as a rejected lover and poet, than as a philosopher; or he would not ascribe the pleasant effects of smoking to merely watching the "clouds that hover o'er" him. The pleasure *must* arise from the increased quantity of saliva—or how can this practice be enjoyed in the dark. And to the advocates of the narcotic power, it might be answered that there is greater gratification in puffing the *mild*

and fragrant Spanish segar, than the *narcotic* and strong-scented American.

Drinking spirituous and vinous liquors, doubtless adds to enjoyment by the increase of secretions in the alimentary canal; but we are willing to acknowledge, that it derives great share of pleasure, from the benumbing influence exerted over the nervous system.

The gratification of a banquet is, in a great measure, attributable to the increased secretions induced by the condiments of the table. Hence the most savoury and stimulating articles have become the most palatable. Will any one pretend to assert, that peppers, mustard, and pickles, are relished on account of their flavour? As well might he affirm, that assafœtida, that devil's dung, pleases the taste by its flavour. We know that in some countries, this offensive gum is used as a choice condiment; and its agreeableness can only be accounted for

by reference to the principle which we are endeavouring to establish.

Amusements of all sorts, as riding on horseback, hunting, fowling, and all the gymnastic exercises, are resorted to by mankind, to whom they are beneficial, inasmuch as they have a stimulating action on the glandular apparatus.

This doctrine is built upon a rocky foundation, in the very bosom of nature. Proofs of its truth, are developed not only in the inclinations of the votary of pleasure; but in the actions of the man of business, in every incident of life. Affection, we might say, even affection, is engendered and regulated, in a great degree, by secretion. Lest our position should seem too much in advance, we refer again to phenomena —they will prove we merit every inch of ground which we have assumed.

Let us first examine the human family. It is an old report, and one accepted by all ages, that parental is greater than

filial affection—may we not deduce reasons for this, from our view of secretions? Man is a selfish animal, only pleased with what directly or indirectly conduces to his gratification, and inimical to every thing that detracts from his own enjoyment. Histories of individuals and nations establish this fact. Custom, or rather fashion, making all mankind bow to its dominion, bids man love his offspring. In obedience to this mandate, his affection, becoming a habit, continues throughout life. It may be denied that custom produces affection between the parent and child. Perhaps not in every instance, but then we must refer to a more selfish principle, a desire of self-aggrandizement in one's posterity. Every father doubtless anticipates the continuance, if not the immortality of his name, by means of his offspring. Napoleon's father, no doubt, would have smiled (had he been alive) to hear of the victories of his son. And

the throb of anguish, which might rationally be supposed to cause the old man's breast to heave, on hearing of the exile's death, would soon subside, on reflecting that the name of Bonaparte would be familiar to the latest ages. But to draw arguments in support of our cause from the human species, it would be necessary that the father should view his offspring with indifference; but this is prevented by other and stronger motives than the mere bent of inclination. Man being then so much under the control of fashion, habit, and self-love, we can draw no conclusive arguments from this noble animal —except we infer that the mother, always evincing a greater degree of affection for her offspring than the father, evidences a grateful remembrance of the pleasure afforded in the secretion of milk.

If we descend to the lower orders of animals, ranging the fields with natural liberty, unrestrained either by fashion or

by folly, and not obliged to conform to this or that rule, because it may happen to be established by custom, we shall be enabled to draw an unbiassed conclusion. Our proposition, that affection is qualified by the pleasure imparted by secretion, will receive confirmation from this source.

In every species of the brute creation, the male progenitor is as heedless of his offspring, as if it possessed no ties of consanguinity. Not only does he treat his young with the most contemptuous neglect; but in many instances he proves its deadliest foe. The male of some has been known to devour a whole brood of little ones—showing most wonderful affection, in snatching the innocents from a world of misery! And the female of all brute animals, extends her affection no farther than the term of her lactation—no sooner does the udder cease to secrete, than the satiated mother becomes the bitterest enemy to those she loved, sup-

ported, and protected, while they excited in her a secretion. Oviparous animals seem not to be comprehended in this rule. From the eagle to the humming-bird, they labour to support their helpless young; thus exhibiting examples of gratitude for past favours. Though the secretion which gave life, is now only existent in their memory, the grateful remembrance still lingers to bring forth all the kind offices of friendship and affection. From these well may we obtain beautiful emblems of conjugal and parental affection. While we direct the husband to see how cheerfully the dove participates in all the domestic toils of its mate; we may attract the attention of the child, to behold the youthful stork, proud to bear its aged parent from place to place.

But if it be denied that secretions relieve the pain induced by stimuli, because gratification is the intention of no particular one; or if it be affirmed, that

tobacco and betel chewing is not resorted to for the sake of exciting glandular action; or if it be averred that affection is not at all enhanced by secretion; yet it must be allowed, that suppressed secretion causes pain. A sudden exposure to a great change of temperature, has ever been considered one of the most prolific causes of disease. If we examine the effect of this change on the constitution, we must, without hesitation, conclude it to be injurious, only inasmuch as it checks perspiration—the immediate consequence of which is, an unaccountable uneasiness, that impairs every action, and renders every exertion disagreeable. If relief be not obtained, a general fever, or disease of the whole system, is sure to follow; or the blood-vessels, in vain seeking to relieve themselves by their natural outlets, the pores of the skin, hurry their contents to some particular part, and produce topical inflammation. Every physi-

cian is aware how frequently inflammation of the peritoneum, intestines, uterus, or some other internal viscus supervenes, on the suppression of the perspirable matter. Must we refer this to the selfishness of every particle of living matter, seeking opportunity of easing the burthen from its own shoulders by oppressing its harmless neighbour? Throughout all living matter we certainly see this disposition predominant. The beggar, as well as the conqueror, demonstrates this truth—though in the one, his sphere of action being contracted, it is not as observable as in the other. As it is one of the characteristics of selfishness to destroy gratification in others, when one's own has been infringed, shall we suppose that the enraged blood, deprived of its usual gratification of taking an airing through the glands of the skin—flies directly to vent its rage on some internal glandular organ? Or may we not rather suppose that, all in

good nature, it may hope to produce the pleasant effects of copious secretion by visiting other glands. Its intentions may be good ; but its deeds have the most pernicious tendency. Thus when the liver receives this ungracious visit, instead of an increased quantity of bile being produced, in most instances, inflammation is the consequence ; or if the kidneys are so unfortunate as to be visited, instead of an increased flow of urine, we have nephritis with all its painful symptoms. Not only does checked perspiration occasion the most distressing feelings ; but the suppression of any accustomed discharge will more or less derange every pleasurable sensation. If the mucus of the intestines or the bile be withheld, not only is an indomitable constipation the result, but frequently the whole habit is so vitiated that every thought of pleasure is so tinctured with pain, as to afford no delight. While a suppressed secretion of urine or

saliva is often followed by apoplexy, do we offer any violence to truth in affirming that health depends, in a very great degree, on the due continuance of all ordinary secretions?

Here we might venture the opinion, that a checked secretion of pus causes hectic fever. Though it might offend the creed of those who have sworn allegiance to the theory, that this fever is occasioned by an absorption of matter, we, being yoked to no hypothesis,

Nullius addictus jurare in verba magistri,

are at liberty to give that the preference which phenomena and facts seem most to authorize. How analogous is the incipient stage of forming pus to the premonitory symptoms of a hectic paroxysm! In each there is a chill, which is neither owing to the disposition to form pus in the one case, nor to the accession of fever in the other. In one instance the morbid cause, operating on the nervous system, is removed

by the formation of pus; in the other, this secretion not existing, or not being sufficient to bring the relief required, the morbid cause increases in energy, or rather continues to disease the nervous energy of the system, till the flushed cheek and emaciated form whisper in our ear

> Pallida mors æquo pulsat pede pauperum tabernas,
> Regumque turres.——

In this case the secretion of pus may be insufficient in two ways. 1stly, in comparison with the strength of the morbid cause— 2dly, in being checked. This last is the most common; it is very liable to happen on the admission of the external air by an opening made into an abscess. The operations of the secreting surface, which may be termed a temporary gland, are thus completely deranged. This we must conclude to be a fact, if any analogical conclusion can be drawn from the effect we see produced on the absorbents; for it is evident that their action is checked, if not entirely suppressed;

as is evinced by the quantity discharged. Before the opening, nearly an equilibrium was maintained between the absorbents and exhalents; for no one will pretend to say, that none was absorbed before the admission of atmospheric air. The farther prosecution of this subject, however, would be foreign to the immediate object of this paper.

How has man become the slave of habit, but by the influence which habits have on the regularity of secretion? Man is indeed a bundle of habits; and, if deprived of a diversion he had taken at a particular time, he becomes not only chagrined by disappointment, but absolutely unwell. The tobacco-chewer, if not able to obtain his *quid* at the accustomed time, becomes liable to the vertiginous affections of disease; and, in time, if his desires be not gratified, becomes almost delirious. The betel-chewer and the snuff-taker, the drunkard and the glutton, the man of pleasure and the anchorite—all become, in like manner,

affected, if deprived of their ordinary stimulus, at the usual time of its application. They all feel a "pain of want;" a pain arising not exactly from *suppressed;* but from an *unexcited* secretion. The disagreeable sensations of hunger and thirst may be explained on this principle. The following fact will go far to prove this assertion. If a man, habituated to take his dinner at a certain hour, be so placed by circumstances, as, at the given hour, to be totally unable to obtain this meal—he will feel uncomfortable, or, in other words, hungry: now, if he but swallow a small piece of biscuit or dry bread, he will be relieved from these feelings for several hours. In this instance the glandular arrangement of the gastric arteries being excited into a secretory action, relief is immediately afforded. The opinion that the peculiar sensations of hunger and thirst arise from a tension of the ligaments of the liver, hardly deserves notice—and that

hypothesis, which referred these sensations to an accumulation of the gastric liquor, is satisfactorily confuted by the observation, that "the pain of want is greater in acquired than natural habits." (*Kames.*) Is it an increased flow of saliva that makes the smoker long for his segar? and who will not admit the analogy between his longings and the restless feelings of a hungry man? The daily asseverations of those accustomed to any acquired habit, are sufficient to establish the truth of the assertion, that the pain of want is greater in acquired, than in natural and necessary habits. How often do we hear them declare they would rather be deprived of a meal's victuals, than forego the gratification afforded by indulgence in that habit!

Thus far we have endeavoured to establish the doctrine, of secretions being the source of pleasurable sensations, by deducing our arguments, not from theoretical speculations, but from plain facts, as we

see them in every day's occurrences, or as we meet with them in the more obvious operations of nature. We have found that where man chooses the means of his own gratification, he is sure to select such as have a tendency to excite secretion—that by this function Nature relieves distress, wards off maladies, and rescues from the iron grasp of disease the devoted sufferer—and that finally it is in the form of secretion that she proffers to man his most ecstatic enjoyment.

Did inclination dictate, as is the case with those theorists, who have not facts to justify their assertions, we might now give our minds a little recreation in the field of fancy. We might imagine that every sense is gratified by the excitement of a peculiar secretion. Thus the rose's fragrance—seraphic strains of music—delicious fruits—and the most enchanting landscape, would only charm, in proportion as they produced this excitement in the organs of smell,

hearing, taste, or vision. Conjecture might even remind us of the aqueducts of Cotunnius; and intimate that, through these channels, passed the fluid generated by harmonious airs. But these notions are too chimerical—they possess too flimsy a foundation to be enlisted in support of reality.

Since facts warrant us in ascribing pleasure to secretion, we may inveigh most bitterly against those cynic philosophers, who are eternally crying that "man was made to mourn"—we may, on the contrary, assert, that every particle of life, whether it exist in vegetable or animal matter, is given for enjoyment. Where shall we find a plant, from the cedar to the hyssop—where shall we find an animal, from the extinct mammoth to the zoophyte, which does not possess a secretory function. The vegetable kingdom abounds with every variety of secretion—from the orange we may obtain the most delicate liqueur, and on the bark of the reed we observe a

siliceous deposit. "How great is the contrast between this production," says Smith, speaking of the flinty coat of grasses, "if it be a secretion of the tender vegetable frame, and those exhalations which constitute the perfume of flowers! one is among the most permanent substances in nature, an ingredient in the primeval mountains of the globe; the other, the invisible, intangible breath of a moment."

When we thus behold every thing, that possesses in the slightest degree a living principle, endowed with means of enjoyment; let us not withhold our tribute of praise and adoration from that Being, who is the Maker, Supporter, and Governor of all.

FINIS.