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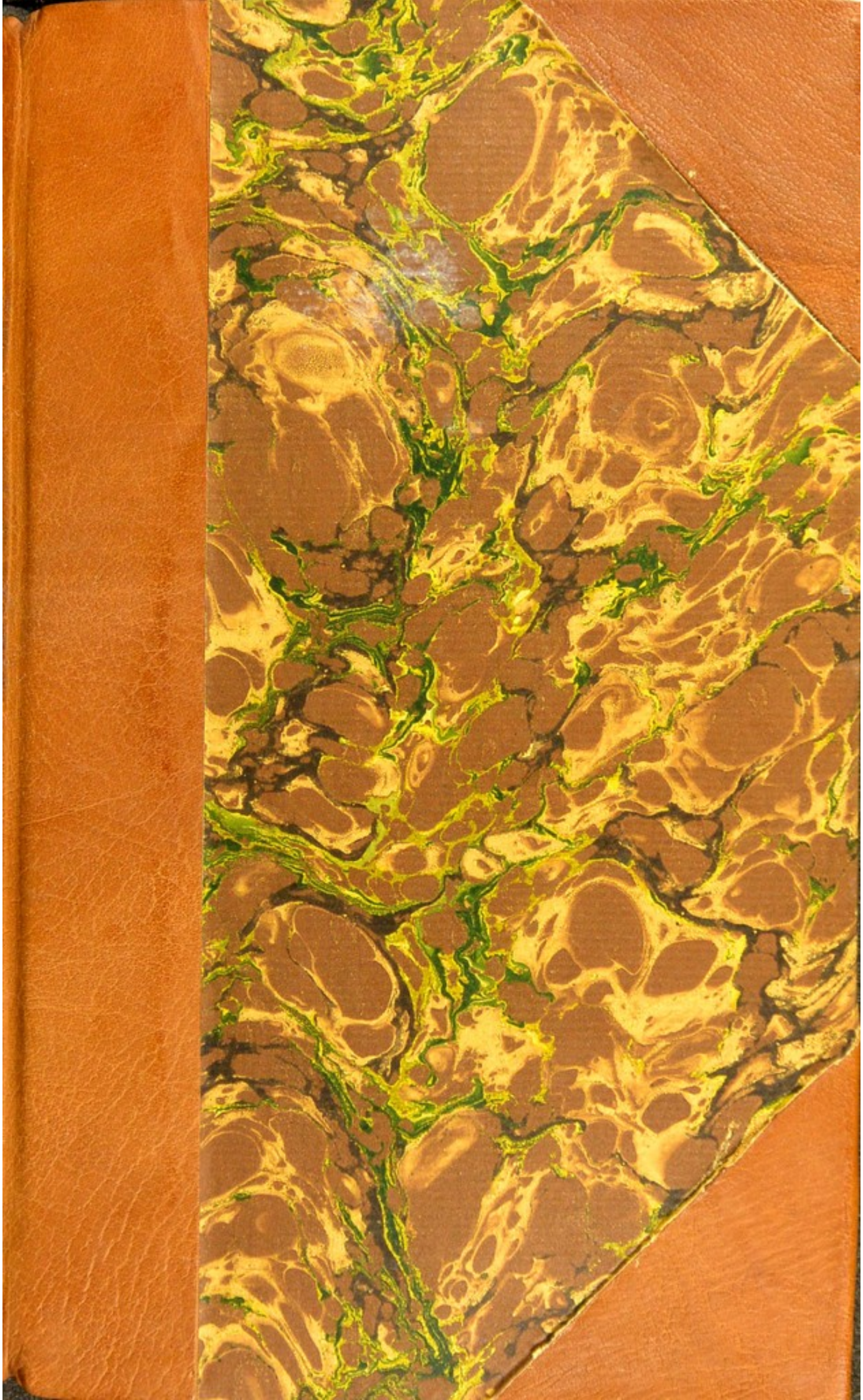

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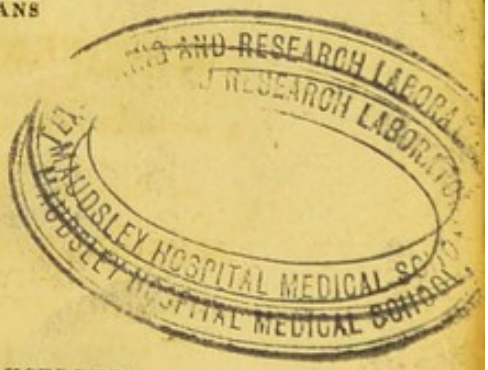

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I HAVE every wish to avoid unnecessary distinctions in medicine, and to see simplicity in the nosological arrangement; yet, at the expense of restoring another genus to the table of diseases, I conceived it right again to draw the line between apoplexy and lethargy. I found great confusion arising from the attempt which had been made to identify these two affections of the brain; and those who best understand the nature of apoplexy, will be the most ready to admit, that it is a disease which requires an undivided attention. If in describing the morbid appearances which are connected with apoplexy, I shall be thought tedious, I beg to remind the reader, that, independent of the practical tendency of such a detail, the anatomy of apoplexy is connected with a forensic question of great importance. Being aware of many defects in the following pages, I beg leave to say, that, until lately, I have not had the benefit of leisure to make the proper use of my opportunities of observation; and that in a work compiled under the disadvantages of the fatigue and hurry of professional employment of the most laborious kind, neither deep research into the writings of medical authors, nor the most orderly disposition of materials, can reasonably be expected.

CONTENTS.

SECTION I.

THE HISTORY OF APOPLEXY.

IMPROVEMENTS in physiology naturally lead to more distinct views of disease: many of the most common disorders of the thorax and abdomen were not well explained until we were taught the present doctrines of the lymph, the chyle, and the blood. But, with regard to the organ which is the chief seat of apoplexy, the progress of science has been reversed. We derive from reflected light whatever information we possess of the functions of the brain: for although it may appear singular, it is no less true, that the imperfect knowledge we have obtained of the production and nature of the sensorial influence, we owe chiefly to morbid anatomy and clinical observation.

It was not, however, from any vain hope of illustrating the nature of the nervous power,

that I chose apoplexy as a study: I was led to examine that disease, and indeed all the diseases of the brain, with care, six or eight years ago, when preparing for publication an essay on hydrocephalus acutus; and as I found that the information relative to these diseases, contained in the writings of English physicians, was scanty, and particularly that the most important question in the therapeutics of apoplexy was still a matter of dispute, I began to insert in my note book every case which had a reference to the pathology of the brain; and my cases of apoplexy, together with the observations from time to time made upon them, have gradually assumed the form in which they are now presented to the reader.

The neglect of the subject furnishes me with an apology for the length of the history which I shall give of apoplexy, if an excuse were wanting for the circumstantial account of a disease which the physician has no opportunity of becoming well acquainted with but in extensive private practice. I am persuaded that students of medicine seldom witness the progress of apoplexy in the wards of an hospital; as in the course of four years' attendance in the Infirmary

of Edinburgh, I do not recollect to have seen more than two or three cases of apoplexy; and as I did not meet one instance of apoplexy during five years which I spent in the military service, I may also venture to say, that it is rarely to be found in military hospitals.

It is not my intention to offer any definition of apoplexy: I do not expect to succeed where great masters have failed; and, indeed, if it were possible to define apoplexy in a few words, the following description, from which I have endeavoured to lop off every redundancy, would be unnecessary. But as, in a medical treatise, it is usual, first, to give the reader a general introduction to the disease under review, I shall begin by presenting him with some faithful sketches of apoplexy, copied from my case book.

When the patient appears to all his friends to be in perfect health, and to bid fair for long life, he is sometimes struck dead instantaneously, without a sigh or a groan. Hence the disease acquired its name. The scene was considered portentous, and not to be explained by any of those principles of decay which are a part of our constitution, in so much that the sufferers were called *attoniti* or *siderati*.

Sometimes, under the same delusive appearances of health, and while in full enjoyment of life, a man stumbles, or slips from his chair, and falls to the ground. In hastening to his assistance, his friends form some vague conjecture of the danger, by finding his look vacant, and his body heavy and powerless; he is carried to bed confused and terrified at his situation. It appears that he has lost the command of one side of his body; and even if he understands the questions put to him, he can no longer make a distinct reply. His countenance is distorted; his features are drawn toward the side which retains its muscular power; his pulse is slow and irregular, and his respiration laborious; in two or three days he begins to recover his recollection, and in some weeks, to a certain extent, the use of his paralytic limbs. But ever after his leg is dragged along; and, in general, both his temper and understanding are impaired.

A spare sallow old man, subject to vertigo and headach, with a polypus of the nose, had talked himself into a fit of passion. He found himself, from sudden illness, obliged to leave the parlour. When he reached his bed-room, he complained of pain of his head and sickness;

then retching came on; loss of muscular power; contracted pupils; paleness; slow pulse; and insensibility. In the night he recovered, in a degree, the use of his senses, and he even attempted to speak: there was no evident palsy of either side. Next day his countenance was suffused; his pupils contracted; his pulse very quick and irregular; his skin hot; and his respiration frequent and stertorous; he vomited a liquid like coffee grounds, was completely insensible, and he died at noon.

A florid and corpulent woman of fifty, heart-broken by the misconduct of her children, and secretly a dram-drinker, being, after a fatiguing walk in a warm day, struck with an intense pain in the side of her head, hurried into a shop, sick and alarmed. When her servants came to her assistance she was quite insensible. As the seizure took place at a distance of two miles from my house, it was some hours before I saw her. I found her flushed; her head, face, and even her tongue, appeared swelled; her pupils were contracted; her pulse was slow; and her respiration slow and stertorous. By and by she was seized with convulsions. After the convulsions had, in a great measure, sub-

sided, there still remained subsultus and spasmodic contraction at the angles of the mouth and eyes. Her countenance was purple. Next day the sphincters were resolved; she had swallowed neither drink nor medicine. Her pupils were dilated, her pulse and respiration were quickened, and her extremities cold. In the course of the following night her breathing became interrupted; her pulse small and irregular; her countenance pale and shrunk; and she died early in the morning, after a return of the convulsions.

Again, in the middle of a debauch, to which he was addicted, in a warm and crowded apartment, a man of a full habit suddenly lost the command of one side of his body. He became much agitated, was fully aware of his danger, and with difficulty reached his own house. His complaint gained upon him. He lost the power of articulation. His countenance was flushed, his pulse quick and full, and he was totally insensible. Then his respiration became quick and high, and his pulse less frequent. In the morning his pupils were dilated, his pulse was again quicker, while his respiration was slow, and performed with stertor and irregularity.

His breathing was interrupted, and he was carried off in the course of the day.

Finally, the patient does not appear at his usual hour in the morning. His servant goes to call him, and finds him dead, with his countenance livid and distorted. The absence of heat, which, after this disease, the corpse retains long, shows that he had died in the early part of the night.

Let us now consider more particularly how all the functions are affected by this disease. I shall describe, first, the introductory symptoms, and then the state of the various functions during the attack.

Some of the appearances observed before the apoplectic fit, which are vulgarly thought to promise long life, are, in reality, the effects of disease. The fulness of the body is often attended with debility of the bronchial membrane, as evinced by wheezing and frequent attacks of catarrh. There is languor, which stimulating liquors confirm, although they relieve it while their immediate effects last. There is inactivity and muscular debility, which few men, advanced in life, are willing to acknowledge. And, to the discerning observer, the ruddiness of the

complexion often demonstrates a diseased state of the cutaneous veins, connected with morbid actions of the stomach and liver. "Bona sua debent suspecta habere," is the caution of Celsus, and it ought to be repeated to every person past forty, of a full habit of body, who lives intemperately.

Many of those fallacious perceptions which are known to arise from increased activity of the circulation in the head, have been observed for some time before a stroke of apoplexy, such as muscæ volitantes, tinnitus aurium, and various modifications of vertigo; and along with these, there is often epistaxis, and a feeling of weight or tightness, or a tensive pain across the forehead, or painful throbbing felt on either side of the tuberosity of the occipital bone, and flushing of the countenance, with heaviness or wateriness of the eyes. These symptoms are often in excess. Temporary fits of blindness, and unusual flashes of light, of a bright or shining redness, are complained of. In three instances, an attack of apoplexy appeared to me to have been averted by hemorrhage from the nose to a great extent. Some have had the sensation of loud and discordant noises, like the

boiling of an immense cauldron, or like the roaring of the sea, or the clamours of an unruly crowd. The nights are often restless, from anxiety, palpitations of the heart, and frequent returns of incubus. On the contrary, the patient is sometimes lethargic, sleeping longer than usual, and dozing during the day. His articulation is less distinct, he has no mental energy, he is forgetful, timid, irresolute, and confused. Various slight paralytic affections occur, as weakness of part of the body, sometimes of one side; the patient, upon any fatigue, leaning to that side; spasms of particular muscles, and numbness in the course of particular nerves. Before the apoplectic fit we may often observe great disorder of the chylopoietic viscera; and, indeed, all the symptoms which indicate a constitution impaired in every vital organ. But it is not to be denied, that apoplexy sometimes seizes those whose health, to every appearance, was unbroken, and who had felt unusually vigorous for some time before the attack. The following description, therefore, although rhetorical, is in the main accurate:—"Aliquando autem, etsi nihil horum antecesserit, atque homo sanus, beneque valens, de nullo morbo cogitet;

ex improviso plane, et præter omnem opinionem attonitus redditur, atque inter epulas sæpe et pocula, choreasque et tripudia, ita prosternitur, ut sine omni motu, sine sensu et mente jaceat, perinde ac si fulmine, vel infausto quodam sidere afflatus perculsusque fuisset."

The attack of apoplexy is often instantaneous, but it is also often gradual. Sometimes confusion of ideas, flushing of the face, headachs, nausea, drowsiness, and stertor in sleep, are observed in succession; and these symptoms, although they indicate the greatest danger, as prognostics of a confirmed apoplexy, have often subsided from regimen alone, and are generally to be relieved by immediate assistance. This state is probably the apoplexia minor sanguinea of some authors; which, however, ought not to be specifically distinguished from confirmed apoplexy—apoplexia fortis. I have known a person first lose the strength of his legs, then talk childishly, fiddle with his knife and fork during dinner, to the confusion of his family, attempt in vain to direct the morsel to his mouth, and, at length, carried resisting to bed, several hours before he became apoplectic. Nothing is more common than to find an attack of

hemiplegia taking the lead, by an hour or two, of apoplexy. Some are violently sick, others have an excessive headach; the sickness and headach terminating only in the insensibility of the fit.

Apoplexy, to a common observer, often appears like profound sleep; or, rather, like the sleep after intoxication. But the patient in apoplexy is not to be roused by shouting in his ear, by applying eau-de-luce to his nostril, nor by shaking or pinching him. His respiration is slow, labouring, and irregular, his countenance flushed, his pupils often contracted, and his breath is not tainted with the smell of wine. The extreme of insensibility from intoxication, although resulting from a different state of the brain, is sometimes, with difficulty, to be distinguished from apoplexy.

Great changes may be observed in the state of the different functions in the course of every attack of apoplexy. Our prognostic is formed according as the vital functions are more or less disordered.

We first discover confusion of ideas, a loss of voluntary motion, and of speech, and then of consciousness. Yet, generally, although the

brain is much affected, sensation is not altogether destroyed for a considerable time. It is no longer distinct. After the brain appears incapable of distinctly receiving any impressions conveyed by the nerves, the organs are still alive to sensation. The pupil is much contracted. A person in apoplexy swallows a palatable and rejects a nauseous draught; he is evidently sensible of pain, although his countenance does not assume the expression usually associated with pain. Unless there be complete paraplegia, the most profound apoplectic generally starts when pricked with the bleeding lancet. I think I have seen a patient in apoplexy start when a door was shut with noise. He shudders when his limbs are allowed to grow cold, and withdraws the limb when an overheated brick or a bottle of very warm water is applied to it: and constant jactitation (arising, no doubt, from inward uneasiness) is often observed in those parts of the body which are not paralysed. But, generally, as death approaches, the organs of sense entirely lose their faculty of receiving impressions: the pharynx is insensible, the pupil becomes dilated, the eye opake, the jaw falls, and the countenance is sunk: no kind of exci-

tation affects the patient. Convulsions occur in many cases of apoplexy, but are not, as has been supposed, invariably a fatal symptom. The convulsions are observed generally either at the beginning of the attack, or immediately before death; and, before the conclusion of the attack, whether in death or recovery, we usually discover some paralytic affection in the limbs or the sphincters. The convulsions affect both the sound and the palsied side of the body, although, in general, they are confined to the former.

In this disease the functions of the brain are first extinguished. In as far as the system of the brain, alone, is concerned, we draw our prognostic from the quantity of sensorial power which still exists in the body. Thus we do not despair until the pupil ceases to contract. With any return of sensibility our hopes rise, and with the diminution of it they are destroyed. The greatest danger is to be apprehended when the patient is seized with convulsions. A very unfavourable prognostic is also drawn from the patient's putting his hand to his head. Certainly I have not known a patient recover, who, in the

beginning of the attack, complained of sudden pain in his head.

The respiration is at first slow and heaving, then irregular, and sometimes convulsive, and, lastly, interrupted. The patient, from relaxation of the palate, snores loudly during inspiration*; and sometimes, during expiration, the upper lip, from relaxation or palsy, is loudly blown up from the teeth, as we often see it upon great exhaustion, as in the subsiding of an epileptic fit. Sometimes the breathing is soft. Immediately before death the respiration is irregular, and is performed, perhaps, not more than three or four times in the minute. The irritability of the heart survives the respiration: sitting with my finger over the artery of a person who died of apoplexy, I distinctly felt the pulse beat after the last expiration. Interrupted respiration is justly considered as the most dangerous symptom.

Apoplexy, if not preceded by pyrexia, is very soon accompanied with it; but the circulation

* Sauvages observes, "in apoplectica quam nuper examinabam, cum os valde hiaret, observavi hunc strepitum fieri e tremulo motu veli palatini penduli."

often undergoes changes, which seem directly and suddenly to arise from the oppression of the brain, before the system is universally disturbed. The patient is no sooner seized than the pulse becomes slow and full. As the disease advances, the pulse would seem unusually slow, not more than 40 or 50 in the minute; but, if we attend more particularly, we shall perhaps find three or four faint strokes, at the rate of 140 or 150: when slow, it is generally unequal; then, from the constitutional disorder, the pulse becomes, at last, very quick and small. The heat of the body is much increased, the countenance is flushed and swelled; and blood, it is said, has been forced from the ears, nose, and mouth, and a profuse sweat from the whole surface of the body. In this, as in many diseases in which the breathing is much affected, the countenance becomes livid, marbled, or pale; the extremities are cold, and the sweat is cold and clammy. I never feel an irregular and unequal pulse without the utmost dread: we may consider the patient as lost when the pulse has become quick and thready. It is chiefly by the state of the respiration and circulation that apoplexy is distinguished from syncope, in

which the actions of the heart and lungs are interrupted, or much enfeebled. At first sight, indeed, in some of those cases in which apoplexy proves fatal in a few hours, we might suppose the patient in syncope, as his countenance is often pale, and he is without sensation or motion, unless in breathing; but under these circumstances his pulse is sometimes full, and it only becomes weaker and smaller, and quick, when the breathing is laborious and irregular, or, perhaps, when the convulsions seize him. I scarcely think that we are liable to mistake apoplexy for this, or for any other affection, except oppression of the brain from violence, which will be discovered by inquiring into the previous history of the case, and by examining the head.

During the whole progress of an attack of apoplexy, the patient often does not swallow a morsel, nor even a drop of any kind of liquid. The secretions, although not suspended, are not carried on with activity; for, even when the sphincters are relaxed, there is frequently scarce any discharge from the bowels or bladder. Authors observe, that apoplexy has been relieved by hemorrhage from the nose, diarrhœa, or a profuse sweat.

In some few instances of apoplexy the patient lies for several days insensible and motionless, and yet gradually recovers the use of his understanding and his muscular strength. But, for the most part, he is permanently deprived of the command of one side of his body, or he regains it very imperfectly; his mind sustains a shock which is never recovered from: his sensations and perceptions becoming less accurate, and his memory and powers of combining being much weakened, or, at least, his faculty of expression: for, even while his memory and imagination are unimpaired, he is not always able to find appropriate words to express the notion which is distinctly excited in his mind. I lately had a patient, after apoplexy, who was in a state either of childishness or raving madness: the alternations were not periodical, but opposition generally changed his folly into madness. And what still more strongly indicates that the barriers are sometimes but slender which are raised between disorders of the brain, generally distinguished by the most opposite symptoms, and that a slight modification in the vascular action may produce very opposite effects, is, that

madness has been known to alternate with paralytic weakness.

Patients who have had apoplexy, when they indulge in intemperance, are subject to convulsions: and generally those who have had apoplexy, and have recovered from it, are carried off by a return of the apoplectic fit.

Very generally, apoplexy is succeeded by paralytic affections; and of these there is great variety: hemiplegia is the usual form, but palsy often affects only one nerve, or muscle, or organ of sense. After apoplexy, some patients have lost their sight, others their hearing, taste, sense of smelling, or of touch, with or without muscular debility.

Some authors think, that when we are not allowed to open the bodies of persons advanced in life, who have died suddenly, we may conclude from the distortion of the countenance, which sometimes remains after death, that the patient had died of apoplexy supervening upon hemiplegia.

THE

ANATOMY OF APOPLEXY.

I SHALL now attempt to give a description of the morbid appearances which are usually displayed in the dissection of the body after apoplexy.

In dividing the scalp, there is often a great flow of blood from the occipital and frontal veins. Indeed, during the whole of a dissection, the venous blood flows from all parts of the head: first, from the superficial veins; and then, in a stream, from the sinuses; so that the quantity collected amounts to one or two pounds, or even more.

The flow of venous blood principally arises from the accumulation of this fluid on the right side of the heart. In the first instance it escapes the more easily, as the veins within the head are not furnished with valves. But it continues to

flow after the brain has been taken out of the skull. It is from the turgescence of this part of the vascular system, that the skull-cap is forced up as soon as the section of the bone is complete. Hence it is evident, that the observation of anatomists that " the brain does not fill " the cavity of the cranium so completely in " elderly persons as in youths and children," is not invariably true.

The dura mater is sometimes thickened and bound to the cranium by the strongest adhesions; and I have seen the small branches of the arteries which supply this membrane, numerous and distinct.

The tunica arachnoides does not always preserve its transparency: it is sometimes much thickened and opake. The pia mater is sometimes remarkably vascular. The veins are turgid with dark blood; and in particular parts of the pia mater, nay, sometimes over its whole extent, there appears high arterial action; the whole surface acquires a bright vermilion tint, and between the minute and florid vessels, there are patches of scarlet extravasation: the membrane at these parts is bloodshot. There is often observed between the tunica arachnoides

and pia mater, a serous effusion, which varies in appearance: in some bodies it is colourless; in others turbid, bloody, or even mixed with streaks of coagulable lymph.

The substance of the brain is often unusually firm, and, when cut into, the numerous points of blood show that the divided vessels are enlarged. It ought, however, to be mentioned, that, according to Portal, the substance of the brain is more condensed and heavy in aged persons than in early life. "Chez les vieillards le cerveau est proportionellement beaucoup plus dense et plus pesant que chez les enfans."

The ventricles are often enlarged, and contain serous fluid in considerable quantity; and the communication between the ventricles is generally enlarged.

For the most part, extravasated blood is found within the cranium; sometimes between the membranes; sometimes in the substance of the brain. Sometimes, bursting the walls and floor of the ventricles, we find a great effusion of blood both in the substance of the brain and in the ventricles. Coagulated blood has been found in various parts of the cerebrum and cerebellum of the same subject; and it has also been found

in the theca vertebrarum. I have never seen extravasation of blood on the surface of the brain, which did not appear to have arisen from a rupture in its substance: but in a case communicated to me by a friend, the blood seemed to have flowed from a number of the smaller arteries of the pia mater.

When blood is extravasated into the substance of the brain, it is contained in a cavity, the walls of which are uneven and ragged; and in this irregular cavity the substance of the brain is generally so mixed with blood, that we cannot wash the blood away without carrying along with it portions of medullary matter.

It has been affirmed, that the branches of the middle artery of the cerebrum are the most liable to rupture. I have several times seen extravasation from the minute ramifications of this vessel, but not from any considerable branch of this or any other artery.

I have observed both the basilar and internal carotid arteries considerably enlarged.

We do not always discover extravasation of blood, but we never fail to find the remains of greatly increased action, and great congestion, in the arterial and venous systems of the brain.

The membrane lining the ventricles generally exhibits appearances resembling those which are observed upon the pia mater of the surface of the brain. The plexus choroides is not uniform in its circumstances. It is often bloodless, when the ventricles contain serous fluid; but it is also often florid; and not unfrequently there are a number of vesicles attached to it which contain fluid.

My dissections tend to confirm the observation, that the blood is generally found extravasated in the hemisphere opposite to the side of the body which was paralysed; and that, when paraplegia attends apoplexy, we may expect to find extravasation of blood about the base of the brain, or in the tube of the spine.

It has been thought, that extravasation of blood is only to be found in the cerebrum. This opinion, however, is erroneous: I have observed extravasation in the cerebellum in three, if not in four instances.

Upon dissection, cavities of a large size have been found in the substance of the brain of those who had survived an apoplectic stroke for some time, containing flakes of coagulated lymph, or of bloody coloured fluid, or of limpid

serum. These cavities have long been attributed to a rupture of the vessels in the original attack of apoplexy.

The anfractures of the surface of the brain have been remarked as uncommonly distinct, and the cortical matter as of an unusually bright colour: but it is well known to anatomists, that these appearances belong to advanced life, and, consequently, we ought to be cautious in admitting their immediate connexion with apoplexy.

I have now related all the morbid appearances of the brain which I have witnessed in my dissections after apoplexy; but such a detail seldom leads to the knowledge of that peculiar condition of the organ upon which the disease may be said to depend; I shall therefore add a summary of the most important of these appearances, in what I conceive the order of their importance.

I mention first, the remains of an excited state of the minute arteries of the brain and its membranes, this probably being the most important, as it is the most unvarying appearance; then the extravasation of blood, probably the consequence of the excited state of the vessels; the turgescence of the venous system; the enlargement

of the ventricles, partial or general; and, lastly, the serous effusion which is generally found in various parts of the brain, and which would seem to imply previous absorption of the brain.

The liver of apoplectics is often unsound. In dissection we often discover that kind of disorganization, which is the well-known effect of the abuse of wine and spirits. We sometimes find merely thickening and vascular congestion of the organ, with adhesions to the peritoneum. But, as far as my recollection goes, there is no morbid appearance in any other part of the body, which is to be considered as belonging to apoplexy. Morgagni imagines that the pericardium, after this disease, always contains an unusual quantity of fluid. I have not witnessed a dissection after apoplexy since this remark caught my attention: if it be accurate, it forms an exception to the general observation of anatomists, that the more sudden the death of the animal, the less the quantity of fluid in the pericardium.

OBSERVATIONS ON THE DISEASED APPEARANCES.

To the foregoing description of the morbid appearances, I shall add a short account of the opinions of modern physicians on the nature of apoplexy, beginning with that of Wepfer.

After refuting the dogma of the followers of Galen, who taught that apoplexy is a disease of the ventricles, Wepfer determines its seat to be in the substance of the brain. This substance, every where porous, he imagines possesses many minute openings for the influx of the vital spirits, from the blood, and the transmission of the animal spirits. Apoplexy, he thinks, is owing either to the failure of arterial blood, or to some obstruction encountered by the animal spirits, in passing from the cerebrum and cerebellum through the spinal marrow and nerves. The failure in the supply of arterial blood, he thinks, may be explained in various ways; but that it mostly arises from obstruction in, or compression of, the blood vessels which go to the brain. And he conceives, that an obstruction of

the origin of the nerves, by a serous colluvies, or by the sudden compression of the brain by blood in the meninges, in the substance of the brain, or in the ventricles, will account for the inadequate supply of the animal spirits.

It was soon discovered, that the part of this hypothesis which relates to the consequences of a defective supply of blood, would rather explain the phenomena of lypothymia than of apoplexy; the remainder of the hypothesis, with some modification, still maintains its ground in the schools, as will appear by extracts from the writings of the eminent systematics of the last century.

Hoffman taught, that, from the blood vessels of the brain becoming loaded, there is a difficulty of circulation, and hence an expansion of the vessels; and, in consequence of this expansion, the finer medullary tubes, which are supposed to manufacture the nervous fluid, are not only compressed, and the necessary supply of this fluid cut off, but the arteries also, where they are joined to the veins, are ruptured from the same cause.

Boerhaave describes apoplexy as the inva-

riable result of those causes which entirely, or in a great measure, impede the passage of the nervous fluid into the organs of sense and voluntary motion, and its return to the sensorium commune: and, adopting the opinion of Willis, that the involuntary muscles derive their supply of nervous energy from the cerebellum, he imagines, that the flow of the nervous fluid from the cerebellum, and its reflux, is sufficient to support the functions of these organs for a considerable time.

We do not find much additional information in the account which Cullen gives of this matter. Whatever interrupts the motion of the nervous power from the brain to the muscles of voluntary motion, may, he imagines, be the proximate cause of apoplexy: or, in so far as sense is affected, whatever interrupts the motions of the nervous power from the sentient extremities of the nerves to the brain. Such an interruption of the motions of the nervous power may be occasioned, either by some compression of the origin of the nerves, or by something destroying the mobility of the nervous power. The former of these he thinks the

most frequent occasion of apoplexy, and, perhaps, the occasion of all those apoplexies arising from internal causes.

Upon these doctrines, dignified with the name of theories, but, in fact, mere expressions of opinion in abstract terms, I do not intend to offer any long commentary. I may however observe, that Hoffman's explanation only applies to those varieties of apoplexy (few, I believe, in number) in which the disease originates in congestion of the venous system; and that the reason assigned by Willis and Boerhaave, for the continued action of the involuntary muscles, is hypothetical. As life ends when the functions of the heart and lungs are interrupted, it is provided that these organs shall be less immediately under the influence of the brain; that they shall continue to exert themselves while the brain is comparatively inactive, as in sleep, and even, for a certain time, after it is unable, from disease, to provide for the continuance of the animal and natural functions: but that this provision is in force only so long as the cerebellum continues sound, is demonstrably a mistake. In a patient who survived the stroke of apoplexy for some hours, the cerebellum was the

only part of the brain in which I found extravasated blood. Indeed there is no reason to doubt Morgagni's observation, " Cerebellum autem in apoplecticis, tanto rarius lædi contingit, quanto minus cerebro est."

Our knowledge of the brain is still circumscribed within very narrow bounds: we do not know with certainty any thing beyond the form, consistence, and colour of its various eminences, depressions, and cavities, and the origin of the nerves, and distribution of the blood vessels, which connect this organ with the rest of the system. We indeed know, from the effects of obstruction in the course of a nerve, and the uniform effects of similar diseases of the brain, that sensation and volition are functions of this organ; but we are as much in the dark with regard to the use of most of its parts, its ultimate structure, and the kind of influence which it exerts over the body, and most of the circumstances upon which the origin and transmission of that influence depends, as we are with respect to the nature of impressions made by external objects upon our organs of sense, or the sensations associated with these impressions.

While his knowledge of the mechanism and functions of the brain is so limited, perhaps the physician ought to confine himself to careful and minute observation, and accurate description, of the alterations of action or of structure which are produced in it by disease. Morgagni, whose medical learning was equal to that of any physician of his age, and whose zeal survived sixty years of study, saw that the hypotheses employed in the explanation of apoplexy were merely scholastic: for, after simply announcing that apoplexy consists in a sudden diminution of those internal motions of the brain, by which we move, feel, and think, he divides the causes which induce this disease, into those which escape the observation of the senses, and those which are within their reach; and he then professes his object to be, to describe and explain the latter only.

Morgagni's attention is chiefly directed to the most striking feature in the anatomy of apoplexy, namely, the lacerations or irregular cavities in which the broken parts of the brain are mixed with coagulated blood. These lacerations, he thinks, may originate in various ways,

viz. by erosion, by separation of the coats of the vessels, or by aneurismal dilatation. If I have not misunderstood Morgagni, (which, from his rambling and parenthetical manner, and defective arrangement, is not improbable,) he is not consistent in his commentary upon these opinions: but his favourite solution of the cause of the lacerations appears to be, that they arise from an aneurismal dilatation of the vessels. This view of the disease he has endeavoured to illustrate by the case of the physician Rammazzini.

Two aneurismal tumours preceded the attack of apoplexy, which, in twelve hours, was fatal to the celebrated Bernardin Rammazzini. These aneurisms were not larger than a bean; and, what is not a little curious, they occupied a similar situation on the back of each hand, in the angle between the fore-finger and thumb. Morgagni tells us, that the old man used to show him these tumours, which came on in the last years of his life, and would often describe what he had suffered before their appearance, from a violent palpitation of the heart, and from an intense hemicrania which followed it. At last,

after the palpitation and hemicrania had left him, a loss of sight, first of one eye, and then of the other, preceded the apoplexy.

From these considerations, continues Morgagni, it appears highly probable, that the hemicrania had been induced by circumstances similar to those which had excited the palpitation; and that, from their distension with blood, in consequence of the painful contractions, some of the arteries within the cranium, perhaps in the plexus choroides, became affected with the same disorder which had existed in the hands; and that this increasing, and pressing on the thalami nervorum opticorum, had occasioned, first, the blindness, and then, from the bursting of the coats of the arteries and effusion of blood into the ventricles, the fatal apoplexy.

The experiments of Sir Clifton Wintering-ham, and the reasonings of other physiologists, have led to the same conclusion; namely, that the arteries become more muscular, and acquire more strength and activity, as they diminish in diameter. It is admitted, that the most important functions of the circulation, are carried on by vessels which escape the eye, or even the

magnifier: hence we may presume upon the great irritability of these vessels; and it is probably from this quality, that aneurism so seldom extends beyond the great arterial trunks. Aneurism in the hand, as in Rammazzini's case, is an unusual, nay, I believe, an unparalleled occurrence.

Morgagni accounts for Rammazzini's apoplexy, by supposing an aneurismal tumour, of a size sufficient to compress the thalami nervorum opticorum, and occasion blindness. But it is a great objection to this supposition, that aneurism has attained a considerable size within the skull, without causing the symptoms of apoplexy. There is a dissection related by a physician of great respectability, if I mistake not, Dr. Blane, in which two aneurisms of the carotid artery were found filling the hollow on each side of the sella turcica: these dilatations of the artery did not produce symptoms of apoplexy. The chief symptoms during the singular and protracted illness of the patient, were giddiness, headach, imperfect vision, and mania; and in the dissection, as far as I recollect, there was no extravasated blood.

Extravasations of blood often take place in

distant and opposite parts of the same brain; but were these from aneurism, independent of general vascular excitement, it is not probable that they would all burst at the same time; and we should doubtless be able to detect, in some part of the brain, aneurismal tumours which had not burst. Dilatation would be perceivable in a very minute vessel. The smallest vessel in the brain, which contains red blood, may be so exposed as to enable us, with the aid of a common magnifier, to demonstrate partial distension, were it present, as completely as in the aorta. I need scarcely say, I have repeatedly examined, with the utmost care, many of the vessels in the neighbourhood of lacerated portions of the brain. A strong argument against the existence of an aneurismal state of the vessels, might be rested on the admission of Morgagni himself, that although he had carefully dissected so many brains, he was not, in any instance, able to detect the commencement of the irregular cavities, so small and obscure is it.

There is another explanation of these cavities offered by a celebrated anatomist of the present day. It is first premised, that " when blood is

extravasated within the cavity of the cranium, when there has been no external injury, the vascular system of the brain will be almost always found diseased." It is said to be " very common, in examining the brain of persons advanced in life, to find the trunks of the internal carotid arteries, upon the side of the sella turcica, very much diseased; and this disease extends frequently, more or less, into the small branches. The disease consists in a boney or earthy matter being deposited in the coats of the arteries, by which they lose a part of their contractile and distensile powers, as well as of their tenacity. The same sort of diseased structure is also found in the basillary artery and its branches. The vessels of the brain, under such circumstances of disease, are much more liable to be ruptured than in a healthy state. Whenever blood is accumulated in unusual quantity, or the circulation is going on in them with unusual vigour, they are liable to this accident; and accordingly, in either of these states, ruptures frequently happen." It is concluded, that " were the internal carotid arteries and basillary artery not subject to the diseased alteration of structure which has been

described, effusion of blood within the cavity of the cranium would be very rare*."

But this conclusion appears to me equally liable to objection; nay, the whole passage is objectionable: the facts are assumed; and were they even proved, they would be insufficient to establish the doctrine: for the bleeding does not arise from the rupture of the trunk of an artery. It is, indeed, the received opinion, "that the extravasation of blood takes place from the rupture of a blood vessel into the substance of the brain†." Whereas in reality, I believe, it generally proceeds not from one considerable vessel, but from a number of the smaller vessels; and, consequently, the more the larger arteries, by communicating a great impulse to the blood which they are propelling, can add to the effect of the increased irritability of their ramifications, the more, one should expect, they would promote that action of the minute vessels which ends in extravasation. Hence it should seem that a sound and vigorous condition of the arterial trunk would be more

* Vide Dr. Baillie's Morbid Anatomy and engravings.

† Ibid.

likely to promote the ultimate effect of the disease, than a loss, from whatever cause, of the powers of distension, contraction, and elasticity. If this proposition were not obvious, I might support it by quotations from various writers. Morgagni has pointedly observed, " Quanto enim languidius cor et arteriæ sese constringunt, tanto minus impendit ejus disruptionis periculum; contra, quanto illa valentius ut in bene se habentibus sanguinem tradunt, tanto majori debilitate vasorum partes in periculo sunt."

Let Bonetus, Lieutand, or any other collector of dissections be consulted, and it will be found, that concretions of the arteries are mentioned in only a small number of the dissections which they have accumulated. I have seen ossification, as it is called, of the arteries within the skull in dissections after apoplexy, but it was also observable all over the arterial system. This disease of the arteries belongs to the time of life at which apoplexy prevails. Rupture is not necessarily the consequence of the deposition of the gritty matter, even when it exists along the whole course of an artery. For example, the coronary artery, which must feel the effects of occasional distension as much as any

vessel in the body, and which I have seen ossified, trunk and branch, is not ruptured in angina pectoris.

It is not by the scalpel alone, that the anatomist can demonstrate the state of the vessels which pour the blood into the substance of the brain during apoplexy: but, in many cases, after he has exposed the seat of the extravasation, he may, by means of a syringe, or by a patient use of a camel's hair pencil, by washing away the broken portions of the brain, and carefully removing the larger masses of the blood, (a work of two or three hours, and of great delicacy,) at last, all along the walls of the irregular cavity, show many vessels, not larger than a human hair, ending in small clots of blood; and he will sometimes find the same appearances in various and distinct parts of the same brain. Hence it seems that the bleeding does not depend on erosion, (which, indeed, could not be considered as an ultimate cause, for we should have to explain the origin of the eroding matter,) nor is it owing to aneurism, nor ossification, but to a great and simultaneous action of the smaller arteries of a hemisphere, or of the whole brain; an action which, strong as

these arteries are, they, in general, are unable to bear without a rupture of their coats.

From analogy we might have been led to suppose, that the bleeding proceeds from the minute vessels rather than from one important branch. It is demonstrably from the minute vessels, previously excited, that bleeding in hæmatemasis arises. In phthisis it is from the excited surface, which eventually discharges the puriform matter, that blood, in the first instance, is so often poured*; and I am informed by a friend, that in a dissection which he lately made after hæmaturia, the internal coat of the bladder bore the stamp of great vascular excitement; so as to convince him, that the bleeding, which was profuse, had arisen from the general surface.

Some have conceived, that the extravasation arises from a venous turgescence and rupture, occasioned by the impulse of the blood repelled in consequence of an obstruction at the right

* And here I beg to correct a pathological error. Phthisis is not, in the cases to which I allude, a conversion from hemoptæ, as is stated by an ingenious author; it is merely a continuation of the same diseased action: and hence, while the blood-letting stops the hemorrhage, it at the same time often prevents the patient from gliding into consumption.

side of the heart. This opinion is contradicted by the description which I have given of the minute arteries, many of which I have traced up to their trunks. It is probable that the sinuses are expressly to provide against any accident from regurgitation. When, however, any resistance to the circulation in an organ takes place, the arteries which lead to the obstructed part act with violence. Any great hinderance, therefore, to the return of the blood from the brain, may induce the peculiar action of the arteries; and, in a person predisposed, end in the fit. Dr. Donald Monro relates, that he has known soldiers carried off by apoplexy, in consequence of stricture of the veins of the neck, from their having been obliged to wear their cravats too tight.

In none of my dissections have I been able to discover extravasated blood from the rupture of a considerable artery: and in the few dissections recorded, in which this accident had taken place, most of the symptoms which usually characterize it have been absent.

The turgescence of the veins of the brain, which always appears in dissection, is a part of the disease, which probably increases as death

approaches. When the respiration is interrupted, the blood is accumulated in the right side of the heart, and the venous system of the brain is injected to the utmost by the continued action of the arteries. But the respiration is interrupted only when the patient is dying; and hence the excessive turgescence may not take place until the disease is about a close. In those who die from suffocation, who were in perfect health a minute or two before death, the venous turgescence will be found nearly as great as it is in the brain after a fatal attack of apoplexy.

Apoplexy is probably not so sudden a disease as is generally thought; or rather, the attack appears connected with changes which have been going on for a considerable time. This opinion is supported by the duration of the disordered functions, which denote the apoplectic diathesis, and by the various appearances which are observed in dissection: the substance of the brain is changed in consistence; the membranes have lost their transparency; and we seldom make a dissection after apoplexy, without detecting præternatural serous effusion. This I have said, in an essay on hydro-

cephalus acutus, I do not consider of so much consequence as some physicians have done: it, however, shows an irregularity of the circulation, and vascular excitement of some standing.

SECTION II.

SEROUS APOPLEXY.

I HAVE hitherto been treating of the disease which nosologists have called *sanguineous* apoplexy; by which title it is distinguished from the form of apoplexy which has generally been termed serous: I shall now say a few words concerning this latter affection, of which there are many opinions among medical authors.

By some writers the existence of serous apoplexy has been entirely denied; by others serous apoplexy has been admitted as a slight variety of the sanguineous, not to be distinguished in practice, consequently an object scarce worthy of the attention of the practical physician; while, by men of the highest authority in medicine, serous apoplexy has been described as differing, not only in its nature, but in its symptoms, and as distinguished by broad and obvious lines;

and they have warned us against using in it the remedies upon which all our hopes depend in the sanguineous species.

I cannot hope to reconcile these opinions, after the unsuccessful efforts which have been made by physicians respected by the whole profession; the attempt would be presumptuous; I shall therefore steer a safe course, and content myself with a simple relation of my experience.

In the course of the last twelve years I have been applied to several times to explain the cause of the death of persons who had died suddenly in the course of the night, and were found in the morning with pale and placid countenances. Five instances of this kind I distinctly recollect. One of these bodies I examined with care, and although there was evidence of death having been occasioned by a disease of the brain, yet there was scarce any resemblance between the diseased appearances and those which are usually produced during sanguineous apoplexy. I am sorry to say, that, as I have mislaid the case-book which contained a report of the dissection of this body, I am unable to produce the particulars of it. Two of these

patients were water drinkers, past seventy, pale and phlegmatic: two were between eighty and ninety years of age. One of these last had always been exceedingly abstemious; the other, for the last ten years of his life, was temperate; both were pale, and of a stature rather diminutive. The history of the fifth patient I scarcely know any thing of; she was younger than the others, and, I think, she was supposed to have been intoxicated on the day before she died. I did not venture to give a name to the disease of which these patients died.

A sixth patient I attended during an illness which lasted forty hours; and I very carefully watched the dissection, and it appeared to me the counterpart of that to which I have just alluded as having been mislaid. The case of this patient, which will appear in the sequel, is a specimen of serous apoplexy, and is, I believe, the only one I ever attended.

I have been told, by a celebrated anatomist, that the morbid appearances of the brain, after what was considered serous apoplexy, when instantaneously fatal, as when a man walking quietly along has dropt down dead in the streets, have sometimes barely enabled him to give such

an account of the dissection as might seem to explain the patient's death. And in confirmation of this remark, Mr. Fyffe, the anatomist, informs me, that, in several instances, he has scarcely been able to detect any morbid appearances in the heads of persons who had died suddenly, as was supposed of serous apoplexy. Perhaps a little watery effusion on the surface of the brain, between the convolutions, or in the ventricles, was all he had to note.

When we find, after a fatal case of apoplexy, that we can uncover the brain without the escape of a single drop of blood; that the brain is soft and colourless; the ventricles enlarged, and perhaps distended with serum; the plexus choroides pale; we see a very different disease from that which is described in this volume at such length, and which Galen has emphatically characterized "multo nimirum sanguine in principium animantis confertim irruente."

The symptoms which Salius, and after him a variety of authors have described, as distinguishing serous apoplexy, have been repeatedly observed in those cases, which dissection has afterwards proved to have been sanguineous. Most works on apoplexy contain dissections, in

which the substance of the brain is described as lacerated and injected with blood, in such as had been of a spare habit and phlegmatic temperament. Hence Ballonius, Lancisi, and some other writers, have very properly cautioned the physician against predicting the state in which the brain will be found after a fatal attack of apoplexy. Even if the patient is far advanced in life; of a pituitary temperament; of the female sex; and of abstemious habits; we are not sure that we shall not find a rupture of the vessels; nor are we, under these circumstances, warranted in giving a more favourable prognostic than when apoplexy seizes a person sanguine, plethoric, and habitually intemperate.

It is not easy to determine the comparative frequency of these two forms of apoplexy. The fourth letter of Morgagni, which treats of serous apoplexy, contains, it is true, fifteen or twenty cases with dissections. But of these only three appear to belong to serous apoplexy; namely, the cases of Valerio Zani, of the pope's nuncio, Anguissola, and of the hostler, who was found in an apoplexy in the corner of his stable; and even against these, as perfect specimens of serous apoplexy, much objection lies. If we

exclude, as I think we ought, all those cases in which there is found extravasation, or even great fulness of the blood vessels, particularly of the arteries, serous apoplexy, compared with sanguineous, is a very rare disease.

That serous apoplexy is relieved by the accession of fever, is a remark which has often been repeated. Whether it was originally founded on extensive observation may be questioned. I suspect it was invented for the sake of an antithesis. The celebrated aphorism, " that fever, supervening to sanguineous apoplexy, ends in death," (which by the bye is not invariably true,) is much enlivened by adding, that when it arises during serous apoplexy, it ends in recovery.

The causes of serous apoplexy are involved in great obscurity. Of the symptoms and anatomy of that species of apoplexy I know little more than what I have learned from the case of it, which the reader will find in the fourth section.

SECTION III.

OF THE TREATMENT OF APOPLEXY.

THE means to be employed for the relief of a patient in an apoplectic fit, may be considered under the heads, 1st, of blood-letting; 2dly, of emetics and purges; and, 3dly, external applications.

OF BLOOD-LETTING.

Many who practise medicine in England object to blood-letting in apoplexy; and in France, in spite of the endeavours of the ablest physicians to bring this remedy into repute, the prejudices against it are even more general than in England. I am desirous of removing every objection which can be opposed to blood-letting, which I am convinced is not only the most effectual remedy in apoplexy, but is much more effectual than all the others in use.

Blood-letting is objected to, first, by those who consider apoplexy simply a disease of indirect debility; secondly, by those who consider paralysis the consequence, not so much of any diseased condition connected with or allied to apoplexy, as of the evacuations which are used to remove the fit; and, thirdly, by those who consider that the attack may be symptomatic of serous, rather than of sanguineous apoplexy.

I. Mr. Bell, in his Principles of Surgery, has satisfactorily answered the first class of objectors by a reference to dissection, or to the writings of any physician who has investigated the nature of apoplexy with the scalpel in his hand.

In a plurality of the dissections which I have made after apoplexy, I have found extravasation of blood. We are naturally solicitous to guard the patient from this part of the disease, to which there is always so great a tendency, and which must render his situation so much more desperate. Extravasation of blood arises, as, I believe, does every symptom of apoplexy, from increased irritability and action of the vessels; and these states are not to be moderated with

dispatch and certainty, but by diminishing the quantity of the circulating fluid.

I admit that the constitution of those who are subject to apoplexy, is generally in a state of exhausted excitability, and, consequently, that blood-letting is a remedy which we would anxiously avoid; but, when the attack has actually commenced, we are without an alternative: we must either empty the vessels, or resign the patient to his fate. If the display of the brain destroyed by apoplexy, does not prove how indispensable venesection is, every other argument in favour of it must be accounted weak. It is edifying to observe the pleasure expressed by a learned and enlightened German physician, Dr. J. Frank, of Wilna, at his escape from the Brunonian heresy, when the subject of his practice was a patient in apoplexy.

II. To a passion for the aphoristic form of writing, which so long prevailed, I am convinced that many of the loose opinions and prognostics which relate to apoplexy may be traced. It would not be difficult to prove, that aphorisms, which have served as a text for whole

volumes, owe their birth to that spirit of vague generalization, which, although divorced by the other sciences, is still allowed to cling to medicine.

I shall hereafter endeavour to show, that paralytic affections have been removed by venesection. I have often prescribed repeated bloodletting to persons who were of the age, constitution, and habits most favourable to palsy, yet this remedy has not been followed by palsy in any of my patients, nor in any one under similar circumstances within the scope of my observation. I have seen elderly persons prematurely brought to the grave by hemorrhage, and, I fear, also by venesection, but not through the medium of paralytic or apoplectic seizures. There are cases enough to prove, that patients have recovered from apoplexy without any paralytic affections, after having been blooded to a great extent. A gentlewoman of 60, after a shock of apoplexy, had, whenever she became plethoric, or drank too much brandy, an attack of convulsions, with consequent stupor: Mr. G. Bell, of Edinburgh, who attended her during these attacks, to which she was subject for more than two years, generally drew two pounds

of blood from her arm, as soon as possible after every seizure; yet she was at last destroyed by umbilical hernia, without even having had palsy in any shape. On the other hand it appears, by a multitude of cases, that palsy generally seizes those who have not been blooded during apoplexy. The usual order of attack is not unfrequently changed, and palsy appears as the harbinger, instead of the companion or follower of apoplexy: and this leads me to a remark of some moment, if we are to consider the proximate cause of apoplexy and palsy as the same in kind, namely, that I have in several instances apparently averted the shock of apoplexy, by having a patient largely blooded who had just been seized with palsy. I have one more observation to make, which deserves attention; the attack of palsy, even when it does not lead to apoplexy, is sometimes attended with every symptom which denotes an inflammatory disease.

With the exception of Brown, Dr. Fothergill, among the English physicians, is the most zealous adversary of blood-letting in apoplexy; I cannot, however, find one solid argument in support of his opposition. Dr. Fothergill disapproves of the conduct "of the surgeon who

bleeds a plethoric person of luxurious habits during a fit, attended with a tense and full pulse, and general appearances of suffocation." Now, although any one would probably be commended for such a proceeding by the best informed men in the profession, yet it is nothing to the question what a surgeon does to a patient in a fit, if that fit is not truly apoplectic.

When we examine the brain of a plethoric man who has been carried off by a fit of apoplexy, we find that every vessel within the head had been in a state of excitement: the venous system is still tense with blood; some of the arteries had yielded to their own inordinate action; and the brain is torn up by the blood which they had driven out of the course of the circulation. Dr. Fothergill conceives, that all the struggle which is to be witnessed in a fit of apoplexy, arises from "the exertions of the vires vitæ to restore health;" but that the nisus, commenced under these happy auspices, cannot be continued unless the animal strength is entire. He conceives that we shall sink the strength by venesection, and either destroy our patient at once, or leave him paralytic to regret our officiousness as long as he lives. Dr. Fother-

gill must have found no small difficulty in explaining how a thin and delicate person shall not only survive apoplexy, and the four or five bleedings which the mistaken zeal of his physician had directed for his relief, but also retain, undiminished, both muscular power and sensation.

Dr. Fothergill has furnished us with a clew by which we may trace the origin of his opinions. He thought only of "the quantity of blood in the vascular tubes: of obstruction at one part, and accumulation above the obstruction." He did not contemplate the arteries as a part of the living system: as susceptible of accumulated or exhausted irritability. He contemplated the brain and stomach as two distinct parts of the body, without recollecting their sympathetic connexion; and his whole structure rests upon a consideration of that variety of apoplexy, comparatively rare, excited by a full meal, which, he imagines, acts "by distending the stomach and pressing on the aorta descendens, and thus obstructing the free expansion of the lungs;" and by this means he supposes "the arterial system of the head is crowded, and the disease produced."

From a conviction that blood-letting is destructive in one form of the disease, Dr. Fothergill is led to doubt its efficacy in any. His doubts gain strength as he advances, and he leaves us with an assurance, that venesection in apoplexy is generally injurious, even in those apoplexies which arise "from suppressed evacuations, external heat, or gusts of passion."

Dr. Fothergill is not the first person, nor the last, who has taught, that "either death, or an incurable hemiplegia, often arises from loss of blood in apoplexy." But an assertion of so much importance ought not to have been hazarded by any physician, without adducing proofs, if it rested on his own observation, or references, if on the authority of others. Strictly speaking we are not obliged to treat such an assertion with the least respect, unless we are presented with the evidence upon which it is built.

III. The physicians who object to blood-letting in apoplexy, lest the attack should be of the serous kind, are bound, first, to teach us how to distinguish this species, and, secondly, to prove that blood-letting is injurious to a patient

in serous apoplexy; neither of which they have done.

Cases are recorded, in which the vessels of the brain have been found gorged, or in which blood has been extravasated, in pale, relaxed, emaciated old men and women, who have led a life of temperance or even abstemiousness: therefore, the existence of serous apoplexy is not determined by the appearance, the age, sex, nor even by the habits of the patient; yet these are the circumstances upon which the diagnostic hitherto has been rested. To distinguish with certainty between the two species of apoplexy would seem a matter of great difficulty. Most professional readers know how long and how well Morgagni and Portal have studied pathology, yet we in vain seek, in the writings of either, for certain means of distinguishing serous from sanguineous apoplexy. For the mere practical physician, Portal, indeed, has cut the knot, by recommending the same treatment in both varieties.

In all Morgagni's dissections, under the head of serous apoplexy, there appeared venous turgescence, and effusion of serum; and in the

dissection of serous apoplexy which I directed, although the veins were not very turgid, there was evidence of increased arterial action having existed shortly before death; consequently, were the patient beyond a doubt labouring under serous apoplexy, I do not think his chance of recovery would be lessened by venesection: indeed, from every analogy, I should think myself justified in recommending this measure, before having recourse to blisters, or the means usually resorted to in this very fatal species of apoplexy.

I believe I speak within bounds when I say, that I have attended fifty fatal cases of apoplexy in which there was room for practice. Of these only one was a case of serous apoplexy. The rest, to every appearance, were sanguineous: the nature of many of these cases was demonstrated by subsequent dissection. Now, admitting this proportion, that there are fifty cases of sanguineous apoplexy, which require the physician's assistance, for one of serous, (and as some distinguished physicians have altogether denied the existence of serous apoplexy, it is probable that I have not overrated the proportion,) we may found an argument in favour of bleeding,

which will not be easily overturned upon the relative frequency of the two species of the disease. If bleeding be proved of injury in serous apoplexy, I admit that, at present, we have no other means of determining the question.

If we may judge from the quantity of blood which sometimes streams from the nostril of a person threatened with apoplexy, and which, without considering it as an effort of the constitution, probably is not more than enough to avert the danger, we may carry blood-letting, with safety, to a great extent. A person who had every symptom of impending apoplexy, was twice relieved by hemorrhage from the nose to the amount of several quarts. When a patient actually labours under an apoplectic stroke he ought to be blooded without a moment's delay. In a populous city, I have known three or four hours lost before the family surgeon could be procured; the physician ought not to desert his patient until he has seen the blood drawn; nay, he ought to open the vein or artery if a surgeon cannot be found. No lesson to enforce despatch can be more impressive than the display of the brain after apoplexy, in which blood often is lodged in greater or smaller quantity, in

different parts, showing that extravasation may have taken place in different periods of the disease.

The blood may be taken from the temporal artery, or a large vein in the arm, or from the jugular vein; although, as the latter sometimes requires a ligature to make the vein swell, or to stop the bleeding, I generally prefer the arm or the temple. Two pounds of blood ought to be removed as soon as possible after the attack. And if the first bleeding has not been of service, and the disease is unequivocally established, the chief question which is to be decided at consultation, is the additional quantity of blood to be drawn. It ought to be known, that from six to eight pounds of blood have been taken from a person by no means robust, before the disease, which ended favourably, began to yield. The first and second blood-letting ought to be large, and a third ought to follow the second, as soon as it is ascertained that this has been ineffectual in stopping the progress of the disease. As blood-letting from the lower extremities probably makes less impression on the circulation, it is only to be recommended when blood cannot be procured from the neck or arm. The

head ought to be shaved, and a number of leeches, or the cupping glasses, with extensive scarifications, used.

But I believe it is comparatively of little moment from what part the blood is drawn, provided a sufficient quantity is obtained. It is Hoffman, I think, who suggests scarifications within the nostrils; but this must be an awkward operation, and the blood distilling into the pharynx, might suffocate a patient who is no longer able to swallow. Hoffman was doubtless led to propose this means from having seen blood bursting from the nose during apoplexy, or an impending attack removed by epistaxis.

It was a question, rather curious than useful, Whether, when apoplexy succeeded hemiplegia, the blood was to be drawn from the palsied or sound side? There was a show of reason in the arguments adopted: it was contended, that if the blood were drawn from the jugular vein of the sound side, the hemisphere most affected would be more immediately relieved. But as the longitudinal sinus, which receives the blood from both sides of the surface of the cerebrum, and the fourth sinus, which, through the vena galeni, receives the blood of the central part of

the cerebrum, unite together; and as, from this central point of union, the right and left lateral sinuses go off, so must the internal jugular veins of both sides be equally supplied. When we draw blood from the external jugular, it is in the expectation, that, by the free communication existing between it and the internal jugular vein, we shall be able to unload the vessels of the brain. From this statement it must be evident, that it is of no consequence from which side the blood is drawn. There is, perhaps, some reason for the preference, if it be true, as is alleged, that the vein swells more immediately, and the blood flows with more freedom, in the sound side of the body.

It is not easy to determine the quantity of blood to be drawn. This must in a great measure depend on the appearance and habits of the patient; an intimate knowledge of all the circumstances of the attack; its violence and duration; the effects of the previous evacuations; the appearance of the blood, which is often sizy; and the state of the circulation: particularly, the relief of the pulse and breathing, and the reduction of the complexion: one moderate blood-letting will avert the attack,

while three or four large evacuations of blood will be insufficient to relieve the patient when under the seizure, granting that he is in a situation which admits of relief. When the pulse and breathing become more natural after bloodletting, we are taught to hope for a speedy resolution of the disease.

From the destruction of the organ, or sinking of the strength, there is doubtless in this, as in every disease of increased vascular action, a period, after which the lancet cannot be used with any hope of relief; but as it requires great knowledge of the disease to indicate this period precisely, (more than I have as yet attained,) I believe it is a good rule to have every patient in apoplexy, who is not plainly dying, blooded. If the patient is past the stage in which bloodletting is useful, no attentions are necessary but such as the dying require.

Morgagni, Walter, and Portal, have sanctioned the free use of the lancet in apoplexy. And from having had the fortune to attend several cases of apoplexy with the professor of anatomy in Edinburgh, whose experience and sagacity entitle him to the highest rank among the anatomical physicians of the age, I know

that I may add his name to the list of authorities in support of the active practice which I am recommending.

When the disease is apprehended, but the danger not imminent, local bleeding is to be preferred. We thus closely imitate the means of relief which is sometimes spontaneously afforded, and the evacuation is less destructive of the general health of the patient. The extent of the local bleeding can only be determined by the nature of the case; when there appears a predisposition to the disease, without any immediate threatening, bleeding does not appear the best way of removing it.

If apoplexy should appear after symptoms of gout, or in a gouty constitution, although this is a variety of the complaint in which I have not had my own experience to guide me, yet, instructed by several eminent physicians, I believe I may venture to say, that we may use the lancet in it with perfect safety.

EMETICS AND PURGES.

Emetics have very generally been ordered in apoplexy; more particularly when the attack has appeared to arise from repletion of the

stomach, or has been conceived of the serous or pituitary kind.

In the latter case, considering that during nausea the mucous follicles discharge plentifully, emetics were thought to evacuate the phlegm or pituita; upon an excess of which this species of apoplexy was supposed to depend. But, as the doctrine "of a superabundant pituita being the cause of serous apoplexy" is exploded, emetics have been disused in Britain. In France, emetics still hold their ground: Lieutaud recommends emetics in large doses; and we find Portal, while he pointedly reprobates this practice, and clearly exposes its dangers, yielding to the routine of the French physicians: it appears, that he ordered emetics in some of the very cases which he has adduced as illustrating the necessity of bleeding and the danger of emetics.

I fear that emetics are too often ordered by physicians in England, from a belief that apoplexy is connected with a loaded state of the stomach. With this view Dr. Fothergill introduced, or rather revived, the practice of giving emetics in this disease; and upon his authority it still rests. Every one who respects the me-

mory of this excellent man, must regret the publication of his remarks on apoplexy. Were there many passages in his works equally crude and inaccurate, in conception and expression, with that in which he treats of apoplexy, his medical opinions would now command but little respect.

After what is equal to an interdiction of blood-letting, Dr. Fothergill recommends us to attempt the cure of apoplexy by means of emetics; by "white vitriol and emetic tartar:" and, if these occasion faintness or weakness, he tells us, the strength of the patient is to be recruited by wine or any cordial. How different is the doctrine of the physicians who are best acquainted with the effects of apoplexy or the structure of the brain?

When apoplexy, from a surfeit, or from intoxication, is only threatened, the emptying of the stomach may indeed afford the most prompt relief; but the emetic used ought to be of the mildest kind. A weak infusion of chamomile, or of carduus, as recommended by Heberden, or even tepid water, will answer every purpose. I have known instant relief from vomiting induced by tepid water and hartshorn drops; or

the fauces may be tickled, after the patient has been made to swallow a draught of tepid water.

But, in a confirmed apoplexy, even the mildest means of inducing vomiting cannot be employed without danger. When a person is struck with the disease from a surfeit, an emetic is, I conceive, a very doubtful remedy; the safer course is to let blood, give the most active purge, and a stimulating glyster. Every one has experienced the sympathy between the commencement and termination of the alimentary canal. The stomach, when uneasy from distension, is almost invariably relieved by a motion of the bowels: the stomach immediately acts with more vigour, and, therefore, a glyster of soap, or salt, dissolved in water, ought to be injected as soon after the apoplectic seizure as possible. In apoplexy, the remedy which is at hand is generally to be preferred: the euporista, as they were formerly called, are better worth knowing than all the refinements of pharmacy.

Nausea, and the control over the vascular system while that sensation lasts, would seem to offer very promising means of relief. But, I fear, we cannot regulate any medicine so as to stimulate the stomach to nausea, without the

danger of bringing on vomiting, and the straining which usually attends it.

Sydenham, indeed, had recommended emetics in apoplexy, but they were getting into disrepute, when Dr. Fothergill appeared as their advocate; and they have generally been administered upon his authority since his "Considerations" were published. This particularly appears in a late controversy, originating in a dispute between Dr. Langslow, a physician in Halesworth, and Mr. Crowfoot, a respectable surgeon of Beccles, which hinges on the propriety of giving emetics in apoplexy. It is not my intention to enter into the merits of this controversy, which I should be sorry to see revived in its original spirit, and which shows the unsettled state of the public opinion, in regard to the treatment of apoplexy, but I conceive myself obliged to produce the latest argument in favour of emetics, and, therefore, I shall introduce a quotation from a paper, written under the signature of Pyrrho, as I have heard, by the late Dr. Lubbock, of Norwich. The extract is a long one, yet I think it right to transcribe the words of the writer, who was the ablest controvertist on either side. Although

the absence of art, in the construction of the part of the argument to which I allude, looks like sincerity, I am very far from thinking that the learned and ingenious writer was convinced of the soundness of his own conclusions. And had not the controversy been carried on with more heat than skill, it would not have been terminated by the following specimen of erroneous pathology:

"But," says this modern Pyrrho, "it may be replied, if during nausea there be diminished arterial action, the same cannot hold good during the act of vomiting, in which the circulation of the blood is interrupted, and it is accumulated in the brain. But, in this act, I doubt whether this accumulation exists, and for the following reasons: It is a well-established fact, that the motion of elevation and depression, peculiar to the brain, alternates with that of respiration; that is to say, that in expiration the elevation, and in inspiration the subsidence, of the brain takes place. Now, it being established, that vomiting takes place rather in a state of inspiration, in which, from the free return of the blood through the heart and lungs, the subsidence of the brain, and, of course, its

diminished vascular fulness happen, it seems probable, notwithstanding the appearance of suffusion and fulness of the face, that, in the act of vomiting, the state of the brain is rather that of depletion than plenitude: on this ground, therefore, I suppose, it may be doubted whether emetics are hurtful by increasing pressure on the brain.

" And it may be further observed, in general, that as the blood is the proper stimulus and cause of action of the vascular sanguiferous system, and a stimulus by which its tone and density, as composed of living solids, are kept up and supported, it would seem that the strength of any given vessel or vessels, is in a direct ratio of the force of that stimulus; or, in other words, of the momentum and velocity with which the blood moves: hence it appears improbable, that an increased impetus of the blood should rupture a vessel; and that the appearance of blood or serum effused, depends upon other causes inherent in the vessels of the brain, rather than upon the increased motion of the blood. This position receives considerable illustration from anatomical experiment; it does

not happen by throwing a ligature over the principal artery leading to a part, or over the principal vein leading from a part, that such a vessel, so treated, is ever ruptured; or that the smaller arteries and veins in the neighbourhood, by having an undue quantity of blood thrown upon them, give way, or are ruptured: and it is known, that by suspending animals by a rope thrown round their necks, it is a difficult matter to kill them, provided an opening is made in the trachea, below the rope, notwithstanding the pressure upon the vessels, and which is probably more felt by the vessels carrying the blood from the brain. These facts prove, at least, that it is not common to rupture vessels by the impetus of the blood.

" This position receives further illustration from reflecting upon some morbid phenomena, in which the action of emetics would be supposed to excite hemorrhage, if such were the natural or necessary effects of such action. It is well known that emetics are frequently and repeatedly employed in diseased states of the lungs, and where a discharge of blood has previously and repeatedly taken place; and that,

in such cases, the appearance of hemorrhage is retarded rather than promoted by their use. And there have also been cases of persons labouring under frequent and alarming hemoptysis, who have been sent to sea for their health, and who have never passed a day, for months, without strong efforts to vomit, and yet without any recurrence of hemorrhage.

" These considerations seem, at least, to render it doubtful, whether, even in cases where hemorrhage has taken place, and where there has been a supposed tendency to rupture of vessels, by increasing the impetus of the blood, such tendency is not rather diminished than increased, by the increased tone and density of the vessels from such impetus; and they also seem to show, that emetics, if hurtful in apoplexy, prove so from some other mode of action than that of determining to the head."

The whole of this fabric rests on a foundation of sand. It is so far from being a well established fact, that " the motion of elevation and depression, peculiar to the brain, alternates with that of respiration," that many eminent physiologists deny that any of the motions of the

brain depend upon respiration*. But let us examine the argument, admitting the truth of the premises assumed by this writer. He considers, " that, as the act of vomiting takes place in a state of inspiration, during which there is a subsidence in the motion of the brain, and, of course, a diminished vascular fulness, emetics cannot be injurious by increasing the pressure on the brain." I do not mean to assert that they are injurious by increasing the pressure on the brain. But, if the subsidence and elevation of the brain depend on the play of the lungs,

* This diversity of sentiment in authors of respectability, has induced me to repeat the experiments which each has adduced in support of his doctrine, and to submit the hitherto doubtful fact to fresh experiments. This examination soon convinced me, that the authors had rather expressed their opinions than the fact itself. In fact, the alternate motions of elevation and depression in the brain, are simultaneous with the systole and diastole of the arteries situated in its basis: the elevation corresponds to the dilatation, and the depression to the contraction of these vessels. Respiration has no influence in these phenomena; and even admitting the stagnation or regurgitation of blood in the jugular veins, the disposition of venous ducts in the internal part of the cranium is such, that this stagnation or regurgitation could not produce the alternate motions on the mass of the brain.—Richerand, by Mr. Kerrison, Sec. cxi.

in proportion to the exertion of the muscles engaged in respiration, will be the labour of the brain: and every one who has taken an emetic knows, that, although the act of vomiting commences with a full inspiration, it is often not terminated until the lungs are emptied of air to the utmost: that in no act is there more straining of the chest, than in vomiting.

I shall not stop to blame the introduction of terms in this speculation, which, of late, have seldom been used in treating of organic life, but shall proceed to observe, that although sickness without vomiting may reduce the momentum of the blood, yet the straining after an emetic, never fails, momentarily, to increase the vascular action: the pulse becomes quick and full, the face turgid and suffused; and there is a headach, which can only be explained by the congestion of the vessels. Vomiting has not only brought on apoplexy, but has converted a slight attack of apoplexy into a confirmed and hopeless disease, as we learn from the writings of the archiater Quarin, and of Burserius.

It is not directly affirmed by Pyrrho, that emetics, or the motion of a vessel at sea, owe their salutary effects to the muscular efforts

which attend vomiting. But, as there is a reference to the uniform benefits and perfect safety of vomiting in active hemorrhage, without any rationale, I cannot help alluding to the recent death of a very interesting young woman, from hæmoptysis, brought on by sea-sickness, during a voyage of only a few leagues. In this case the reduced action of the arterial system, in consequence of sickness, was not sufficient to counteract the effects of the violent agitation of the lungs during the retching.

It would have been better that this ingenious writer had contented himself with proving, (which would have been a simple induction,) that emetics actually increase the momentum of the blood; and then their expediency would have rested on firm ground, if, according to his principles of arterial action, the strength of the vessels, and, consequently, the safety of the patient, depends on the momentum and velocity with which the blood flows. Surely it is more like a debater, than an enlightened physician, to contend, in such a cause, merely for the sake of victory.

It is proposed by a physician of eminence, although I do not recollect who, to place a few

grains of emetic tartar on the tongue, when the patient can no longer swallow. This salt, it is supposed, may be dissolved in the saliva, and carried down the œsophagus, and may excite the stomach. This expedient is in a spirit very different from the advice given to the physician by Hoffman, to abstain from interference in hopeless cases. "Quando vero attonitum animam jam agere primo suo accessu videt, tum quidem satius foret penitus abstinere, ne remedia, alias præstantissima, in suspicionem quandam, ipsaque ars in odium et invidiam adducerentur."

An active purge is to be given to the patient as soon as he can be made to swallow: calomel, I believe, is the most suitable medicine, more particularly in the varieties of apoplexy connected with disorder of the abdominal viscera. This medicine sometimes produces the nausea from which so much benefit is expected. To secure a speedy operation, it ought to be followed by a dose of some of those cathartics, which operate chiefly on the upper part of the alimentary canal, as rhubarb, jalap, or scammony; or a draught of the infusion of senna, in half an hour after the calomel has been swal-

lowed, may be administered, to secure and quicken its operation.

EXTERNAL APPLICATIONS.

I have observed that physicians generally order a blister to be applied to the scalp, as soon as possible after the patient has been struck with apoplexy; but I am disposed to call in question the propriety of this measure. In an acute disease, it is indeed difficult to ascertain, with exactness, the effect of any remedy which is used in conjunction with others; we may, however, make a probable estimate of the value of blistering in apoplexy, from a statement of its effects in other cases.

The mere absorption of the cantharides, it is now admitted, has, in general, but little effect on the system. Neither is it reasonable to attribute much to the evacuation of serum, which it was thought relaxed the turgid vessels in the neighbourhood of a blistered part. In fact, the evacuation of serum is produced by the increased action of the vessels, just as vesication is produced in erythema. The primary effect of the blister is tension rather than relaxation of the vessels.

"Emovit veterem mire novus." Physicians formed their doctrines of derivation and revulsion, and were led to the use of repellants and counter-irritants, by observing that the disease of one organ is generally relieved when another becomes disordered. I believe blisters, the moxa, and cauteries, were originally applied upon this principle.

Blisters are used, first, to relieve those pains which arise from the supposed torpid state of a part: secondly, they are used to relieve the pain of inflammation, unaccompanied with pyrexia; in which case also they may be applied near the seat of the pain, which they remove by exciting a greater irritation: thirdly, but if the inflammation be such as to raise the pulse, or threaten disorganization, blisters are not to be applied until the inflammation has been moderated by sufficient evacuation: fourthly, when a disease cannot be removed by regulating the quantity of stimulus to be directly applied to the affected part, we endeavour, by applications to other sympathizing organs or surfaces, to withdraw from, or add to, the quantity of sensorial power in the disordered part. Guided

by this intention, we often have recourse to blisters.

From this view of their action, blisters to the head do not seem applicable, more particularly in the beginning of an attack of apoplexy. I imagine I have seen flushing of the face, and marks of excited circulation within the head, arising from the application of blisters to the head in febrile diseases. I imagine we cannot stimulate the vessels of the scalp without also stimulating those of the membranes of the brain to more vigorous action: the sympathy of the former with the latter, is a constant theme both with the physician and surgeon.

I never distinctly saw a patient in apoplexy relieved by blistering; and I have repeatedly ordered blisters which took effect soon after the second or third bleeding. Hoffman, in his valuable chapter on blisters and issues, has protested against the use of the former in "apoplexia sanguinea quæ pulsu intenso et respiratione auctiore stipatur." To the following general rule, which we also owe to the sagacity of Hoffman, I do not recollect an exception: "Setacea

et vesicatoria non facile applicanda in plethoricis nisi soluta prius plethora."

Were I to order a blister in apoplexy, I should recommend it to be applied to the nape of the neck: this application is often of signal service in relieving the headach, which attends febrile diseases. Blistering the scalp prevents the use of cold applications, such as sponging the head with cold water and vinegar, or with a solution of muriate of ammonia, or with iced water;—applications of a less equivocal kind than blisters. The management of the patient is very simple. He ought to be laid in a large airy apartment, on a firm mattress, and with a foot-board, to prevent his slipping down in bed. His head ought to be shaved, and exposed, without covering, to a current of cool air: and, in order to restore the balance of the circulation, the heat of the extremities ought to be supported, if necessary, by warm fomentations, or bottles or bladders with warm water. After the evacuations, blisters may be applied to the wrists or ankles.

Observations on the best means of avoiding apoplexy, in particular, of correcting the disorder of distant organs, of defending the patient

from what has been called the hemorrhagic effort, and of securing him against a renewal of the attack, as well as of restoring the strength after the fit is over, rather fall under the head of palsy, which is a subject I am not yet prepared for.

SECTION IV.

CASES AND DISSECTIONS.

CASE I.

A FARMER, in the neighbourhood of Edinburgh, accustomed to drink freely, was invited to the funeral of a friend. According to custom, he took a dram before he went out; and, at the house of his deceased friend, as is usual with persons of his class upon such an occasion, he took another; and, lastly, he had some of his acquaintances at dinner, with whom he continued carousing till a late hour. Next morning, just after having been at stool, he was affected in a strange manner. He thought he heard five hundred people talking at once: the sensation was so lively, that he looked round to see if there were any persons near him: in his own way, he compared what he heard to the confusion of tongues at Babel.

Portending the utmost danger from this sensation, he hurried across the farm-yard, and desired the surgeon who attended his family to be sent for without delay, and soon afterwards he became insensible. When the surgeon came, he blooded him freely, and sent to Edinburgh for Dr. ———. When that gentleman arrived, the patient was a little relieved, but still he laboured under considerable stupor; he was again let blood, and a third time next morning; and in a day or two he felt himself once more in good health.

CASE II.

Sunday, 28th October, 1807, I was requested to visit J. W. 67 years of age, a farmer, of an athletic form and sanguine temperament, who, for some years, had been subject to nephritic complaints, and frequent attacks of dyspnœa, with swelled ankles. This man had been frequently blooded in his youth, and, for many years, every spring: of late years he has been temperate; but, in the beginning of the month, having been invited to dine with some of his

superiors, to settle parochial business, he thought himself obliged to drink freely of port wine: for some days after, his skin was much heated and dry, and he felt unusual languor and weakness. On the 12*th of October*, as he was stooping to assist his servants in removing onions from one side of a loft to the other, he suddenly lost feeling and recollection, and would have fallen if he had not been supported. On *Wednesday last* he had one or two attacks of the same kind; on *Thursday* one; on *Friday* three, during a short walk; and on *Saturday* he was once or twice ill. Stooping invariably brought on this affection to a certain extent. To-day, in a crowded church, he was once or twice seized, while, as an elder, he was assisting at the sacrament table: and returning to church in the evening, he was so ill that it was necessary to carry him home; and with great difficulty he reached his own house, cold and shivering. I found him collected, but fearing the approach of palsy. His pulse was full, and he said he was quite well when the giddiness left him. While I was conversing with him a slight fit came on: he lost his recollection: he endeavoured to continue the conversation, but he merely re-

peated, indistinctly and faintly, the sentence which he had just finished; and, at last, he continued muttering one of the words of it almost inarticulately: he was unable to support himself in his chair. While in this state his pulse was 60, and full. His sight, upon the approach of the giddiness, became dim; and, to use his own words, he "became stupid." Sixteen ounces of blood were immediately taken from his arm, without affecting the frequency of his pulse. He became sick during the application of the compress to the orifice of the vein. While I remained with him he had no more of the giddiness, nor did it return all night. *October* 29*th*, upon rising, he had a return of giddiness and insensibility, which lasted for several minutes. I saw him about an hour after, and found his pulse 60, and full; and, as the blood was sizy, I ordered another blood-letting to the same extent. On the 30*th* his pulse was 48; on the 31*st*, 48; on the 1*st*, 42. He had no attack after the 29*th April*, 1808. This man is in better health than he has been for some years. His constitution rallied after his illness, the swelling of his legs subsided, and they have continued fine ever since.

CASE III.

A stout young woman, 27 years of age, of a sanguine temperament, and supposed six months gone with child, who had been about eight days ailing with œdematous swellings of her legs, awoke in the night of the 31st October, 1807, about midnight, with a pain striking from the scrobiculus cordis to the back, and complaining of severe headach. She soon became exceedingly restless, tossed about all the rest of the night, and, at six in the morning, she was seized with convulsions. In the course of the forenoon the convulsions returned several times, and, at last, left her apoplectic. About two o'clock twenty ounces of blood were taken from her arm. At four her pulse was 100, and firm; she was insensible, and breathed with stertor. I saw her again at six, shortly after a return of the convulsions: in general she remained in the fit about two or three minutes. A gentleman, who practises midwifery, examined the os uteri, and found it dilated so as nearly to admit the finger. A pound of blood was drawn from the temporal artery. The pulse, which during the fit was 132, fell to 100.

About half an hour after the blood-letting, she was observed to raise her hand to rub the wound in her temple. A blister was applied to her head, and saline glysters were given. Next day I found that she had gradually recovered the use of her senses, but that she had lost the command of her right arm and leg. Her legs still pitted under the finger, but not so deeply. I saw her again in five or six days, and found that she had, in a great measure, recovered the power of motion, and entirely the feeling of her leg and arm. I also found the œdematous swelling completely reduced.

CASE IV.

July 28th, 1807, Janet Allen, æt. 32, of a slender form, and spare habit of body, married, the mother of two children, and now in the ninth month of her third pregnancy. Excepting that she has been subject to headachs and stomach complaints, it does not appear that any thing remarkable occurred till yesterday, when she was suddenly seized with an unusually acute pain, darting through her head, attended

with giddiness and disposition to syncope, while employed at her washing-tub. The pain, however, was as momentary as sudden, and, after resting a few minutes, she persevered, and finished her washing; she felt, however, languid and unusually fatigued, and complained of chilness and shivering on going to bed. Next morning, when her husband, a labouring man, rose, he was surprised to find her, contrary to her habit, still in a profound sleep, and breathing high. He succeeded in awakening her; she opened one eye, groaned, but could not speak. He raised her head from the pillow, on which she became sick, and vomited. I was now desired to see her: she preserved the power of voluntary motion of the left side, but the right was completely paralytic. She seemed perfectly conscious when raised, attempted to speak, but could not articulate: she signified, by pointing with her left hand, that she desired to drink, and she swallowed with tolerable freedom. Her face was much distorted and flushed. The pulse 110, full, and somewhat hard. I understood, from her sister, that her reckoning was complete; but on examination, per vaginam, I ascertained that there had been as yet no com-

mencement of labour. I ordered her to be blooded to the amount of twenty ounces. Immediately after the operation a cathartic glyster was administered: she took also a bolus of jalap and calomel. In the afternoon, the pulse being still full and bounding, I ordered another blood-letting to the amount of sixteen ounces.—*Evening report.* No remarkable change in the symptoms since my first visit. The right side is frequently motionless: she moves the left hand, and, now and then, is observed to draw up the leg of the same side. She doses much, but is easily roused, and takes what is offered her. The pulse is softer, and the face less flushed. A great quantity of saliva collects in her mouth. The blood is sizy. She has had three stools, and voided urine once. On examining the os uteri, I find it soft, more relaxed than in the morning, and dilated so as to receive the point of my finger. Rep. V. S. ad ℥xii.—*July 29th.* Nothing remarkable has been observed by the attendants during the night. She has slumbered much; but, from time to time, has been roused to take a little gruel, prescribed for aliment and drink. She still tosses her left arm. She swallows with less

ease. Pulse 120, full, and soft. She has voided urine twice, and passed one stool. She has given no indication of pain or suffering. On examining, however, I was surprised to find labour nearly perfected, the waters being discharged, and the head pressed hard against the perinæum. In a few minutes more she was delivered of a living child. The placenta was naturally thrown off, the uterus contracted vigorously, and no flooding ensued; yet the patient was all this while nearly approaching to perfect apoplexy. The tossing of her left arm was the only remaining sign of any voluntary power. After delivery, the pulse was as good as before; nor could I observe any other change in the symptoms. As day advanced she became more and more soporose, and the motion of the left arm was observed to cease. At my last visit this evening she lay motionless on her back, like one in a profound sleep, from which no effort could rouse her; the respiration was deep and stertorous; the pulse 130, by no means small or weak, but soft, full, and somewhat indulating. The lochial discharge was natural, neither abundant nor scanty.—*July 30th.* She died at six o'clock this morning.

Dissection.—Thirty hours after death I obtained leave to inspect the body. The contents of the thorax and abdomen were in a natural state. The uterus exhibited only the appearances common after recent natural delivery. The sinuses and external surface of the brain showed nothing uncommon in their appearance. But, on dissection of the cerebrum, I found a coagulum of blood in the left lateral ventricle; and, in withdrawing it, the plexus of vessels at the bottom of the ventricle was torn, nor could I ascertain with accuracy the breach from which the blood had been discharged. The coagulum weighed one ounce and three drachms. There was no effusion of blood or serum at the basis of the brain.

(Signed) G. KELLIE, M. D.

CASE V.

On the 25th December, 1806, a corpulent and robust man, the master of a Berwick smack, in going aboard his vessel, fell into the harbour. He was under water nearly a minute, and with some difficulty he got on board; but he was

apparently so little injured, that he first changed his clothes in his cabin, and then walked home. I was sent for by him at one o'clock, shortly after the accident happened, and found him chilly, but not complaining, unless slightly of his left shoulder; his pulse was not affected; he was rather faint: he appeared so little injured, that nothing seemed necessary, but to order him to bed, the sooner to restore the heat, and to give him some warm wine and water. I was again sent for at three o'clock. He was lying upon his right side, his head, from choice, low, and he was breathing rather hurriedly, and had a constant short cough; his extremities were cold; his pulse, at the wrist, was distinct; his countenance was of a leaden paleness; his lips were livid. He complained of considerable uneasiness in his chest, immediately under the left nipple, and of the pain of his shoulder. An attempt had been made, before I arrived, to draw blood both from the right and left arm; but he told us, that surgeons on various occasions had in vain attempted to draw blood from him. I perceived that he was not without a degree of stupor; and, as his breathing was becoming more hurried, I had the temporal

artery opened, and the blood jetted from it darker than I ever saw venous blood. When about two cupfuls of blood were procured, he complained of the inconvenience of the blood trickling into his eyes. I assisted him in turning to his left side, and his breathing became irregular, and stertorous; colourless froth was forced from his mouth, and the blood ceased to flow from the temporal artery. The froth worked up after his breathing stopt, and he died, as I was attempting to raise his head, without a groan or a convulsion.

CASE VI.

August 26th, 1804, Mr. A——n, æt. 65. I was called to visit this gentleman, in lodgings, at Bath-street, where he was residing for the convenience of sea bathing, which he had been advised to use for some weeks. He had dined in Edinburgh, and had afterwards walked home. On his arrival, his daughter observed only that he was exceedingly flushed and warm, and that he was perspiring very copiously about the head and face. While she was preparing some

drink for him he fell from his chair insensible. On my arrival he was laid in bed, his head and shoulders supported by his wife, and my father in the act of blooding him. The state of apoplexy was complete, and unequivocal: the respiration was deep and sonorous, and the pulse was slow and full. His face was flushed, or rather livid, for he was a big and corpulent man, with a thick short neck, and the superadded signs of a *bon vivant*. The blood flowed freely from a large orifice; and, as the fourth cup was nearly filled, our patient became sick, and vomited very freely the half digested remains of a plentiful dinner. Instantly after this our patient opened his eyes and turned round his head; and, after two hours, he seemed nearly completely recovered. His wife and daughter were much less surprised than we were, for this was the gentleman's third attack of apoplexy; and the former fits had also terminated by vomiting. After the first attack, the right arm continued paralytic for twelve weeks, but gradually recovered, after a course of sea water bathing.

(Signed) GEO. KELLIE, M. D.

CASE VII.

12*th April*, 1807, W. A——, a non-commissioned officer of the royal artillery, 35 years of age, with black hair, very dark eyes, and florid complexion. For years this man had been subject to headach; the pain chiefly in the forehead. Of late, the headach had been exceedingly troublesome; and, for the last two months, he has been frequently disturbed in the night with incubus, and with great uneasiness, and starting in his sleep: he was often sick at stomach. The day before yesterday he was orderly non-commissioned officer, and came home in the evening, complaining of great thirst and fatigue, and eagerly took a large draught of porter, and went to bed. His wife awoke between two and three o'clock, in consequence of some sounds he was uttering; what kind she could not distinctly describe; but, when she procured a lamp, she found that he was dead. She thought this attack similar to those he had often, of late, sustained in the night.

Dissection.—In dividing the scalp there was a great flow of dark blood; and, during the

dissection, blood flowed from the divided veins to the quantity of two pounds. There was nothing remarkable in the appearance of the dura mater; but, when it was raised, we were presented with striking marks of inflammation on the pia mater. This membrane was marbled all over with deep red and purple patches of inflamed vessels, and streaks of extravasated blood. These patches prevailed equally on the base of the brain and over both hemispheres. There was a serous effusion between the tunica arachnoides and pia mater, filling the interstices between the convolutions of the brain. The substance of the brain was of a natural degree of firmness. On cutting into it, the medullary portion appeared colourless, and the spots of venous and arterial blood were of not more than a moderate number. On opening the ventricle it appeared a little enlarged, and was full of a clear serous fluid; both ventricles were alike; the hole of communication was enlarged; the veins on the sides of the ventricles, plexus choroides, and velum interpositum, were turgid; the red blood vessels also were in great number on the velum interpositum; the plexus choroides was loaded with blood. The pineal

gland was remarkably soft; and, when slightly pressed with the knife, it separated, just as if it had been putrid. The other ventricles contained a portion of fluid. On the base of the brain, particularly about the pons Varolii, and on the cerebellum, the appearances of inflamed vessels, and a vermilion coloured effusion, prevailed. The quantity of fluid in the ventricles was computed to be three ounces. We were not allowed to examine the heart, nor viscera of the abdomen.

CASE VIII.

On the 27th March, 1806, I was called to a watchmaker, 50 years of age, of a phlegmatic temperament, flabby make, and devoted to spirituous potations, who had, fifteen months before, sustained a paralytic attack, which had slightly affected his speech and impaired his memory: this man had also been much troubled with nephritic complaints. While walking homewards from a gin shop, he was seized with a palsy of the right side: it was so complete, that he was soon unable to walk. I found

him much agitated, but aware of his situation: he could not articulate distinctly, but several times he burst into tears; his signs and looks were highly significant of despair, and he uttered some short words with great eagerness of gesture. He was immediately blooded to the amount of twenty ounces: the blood was buffy, and the surface of the clot contracted. The blood-letting did not affect his pulse. About seven o'clock, two hours after he was blooded, he became extremely restless, tossing about his arm, and flinging out his leg with great impatience: he was quite insensible. His pupils were much contracted, his breathing stertorous, his pulse 64, and he was unable to swallow. His left arm he threw out with such violence, that it was impossible to have him blooded. He was immediately cupped and scarified, Saline glysters, of the most stimulating kind, were injected. His head was shaved, and a blister applied to the scalp. In the *morning of the 28th* his pulse was 88, strong and irregular; his breathing irregular and stertorous; he was profoundly comatose, and his pupil was dilated. He was again largely blooded about nine o'clock. He died at eleven.

Dissection.—*March 29th.* In dividing the scalp, the blood flowed, in great quantity, from the occipital and frontal veins. The skull cap being raised from the dura mater, the longitudinal sinus was found full of partly coagulated blood. Having exposed the pia mater, the veins of it appeared very turgid. The substance of the brain was more than naturally firm; the cineritious substance was almost colourless. Spots of venous blood were seen all over the cut surfaces of the brain. On opening the right lateral ventricle, a great quantity of blood flowed out. On further laying open the ventricle, which had been much distended with blood, we discovered, adhering to the inner and fore part of the ventricle, a large coagulum of blood, in the form of an irregular tumour, apparently of the size of a pullet's egg; but, upon drawing it out, I found it much larger than I expected. This was explained by finding a hole of communication with the left lateral ventricle, so that part of the coagulum was drawn from this ventricle. The opening admitted my thumb freely. It had been made through the septum lucidum, under the fore part of the corpus callosum. Its place, and the

circumstances of its first appearance, with the confusion of parts, were likely to make it pass for an enlargement of the foramen of communication between the ventricles under the fornix, but the point was cleared in the progress of the dissection. We found blood in every part of the right ventricle. The inferior horn had suffered least distension. Having proceeded to the left ventricle, we found it not only distended, but its roof burst, and the blood in contact with the ragged surface of the brain: the surface of this ventricle was irregular and broken; the fore part, much enlarged, was filled with coagulated blood; and, on examining the coagulum, it appeared rooted in the substance of the corpus striatum. The foramen commune, under the fornix, was of a natural appearance towards the right ventricle. The plexus choroides, where it turns down into the interior horn in each ventricle, had upon it vesicles, to the number of six or eight, of different sizes, the largest as big as a pea. The third ventricle was full of blood. The tentorium having been slit up, the veins on the cerebellum appeared full, but not turgid; the fourth ventricle was also full of blood. The extravasation appeared

to have been made into the left ventricle; from this it had forced its way through the septum lucidum into the right ventricle; into the third through the communication under the fornix; and from the third into the fourth ventricle.

CASE IX.

A carpenter, 35 years of age, phlegmatic, pale, muscular, not habitually intemperate, and of a costive habit of body, died on the night of the 1*st of June*, 1808. In *November*, 1807, after he had been engaged for a whole day at work to which he was not accustomed, I believe stooping to cut sod, he complained of a severe headach; and this complaint frequently returned; and when he took one or two glasses of ardent spirits the headach never failed him. On the *25th of May*, after drinking rather freely, he came home in the afternoon, sick, and complaining that the headach was unusually severe; and he was never after, for a whole day, without headach: he had also constant thirst. On *Tuesday*, 31*st*, upon going to bed, he had an attack of breathlessness, with a short

cough, which continued till he fell asleep. On the 1*st of June* he worked all day at fatiguing work, and ate a hearty dinner. About the same hour in the evening, there was a return of the breathlessness, and he complained that the headach was becoming intolerable: he appeared to be very sick, and vomited his supper; and he soon after became insensible. About an hour and a half after the attack, his breathing was extremely irregular and laborious: inspiration would cease for nearly a quarter of a minute, and then go on with tolerable regularity for a little; his pulse was slow and irregular; sometimes intermitting. He was quite insensible. A pound and a half of blood, taken from the arm, was the only measure tried for his relief; but his eye was already opake, and his visage pale. He died about midnight, two hours and a half after his breathing became affected.

Dissection. — *June 3d.* In cutting the scalp, and laying it back from the bone, a great quantity of dark blood flowed from the veins, and continued flowing during the dissection; at the termination of which we found about a pound of blood in the basin which we had

placed under the head. The veins of the dura mater were very turgid; the small branches of its arteries numerous and distinct. On raising the membrane the veins of the pia mater appeared likewise turgid, and the minute branches of the arteries were visible in great number. There was a slight effusion of colourless fluid between the tunica arachnoides and pia mater. The substance of the brain was firm: in cutting it, the marks of divided vessels were numerous. On opening the lateral ventricle of one side, it was observed to be dilated, and full of clear limpid fluid: it was dilated equally in all its parts. The opposite ventricle was exactly in the same condition—they contained nearly an ounce and a half of fluid. There were many turgid small veins on the sides of the ventricles. The plexus choroides was pale, or the red tint was scarcely perceptible; and in one ventricle a cluster of small vesicles, containing a clear fluid, was attached to it. The veins in the velum were full. There was an unusual appearance of the pineal gland: on the fore part of it, between the roots of the pedunculi, there was a collection of extremely minute transparent vesicles, of a light clear yellow colour, about five

or six in number; not one above another, but all in the same plane. The third ventricle was not dilated. In dissecting the base of the brain, there was discovered, formed by a rupture in the substance of the pons Varolii, a collection of dark clotted blood, in an irregular cavity, having a ragged surface, and communicating with the fourth ventricle, which was full of blood. One part of this collection of blood was within a line of the external surface of the tuber annulare. In this place there were lodged two ounces of blood.

CASE X.

On the 11*th June*, 1808, I was called to see a corpulent woman, fifty years of age, of a sanguine temperament, florid complexion, and a spirit drinker, who had fallen down in a fit a few minutes before, as she was going along a passage in her house, and just after she had been stooping. I found her in bed, flushed and retching; she was so much confused, that she was unable to give any account of her feelings; her pulse was irregular, and not more than 60;

her respiration laborious. Her eyes were inflamed, and, along with her other features, distorted. She held her left hand to her head, and seemed to be in the greatest distress: the power of moving her right arm and leg appeared to be lost. Two pounds of blood were drawn from the veins of the arms, within a few minutes of the time she was seized with the fit. While the blood was flowing she had a return of the fit, during which her visage was much distorted. After the second fit she appeared to labour under a complete paraplegia. In about half an hour I returned, only to see her die. Her breathing was stertorous and slow; not more than five or six acts of respiration in the minute. In this way she lay for two or three minutes: her visage was pale, and her jaw fallen: her pulse, not more than a minute or two before she died, was 52, and distinct. She did not live more than an hour and a half after the first seizure.

Dissection.—*June 12th.* On the dura mater there were evidently the remains of increased vascular action. The pia mater also had been much inflamed, and the veins were still turgid.

There was considerable serous effusion between the pia mater and tunica arachnoides. The effusion in many places had a deep purple tinge, from the admixture of blood. The surface of the base of the brain also appeared to have been highly inflamed. The colour of almost the whole of the under surface of the brain was vermillion. On puncturing the lateral ventricle of one side, a clear fluid sprung out. The ventricle in every part was much dilated. The other ventricle was equally so, and they contained about three ounces of fluid. The hole of communication was so wide as easily to admit the point of the little finger. The plexus choroides was nearly colourless. The veins in the ventricles were full. On cutting through the substance of the brain on the right side of the right lateral ventricle, there was discovered, in the middle of the corpus striatum, a little mass of clotted blood in an irregular cell, not more than would have filled a teaspoon: and what is remarkable, there was a similar collection of blood precisely in the same situation in the other hemisphere. The third ventricle was very much dilated, and full of blood, mixed with serum. On turning up the base of the brain we

found the fourth ventricle full of blood, and a small laceration in the surface of the pons Varolii, through which the blood appeared as in the last dissection; and wishing to ascertain from what vessels the blood was effused, and being disturbed by some impertinent people who wished to force their way into the apartment, I had the brain removed to my own house, that it might be more leisurely examined. The fourth ventricle was full of blood, and very much dilated. On its inferior surface were irregular pits, containing coagula of blood, communicating with the large mass in the ventricle. Upon blowing into the basilar artery, (which was the largest we had ever seen,) bubbles of air rose in two places through the coagula; and by washing away the substance of the brain with a camel's hair pencil, we discovered three minute vessels entering the substance of these coagula. They arose from two distinct branches of the basilary artery. These again arising within a fifth of an inch of each other, near the middle of the pons Varolii, were of about twice the diameter of a hog's bristle. The course of the vessels to the coagula was this: the anterior proceeded from its origin forward nearly half

an inch, and then divided into two branches, one of which almost immediately dipped into the pons Varolii, was scarcely larger than a human hair; and proceeding for two thirds of an inch, it ended in a clot of blood. The other division of this vessel, a little larger than the last, ended in a clot much nearer the external surface of the pons: it was situated behind the last. The posterior vessel arose from a different branch of the basilar artery, was rather larger where it left the trunk than the anterior, entered the clot in the same plane and depth with it, and was removed from it about a quarter of an inch. We next examined that part of the brain where the clot of blood was first discovered, namely, in the corpus striatum: there was found running towards it a vessel about 1-30th part of an inch in diameter, with several branches: none could be distinctly traced into the clot; but, with a magnifier, I thought I could discover an open mouth of a vessel having a small clot in it. I omitted to mention, that before the brain was detached, there were about five or six ounces of blood collected in the cavity of the bone, and about as much more in the basin which stood under the head.

CASE XI.

Wednesday, August 10th, 1808. The subject of the following case was a naval officer, 33 years of age, of the middle height, rather corpulent and sallow, who had suffered from ague more than once in his youth, and again last September, when it was of a *quartan* type, and severe. He had quite an aguish constitution, and, during the prevalence of the east wind, he was usually threatened with ague. The last regular fit he had was in June; but, on *Saturday, August 6th,* he felt as if he were to have a return. He had been much on service, and had his leg carried away by the same shot by which Captain Duff was killed, in Lord Nelson's great battle. He lived as sailors generally do; in the course of every day he took two or three tumblers of grog. On *Saturday* some naval officers dined with him, and they sat long over their wine; and, when he was attending his guests out of the parlour, a fold of the carpet tript him, and he fell, and hurt his groin on the socket part of his wooden leg; yet on *Sunday* and *Monday* he was in good spirits, and apparently in his usual health: perhaps he did not

find himself quite well, for on *Tuesday* morning early he took a dose of some quack or patent pill, (Barclay's, I think, it is called); he slept well that night, and made no complaint when first he rose; but, at breakfast, he became sick, and vomited bile; he went directly into his bed-room, and complained of intense headach: he said "He believed one half of his head was separating from the other.—He was dying," he said: "he felt a conviction that he could not long survive such sensations as his were." He rubbed his hands, which had become numb; he undressed and went to bed, complaining of dreadful headach, and still rubbing his hands: soon after he became incoherent, but, at noon, he would still point to his head. At one time he had a shivering fit, which shook both the bed and room in which he lay. At four o'clock I first saw him, and immediately had five large cupfuls of blood taken from his arm; a glyster with sea salt was injected; his head, which I found sunk, was properly raised; the scalp was shaved and sponged with cold water and vinegar, and a current of air admitted into his chamber. At six o'clock I found him totally insensible, sometimes moaning; his respiration

60, his pulse 160, irregular and unequal, and sunk in strength. He was wet with sweat; his pupils were contracted to a point, and in no way affected by different degrees of light: his complexion, which was high, I cannot accurately describe, as the apartment in which he lay had only a borrowed light, and was nearly dark: while I stood at his bed-side he vomited a fluid like coffee grounds: he swallowed none after ten o'clock in the forenoon. The blood drawn was not sizy, the serum was unusually yellow. Leeches were applied to his temples, and glysters were again administered. At nine his inspirations were 48, and rendered difficult by a quantity of mucus in the windpipe. His pulse was 180. He died at midnight. Before death his complexion was livid, but he had no convulsions.

Dissection.—There was no accumulation of blood in the superficial veins. Under the dura mater there was a quantity of coagulated blood spread thinly over the right hemisphere. After raising the fulx, there appeared a very large quantity of coagulated blood between the two hemispheres, separating them from each other

beyond their natural distance, and reaching from the crista galli several inches backwards. On clearing part of it away, there was exposed an extensive irregular cavity, reaching almost to the base of the brain, in which nothing but coagulated blood was to be seen. Both ventricles were full of coagulated blood, and ruptured so that the blood in them communicated with that between the hemispheres. There was not a vestige of the corpus callosum: it seemed to have been destroyed by the force of the blood; as at the place where it is situated, the blood was mixed with portions of the brain. The fornix was scarcely to be recognized. Above the left ventricle, there was an extensive lodgement of blood in the substance of the brain, communicating with that between the hemispheres, and also, by another opening, with that in the ventricle. The anterior arteries of the brain, and the cellular substance surrounding them, were completely involved in coagulated blood, and small branches of these vessels were traced into the coagulum at different points. There were distinct and separate clots of blood found in different parts of the brain, in both hemispheres, and particularly in the left anterior

lobe, and in the corpus striatum of the right side. All about its base, the substance of the brain was entire. There was in the posterior and inferior parts of the lateral ventricles, in the third ventricle, and in the fourth, a considerable quantity of the fluid, deeply coloured with blood. The pia mater over a great part of the brain was suffused, as if a brush, dipt in blood, had been drawn over it. There were some appearances of increased vascularity in the internal surface of the dura mater; and of a stronger stamp in the pia mater of the cerebellum. There was nothing remarkable in the external appearance of the membranous viscera of the abdomen. The liver was marbled with spots of yellow, and after having been steeped a day in water, was universally of a deep yellow colour. The structure was altered, as, in handling it, it broke short, when but little force was used. The biliary vessels were full of a dark ropy bile. The stomach was of a natural size and shape, but inflated; it appeared to be universally thick and fleshy, the veins between its coats turgid and large. The inner surface presented itself remarkably inflamed, and in a curious form. The surface was stud-

ded with innumerable little stars, uniformly of a rich lake colour, which, by the magnifying glass, seemed to be the terminations of blood vessels in minute branches, with a slight extravasation of blood on every side of them: this form they preserved universally. At one part, near the pylorus, the colour was of a deeper shade, approaching to purple. About two thirds of the stomach were affected in this way; the part least affected was the upper end of the great curvature. We found part of the duodenum, which we had removed from the body along with the stomach, also inflamed in the same manner. The stomach contained a small quantity of a homogeneous fluid, of the consistence of mucus, and the colour of fuller's earth. The rest of the viscera appeared sound.

CASE XII.

The person whose case I am about to relate, was a man of considerable literary attainments, well known to many of the gentlemen who graduated in Edinburgh for twenty years before his death, his employment having been to assist

in preparing for examination, the candidates for medical degrees. He was a man of inoffensive manners, rather below the middle size, of a stout make, with a short neck, and of a pale, or rather sallow complexion, and temperate in his habits; and he seldom took any exercise but that of walking with great composure. In 1794, when my acquaintance with him began, he was twelve hours a day engaged. Shortly before his death he had been much employed in teaching. He was subject to headach, and had long apprehended an apoplexy; but, on the day before his death, (the 28th April, 1806,) he appeared unusually cheerful. I owe the following narrative to an ingenious friend. "At seven o'clock Mr. C. entered the hall of the Physical Society in perfect health and spirits. Soon after, he rose to speak, but in the course of a few minutes sat down, having apparently finished what he had intended to say. Upon sitting down he complained of headach and sickness, and soon retired to an ante-room. I happened to be engaged with a book at the time he was seized and during his removal, but he immediately after requested to see me. I found him reclining on a sofa; he had vomited

what he had taken at dinner; his face was pale, there was a cold sweat on his forehead, and he complained of sickness and general languor. His pulse was feeble and rather oppressed. He told me, that soon after having begun to speak, he felt a slight headach, which rapidly increased to such severity as to give the idea that the sutures of the skull were about to be forced asunder, that then the sickness supervened, and the headach entirely left him; but dreading some serious illness, he had abruptly terminated his speech. His faculties were entire, but he appeared much alarmed at his situation, and expressed his apprehension that there was something apoplectic in his case. I recommended immediate blood-letting. To this, however, he did not seem willing to assent; and he was strengthened in his refusal by its being suggested to him, that the whole uneasiness was probably occasioned by a nervous headach, which almost always affected the stomach, and he was advised to drink some tepid water to promote vomiting. He did so, but the sickness was not relieved by it. The headach, however, did not return. Having remained in this state for nearly half an hour, it was proposed

that he should be removed to his own house. He declined being carried in a sedan-chair, as he said the motion was disagreeable to him, and he walked home supported by two of his friends. Upon my taking leave of him, I urged the necessity of his going to bed, and if he felt the slightest return of headach, or of any confusion in his head, of being freely blooded, notwithstanding the sickness of his stomach and the weakness of his pulse. From the gentleman who attended him I learnt the following particulars: On the way home he complained of cold, and had several fits of chilness, upon which he said he now knew what was the matter, "*he was seriously in for a fever.*" He was put to bed, and his friends left him, desiring him to be quiet and take some diluent drink. Experiencing, however, no relief, Mrs. C., about half past eight, sent for Mr. ———, who was in the habit of attending the family. He was from home, and did not see the patient until about an hour after. At that time Mr. C. complained of severe headach and sickness. His pulse was feeble, and a slight degree of coma had come on. The case becoming urgent, Dr. ——— was called in. By this time the

coma had increased, and it was agreed that the patient should be cupped at the temples. This was accordingly done, and a considerable quantity of blood taken away. The pulse rose after the bleeding, but the stupor continued, and it soon settled into complete insensibility, which remained until his death, which took place at seven o'clock in the morning." There was no written account of the dissection, so that I am unable to present it in a circumstantial form: however, by applying to Mr. Fyffe, who examined the body after death, I found " that there was no laceration in the substance of the brain, the blood was altogether on its surface. The surface of the brain appeared deluged with blood, which had insinuated itself between all its convolutions, and seemed to have issued from a variety of sources."

CASE XIII.

March, 1804, Evan Olsen, a Norwegian sailor, 30 years of age, fell into the sea, as he was crossing a plank with a mess to the ship's company, of which he was one: his body was

found on the beach after the ebbing of the tide. His face was purple, from the extravasation of blood in the skin. His mouth was firmly shut, and there was a quantity of bloody froth between the lips. The jugular vein was prominent, and the fore part of the neck suffused with extravasated blood. On dividing the scalp, a great quantity of blood flowed from its veins; and, on folding it back, the blood flowed in a stream, from the mouths of the torn veins passing through the skull to the great sinus, and continued flowing until the skull cap was raised. The longitudinal sinus, and all the veins on the surface of the brain, were gorged with blood. Over the whole of the surface of the brain, the minute arteries, in great number, were filled with red blood, as if they had been injected. There was a slight effusion in the ventricles; about half an ounce of clear serum. The plexus choroides was highly coloured with arterial blood; the velum interpositum was also of a very florid colour. The veins on the sides of the ventricles were turgid. In short, all the vessels of the brain, both externally and internally, were distended, as if with a successful injection. During the whole of the dissection

the blood continued to drain through the longitudinal sinus. The chest was opened, and the lungs were found collapsed, with no appearance of fluid in the bronchial tubes. The heart was flaccid, and rather empty. There was no fluid in the stomach.

CASE XIV.

September 4th, 1810, a distiller's servant, 18 years of age, who had drank a large quantity of new whiskey at night, was discovered about eight o'clock next morning, in a hay loft, and was carried to Jervis Street Hospital, Dublin. Mr. Philip Crampton found him insensible, his face pale and squalid, his lips blue, his extremities cold, with a hurried respiration, attended with a noise between stertor and moaning: his death happened at half past ten a. m. The dissection, which Mr. Crampton kindly allowed me to attend, took place at one o'clock, and he afterwards favoured me with the following abstract of it: The brain and membranes were natural, unless that the brain seemed unusually firm. On opening the lateral ventricles, there were

found about two drachms of serous fluid, which seemed to come up from the third and fourth ventricle. For, when the brain was compressed, the lateral ventricles were filled to overflowing, and when the pressure was removed, they again became nearly empty. The quantity of fluid contained in the ventricles, amounted, on the whole, to about three ounces. The stomach contained about a quart of a blackish brown fluid, mixed with a good deal of mucus; the fluid had a spirituous smell. The internal coat was dotted with small red points, apparently depending upon increased vascularity rather than ecchymosis. The right lobe of the liver was much enlarged, and of a deep purple colour, loaded with black blood, which flowed from it profusely, even when only superficially wounded. The middle lobe was pale, hard, and its peritoneal coat was much thickened. The left lobe and the spleen were natural; perhaps the spleen was a little loaded.

CASE XV.

Thomas Clarke's child, a boy about two or three years of age. On visiting this child (*Oct. 5th*, 1807) I found him torpid and drowsy, his face flushed and tumid, his body hot, but the feet cold, and the pulse frequent. I was told, that, on the preceding evening, he had inadvertently been given, by a careless neighbour, a quantity of whiskey, estimated from a glass to half a gill; and that he had been brought home in a state of torpor, and had vomited almost incessantly during the night; and even now whatever he swallows is almost instantly ejected by vomiting: he retched also when raised from bed—the belly was not swoln, nor did he express pain when the abdomen was pressed. An emetic was prescribed; and in the evening, after the exhibition of a glyster, a blister was applied over the epigastrium.—*Oct. 6th.* The drowsiness, vomiting, and moaning, continued; the bowels costive, skin hot, pulse very frequent, but softer; the eyes looked watery and suffused—leeches were applied to the temples; and four grains of calomel were ordered to be given every three hours, till the belly should be

freely opened.—*Oct. 7th.* The pulse was much reduced in frequency; several greenish, slimy stools, had been passed; the stomach was less irritable, and the inclination to vomit less frequent. He continued oppressed, moaned much, and the pupils appeared dilated.—In the evening he had a severe convulsive fit—a blister was applied to the head, and the calomel continued. —The pulse was again very frequent; the vomiting had ceased; there had been two returns of the convulsions. Leeches were again applied to the temples, and a blister to the back.—On the 9th the child died.

Dissection.—In the head, the veins of the pia mater were turgid and black; a very small quantity of serous fluid, not exceeding six or eight drachms, was effused into the lateral ventricles. Every thing in the thorax was natural. —In the abdomen, the most striking appearance was the beautiful florid vermilion colour of the liver. It seemed as if painted, or rather dyed, through its whole substance, with the brightest vermilion; the stomach and intestines appeared perfectly sound.

(Signed) G. KELLIE, M. D.

CASE XVI.

On the 18*th of May,* 1808, I was sent for at ten o'clock a. m., to see a man, 72 years of age, a dyer by trade, of very temperate habits, and of a spare form, who had been for two years in rather a declining state of health. Some years ago he is said to have had scrofulous sores. About three weeks ago, he travelled in the mail coach, in one day, from Newcastle-upon-Tyne to Glasgow, to take possession of some bequest. His wife says that he complained of headach immediately after the journey, and has repeatedly since. *Yesterday* he took a short walk, ate moderately at dinner, drank no fermented or spirituous liquor, and went to bed at his usual hour. He slept two hours calmly, but at twelve he awoke, complaining grievously of pain in his forehead, and pain of the right side of his body. He soon lost the power of articulating; and then his wife discovered that he had also lost the use of the whole of the left side of his body. During the night he gave no intimation of a desire to pass urine, which flowed from him in considerable quantity. He has swallowed nothing since the attack. He sometimes breathes

with stertor, but, in general, calmly and regularly. His right hand, in constant motion, is very often directed to his forehead, the skin of which is red, from the pressure of his hand. His eyelids are shut, as if the light were irksome; they are generally contracted; his pupils are contracted. He cannot articulate, and seems very imperfectly to understand what is said: he attempted, after having been repeatedly importuned, to show me his tongue. His pulse is 60, full, and regular. There is some moisture on his skin.—*Six o'clock, evening.* Twenty-four ounces of blood were taken from his arm immediately after I left him in the morning, and soon after a cathartic glyster was given, by which his bowels were evacuated. The blood drawn was dark, without size, not very consistent; (much like the blood of a patient in continued fever): once in the course of the afternoon he attempted to speak, but did not succeed in making himself understood; he has never opened his eyes; his face is now pale: although the light in the chamber is faint, I find his pupil exceedingly contracted. His right arm is still in constant motion, his pulse 48, and not so full.—19*th May.* Leeches were ordered last

night, but were not applied. After a second glyster he had a further discharge from his bowels. He was restless in the night, constantly moving his right side until two o'clock. Since two he has been quiet. His pulse is 76, irregular, with an intermission once in a minute. His respiration is quickened about 38. His pupils are much contracted. He is unable to expectorate the loose mucus.—*Evening*. He was again blooded in the morning, he became extremely restless as the day advanced, and died at seven o'clock.

Dissection.—In denuding the skull, not a drop of blood was effused. There was no mark of the increase of red vessels in the dura mater. On the pia mater there prevailed signs of inflammation. There was a slight effusion of clear serous fluid between the tunica arachnoides and pia mater. The minute blood-vessels were in increased number, but there was no extravasation in the form of red striæ: the veins in the pia mater were full of blood. The substance of the brain was unusually soft. In the right ventricle there was a small quantity of limpid fluid; the ventricle was of a natural

size. The other lateral ventricle was very much dilated, and full of clear serous fluid. One part of the ventricle was particularly distended, viz. the inferior horn. From the first descending part to the bottom, it was so large as to give passage to the little finger, without its touching the sides of the ventricle. The fornix adhered firmly to the velum interpositum, particularly at the anterior part, so that the fornix could not be raised from it. The quantity of fluid in the ventricle was about an ounce and a half. We were not permitted to open the thorax or abdomen.

CASE XVII.

On the 6th of December, 1808, I was requested to visit a full and plethoric woman, 57 years of age, whose habits I have not been able to ascertain; subject to nephritic complaints, and flushings of the face, with the distrustful manner of those who drink spirits privately. After complaining, for several days, of flatulence and uneasiness of the stomach, she was affected with great numbness of her left side, about half

an hour before I saw her. She staggered, rather than walked, into the parlour, and had only time to seize the arm of a sofa, when she found she had lost all command over her left leg and arm. I found her recollected, but with an unusual hurry of ideas, which she complained of as increasing. She described accurately what had happened to her before the seizure, and her feelings at the time. Her face was not distorted, nor was her tongue affected, but it was with the utmost difficulty that she was able, by moving the whole side of her body, to push her hand along her knee. Her pulse was 84—8, full and bounding. Sixteen ounces of blood were almost immediately drawn from her arm. While the blood was flowing she felt relieved; and, when it was stopt, she had nearly fainted. She says that, for this fortnight, she has had an unusual drowsiness after dinner. Pulse, while the sickness lasted, 64; half an hour after, 68, and reduced in strength. There was some size on the blood. The feeling of her arm is not much impaired. She had a cathartic, and her head was shaved, and a small blister applied to the nape of the neck in the evening. On the 7*th*, her tongue was white and dry, which it was not

when I first saw her. On the *9th*, her tongue being much loaded, her pulse 108, and strong, her countenance flushed, and her urine high coloured, and having great thirst, and a diarrhœa with tenesmus, the blood-letting was repeated to the same extent, and leeches were applied to her temples. On the 10*th* the blood-letting, to the amount of eight ounces, was repeated, and the leeches were again applied. This appeared necessary as the febrile symptoms continued, with an acute pain in the right side; which pain subsided immediately after the blooding. After this the febrile symptoms gradually abated; and, when I saw her last, about the end of March, 1809, she was in tolerably good health, walking about the room, and her paralytic hand, although sometimes œdematous, so far recovered as to be raised without difficulty. It did not appear that her intellectual faculties had sustained any injury from the paralytic stroke.

CASE XVIII.

A carter, 40 years of age, laborious, very athletic, of a temperament more inclining to phlegmatic than sanguine, and a determined dram drinker, yet one whose habits had not apparently injured the vigour of his frame, felt his right arm and leg become numb, as he sat on his cart, while driving it over a rough pavement: he also had a feeling of general uneasiness, which he could not describe. The numbness seized him about eight o'clock in the morning; he continued at work all day, and, in the course of the day, he drank several glasses of whiskey. About the time of seizure he had two loose stools. When he came home in the evening, he complained of want of power in the right side of his body, yet he ate his supper heartily and went to bed, without any other complaint. He was uneasy, and did not sleep well during the night, and in the morning he fell at his bedside, as he was attempting to rise; his articulation was affected; he was without headach or uneasiness, and the feeling of his right hand was unimpaired: he ate a very

hearty breakfast. In the afternoon his speech was more indistinct, and in the evening it was totally unintelligible.

CASE XIX.

A. B., a fair and delicate girl, with the cicatrices of scrofulous sores behind both her ears, a tumid abdomen, and enlarged liver: the margin of the liver formed a line, from the umbilicus to the back part of the spine of the ilium; for several years subject to fits, which were thought epileptic, much indulged, and of a weak understanding. This girl was my patient for two or three years, and I have repeatedly seen her affected in the following manner: Her eyes became fixed and without expression, her eyelids dropt, but not so completely as to cover the pupil, her complexion did not change; she was to every appearance insensible, and her breathing was so low that it was not to be heard. Her body lay in the position in which it was when the fit seized her. She had no warning of these attacks, which generally lasted some

minutes; her friends knew the fit was over when they heard her sigh. She died, before she reached her fifteenth year, of an attack of melæna.

CASE XX.

December, 1808. For some years I have occasionally visited a florid, but enfeebled man, now 65 years of age, with light blue eyes and sandy hair, who has long lived indolently and luxuriously, and who has long complained, that while dressing, or sitting at breakfast, or arranging his affairs, he often, ten times in an hour, falls asleep, and he nods even while conversing with a friend, or walking across his chamber. He complains that he spends many hours every day merely in putting on his clothes: indeed I have ascertained, that he begins to dress at five o'clock, and is not ready to walk out before one; eight hours being daily wasted in dressing and at breakfast. He complains not so much of drowsiness, as of the length of time consumed in every act which he has to perform. His whole time is spent in dressing and un-

dressing, and at his meals: with great difficulty he obtains half an hour for walking abroad. He is much troubled with tremors, particularly of his hands. It was necessary, in 1807, to put him under a course of mercury; but this medicine did not produce the slightest change in his lethargic complaint. His recollection of events long past is accurate; but he has so little power over his associations, that he is obliged to make memoranda of the questions he wishes me to answer, relative to the state of his health. From the medicines he has taken for these complaints he has not derived the slightest benefit.

CASE XXI.

A man of 72, muscular, healthy, not intemperate, of a sallow complexion, coarse skin, and phlegmatic temperament, who, in his youth, had worked hard at the forge, had been observed, for many months, less accurate in his recollection of past events. On the *4th or 5th of July*, 1807, he went a journey of 70 or 80 miles in an open carriage, and returned in a day or two fatigued. He had complained two or

three days before he left home, of a pain in his back, which he thought rheumatic. On the 10*th of July*, when his daughter went into his chamber, between nine and ten, she was struck with a change in his manner: he was much confused, and made no answer when asked how he did. He rose, dressed himself, went into his parlour, but could not reply to any of the anxious inquiries of his family. When I came to his assistance he was again in bed. He seemed to comprehend what was said, and to conceive what answer was proper, but he was unable to give it expression; he began a sentence, articulated one or two words distinctly, but he was unable to finish it coherently; and he never failed, by his gesture, to show how much disappointed he felt. As far as I could judge, he had sustained no loss of muscular strength. His pulse was full and irregular—about 48. In the evening, after having been let blood, his pulse was 60, and still irregular. On the 11*th* he took a purge, which operated well, and he had a blister applied. His pulse on that day was so irregular, that I could not count it: it appeared about 140, and was weak; he dosed most part of the 11*th*: on the 12*th*,

he had the same alarming pulse. He passed much of his time in sleep. When awake he was restless, betraying much impatience: once or twice he was even delirious. He had twelve leeches applied to his temples. In the evening I found him in a soft sleep, pulse 72, and regular. His urine was turbid, and did not exceed a pint in 24 hours. On the 12*th of August,* his mind was still very weak, but he had so far recovered, that he could join in conversation, sometimes without glaring impropriety: but if he attempted to read even a newspaper, in a few minutes he became confused; and in conversation he often used one word when he meant another, and discovering his mistake, without being able to rectify it, he soon became bewildered. He looked thinner and older. Mercury and digitalis had been used until a slight salivation was induced, and his urine became copious. His pulse, for several weeks, did not vary from 44 to 48. He walked abroad and appeared cheerful. On the 12*th of November* I made my last report, and I find mentioned, that he can walk, without fatigue, as far as he has done for many years. He eats as heartily, and he sleeps more, but there is no intellectual

improvement. For days together he is confused, incapable of attention, and, consequently, retaining no recollection of what has passed on these days. On other days he is more collected, and is apparently more at a loss for words than meaning. But he, who was formerly so full of the cares of the world, has ceased to inquire after his affairs. He is always duller when the weather is bad, and then also he complains more of vertigo, and pain in his forehead.

CASE XXII.

A woman of 65, who had lost her sight from repeated attacks of inflammation of the eyes, attended with headach; phlegmatic, corpulent, pale, sedentary, and temperate; of late years of a peevish temper, and much addicted to snuff taking, suddenly became confused and insensible, while sitting in a conventicle, about the latter end of *February*, 1808. When carried home, it was evident she had lost the distinctness of her recollection. In consequence, as it appeared, of this seizure, her temper underwent

a change, very agreeable to her relations: she, whom all their attentions were insufficient to conciliate, was now pleased with every thing. She became rather silly, laughing when there was but little cause, yet she paid and received visits; and although she had a very imperfect recollection of recent events, she told her old stories, and it was not apparent to her own associates, that her understanding had sustained a great shock. On the *23d of June*, at supper, she became incoherent, her friends with difficulty prevailed with her to go to bed, and soon after she was seized with convulsions: there was some bloody froth at the angle of her mouth; her face was deeply suffused; her eyes were distorted and inflamed; her right side was more convulsed than her left; her pulse was 140. She was blooded as soon as the convulsions subsided, and, again, upon a return of the convulsions, in half an hour after. Her head was shaved, and a blistering plaster applied to the scalp, and purgative glysters were injected. During the night she had a return of the convulsions every twenty minutes, and she became convulsed whenever she was moved. In the morning she was greatly flushed. The convul-

sions ceased at seven o'clock. On the *27th* and *28th* she had repeated attacks of convulsions; and, when not convulsed, she had spasms about the eyes and mouth. In the months of *August* and *September* she lay quiet, answered "yes" and "no" to any question, but generally misapplied the term: she would only swallow what was palatable, and she started at the slightest noise. It was thought by her friends that she spent most of her time in sleep. Her urine and fœces were passed involuntarily. Her pulse was from 80 to 90. She gradually lost flesh. In the end of *September* her features peaked, and her body became emaciated. In the beginning of *October* she was a perfect specimen of carus. On the *4th* her pulse was 60; on the *6th* she had febrile heat and quickened respiration; and on the *7th* she died.

Dissection.—There was no effusion of blood in removing the skull cap, nor was there any thing remarkable in the appearance of the dura mater; but under this membrane, between the pia mater and tunica arachnoides, there was a serous fluid, which concealed the brain. This fluid sunk deeply between the convolutions,

separating one side from another over the whole brain; at many places, the gap at the surface was more than a quarter of an inch, and the depth was frequently more than an inch: this space was filled with the watery deposite, which, in the back part of the brain, was bloody. The veins of the pia mater were moderately distended with blood; the minute arteries were very numerous and distinct over the whole of that membrane. The substance of the brain was soft and watery, and rather free from bloody points. The ventricles of both sides were enlarged, and distended with a serous fluid, clear and colourless as water. It appeared that all the parts of the ventricles were not uniformly dilated. The beginning of the descending horn appeared more particularly enlarged. The veins on the sides of the ventricles were numerous and enlarged, but the plexus choroides was pale, and full of watery vesicles. There were besides vesicles of an unusual kind, the longest the bulk of a coriander seed, of a bright straw colour; and the coats, which were thick and tough, upon being ruptured, emitted a yellowish fluid like chalk and water. The left corpus striatum differed in appearance from that on the

right side, being much softer; and, on the upper part, so watery, that it resembled cellular substance in a state of œdema: both were of an unusually brown colour, but this was even of a reddish colour. The pia mater, at the base of the brain, appeared much inflamed in one or two places.

CASE XXIII.

W. T. æt. 74; in his youth a glass-blower, of a temperament between the sanguine and pituitary; subject to calculous complaints: about fifteen years before his death he was cut for the stone. For two years this man had been in a state of dotage, relating events which had happened in his youth circumstantially, but forgetting what were only a few minutes old. He had been in the habit of drinking from half a pint to a pint of undiluted spirits daily, and of taking snuff constantly. Towards the end of *May*, 1807, he became very feeble, he was no longer able to crawl about, yet his appetite continued unimpaired. On the *6th of June* he lost the use of his speech. When spoken to he

made many attempts to answer, his voice was entire, but his articulation gone. His pulse was 60, and feeble; his belly costive, and his urine passed involuntarily. His respiration was wheezing. He often laughed heartily when every thing in the room was still, and the curtains of his bed drawn together; and his fruitless attempts to articulate appeared to amuse him exceedingly. He died on the 15*th of July*. Before death he was comatose, and insensible to every stimulus. His pulse, before death, was quick and weak, and his respiration frequent and laborious.

Dissection.—During the first part of the dissection, no blood appeared when the vessels were divided. The dura mater, all over its external surface, adhered so firmly to the bone, as to be inseparable even by force. On the surface, next to the brain, there was not any appearance of disease; nor were these adhesions to the subjacent membrane, unless by the veins as they entered the great sinus. There was an accumulation of serum between the tunica arachnoidea and pia mater: it was mostly of a bloody colour; rather an unusual number of arterial

branches were seen, and the veins were full, although not remarkably distended. The substance of the brain was moderately firm. The ventricles were dilated, and contained five or six tea-spoonfuls of a bloody turbid serum. In the plexus choroides was a series of vesicles, containing a clear fluid. The veins of the ventricles were large and numerous. In the coats of the arteries, on the base of the brain, were several opake white spots, not gritty, rather softer than the natural coats of the arteries.

..... QUAM CONTINUIS ET QUANTIS LONGA SENECTUS
PLENA MALIS.

A

COMMENTARY

ON THE

CASES AND DISSECTIONS.

APOPLEXY may appear at any hour. In the *election dinner* the time is chosen which is most likely to heighten the effects of the moral design of the picture; but the attack occurs in the course of the night, oftener than at, or immediately after, dinner. Morgagni remarks, that those who die of congestion of blood in the head, are, for the most part, found dead in bed. I have several times witnessed the attack in the morning, shortly after the patient had risen.

Although I have often heard it asserted, that apoplexy is more prevalent than it used to be, I

am convinced the assertion is an erroneous one. I have been assured, by more than one physician, that the stroke of apoplexy was a more frequent occurrence, thirty or forty years ago, than it is now; and it would be surprising if it were otherwise, as intemperance is less general than it was then. In Scotland, which long lay under the just reproach of excess in the use of wine, there has been of late years a great reform; intoxication is scarcely seen but in the manufacturing and commercial towns, and in the lowest rank in society; and even in this class, from the gradual progress of good feeling, it is wearing out. I observe that a material change has taken place in Ireland, in the consumption of wine at table since 1797 and 1798, when I was last in that country; and as, from imitation, good sense is constantly descending, this change will probably have a beneficial effect on the community at large.

It is generally thought that some families are much more liable to apoplexy than others. This opinion is well founded, but it ought to be received with some limitation. The disease has often been fatal to several persons of one family; but the habits which lead to apoplexy are often

common to all the members of the same family. Much is owing to the temperament: a luxurious life—indolence and the indulgences of the table, will sooner lead a plethoric man, of a sanguine or choleric temperament, to apoplexy, than a man of a pallid complexion, with inexpressive countenance, a slow pulse, and tardy secretions. Perhaps more stress than is proper has been laid on the form of the body, particularly when unconnected with intemperance: it has been announced as a circumstance of importance, in relating a case of apoplexy, that the patient's head was large, and that the cervical vertebræ were deficient in number. I am persuaded that there is so much more in the habits, than either in the original form or diathesis, that I venture to say, in nineteen cases of twenty of those who die of apoplexy, that the disease might have been averted or postponed by temperance. I have repeatedly seen the disease in persons of a strikingly pituitary temperament; but I have seen apoplexy in only three patients who had not been guilty of irregularities at some period of life.

Some of the most celebrated of the Italian physicians, Baglivi, Lancisi, and Morgagni, re-

late, that they have observed apoplexy prevailing epidemically: it was frequent in May 1721, and in 1741; but Morgagni admits that the weather, during this prevalence, after a sudden change, continued warm. "Pluviosus enim autumnus, pluviosa hiems, pluviosum hactenus ver fuerat; tunc primum, idque repente, aeris calor rediisset." Between the 12th of May and 9th of August, 1808, I was called to nine cases of apoplexy, and the summer of 1808 was the most sultry I ever experienced. As far as I know, the only quality of the season, upon which this disease depends, is extreme warmth: the coup de soleil is said by authors of respectability to have brought on apoplexy; and it is related, that, in the southern countries of Europe, the reapers often die of a stroke of apoplexy. We learn, from the writings of the ancients, that the warm bath was often destructive to voluptuaries, particularly when used, "turgidi epulis: hinc subitæ mortes atque intestata senectus;" and there is little doubt that it was fatal, as producing apoplexy. This disease has been brought on by violent exercise: an exertion of the body, while the mind is anxious

or excited, has appeared to me one of the most frequent occasional causes of apoplexy. A great muscular effort after a full inspiration; an unfavourable position in sleeping; and mechanical obstructions to the circulation of the blood, are all mentioned, with great probability, as exciting causes: these act either directly, by increasing arterial action, or indirectly, by loading the venous system. I have known colica pictonum, diseased liver and stomach, to bring on apoplexy, perhaps by metastasis; and dyspnœa, with a dropsical state of the cellular membrane, by acting as it were mechanically, have produced the same effect. Exertion during child-birth has led to apoplexy. Any shock either to the mind or body may give rise to apoplexy, in those who are predisposed to it. Stumbling, I have heard, has suddenly induced the fit; and I think it highly probable that it did so, notwithstanding the observation of an eminent pathologist, "neque enim eam ex fortuito lapsu, sed potius lapsum ex ea repeto." The exciting causes less influence our opinion of the danger of apoplexy than the predisposing: the disease is not always violent in

proportion to the violence of the exciting cause; the more the constitution is broken, the more hopeless is the condition of the patient.

I shall not class, under separate heads, the causes which dispose to apoplexy and occasion it. I shall content myself with enumerating the causes of apoplexy, according to their frequency of occurrence, in nearly fifty of the most perfect recorded specimens of that disease, which I have analysed with care. These are, I. Drunkenness. II. The form of the body. III. Temperament—sanguine; sanguineo-choleric; choleric. IV. Gluttony. V. Indolence. VI. Mental anxiety. VII. Fits of passion. VIII. External heat. IX. Tobacco.

Apoplexy, as appears by this enumeration of its chief causes, is generally the effect of intemperance and improper indulgences. Intoxication, which is entitled to stand first in the list, may be considered in two points of view in relation to the disease: the habit forms the diathesis; the act is the occasional cause of apoplexy in a great variety of instances: nay, I believe, the daily use of wine or spirits, even in what is considered a moderate quantity, will lead a man of a certain age and constitution to

apoplexy, as certainly as habitual intoxication, which rather leads to mania; and, when excessive, to a state between phrensy and insanity. My own experience of apoplexy would have inclined me to a different arrangement. I should have placed gluttony—" grandes patinæ et tuceta crassa," next to drunkenness, and the use of tobacco higher in the scale. It has been observed, if I mistake not by Cullen, that snuff-taking produces premature senility. The observation, I think, I have seen verified; and I am convinced that apoplexy is one of the evils in the train of that disgusting practice. Form and constitution, when unconnected with intemperance, I should have placed at the end of the list. It is well known that continued and deep study, and despondence, in consequence of great misfortunes, have occasioned apoplexy.

The diseases which predispose to apoplexy are gout, hemorrhages, and colica pictonum; and the conditions of the system, pregnancy, amenhorrhœa, or the interruption or premature cessation of any habitual discharge. Unless when the remote causes have operated powerfully, apoplexy seldom occurs in youth. I knew a girl of twenty, and Morgagni relates the case of

a boy of 16, who died of apoplexy; but such instances are very rare. It has been thought that between our fortieth and sixtieth years we are most subject to apoplexy. I have seen most of apoplexy between our fiftieth and seventieth year, and I have frequently seen the disease in still more advanced age: in the summer of 1807 I attended an old woman upwards of ninety, and in the last stage of dotage, who was carried off by apoplexy.

Some authors have divided apoplexy into idiopathic, in which the cause, as well as the seat of the disease, exists within the cranium; and sympathic, for so it has been called when the disease appears connected with an original affection of the thorax or abdomen. I do not mean to involve myself in any inquiry into the merits of this division; I shall, however, advert to those varieties of apoplexy, in which the disease is more obviously connected with affections of distant organs.

Apoplexy often arises from interrupted circulation in the lungs. As, when any part of the vascular system of the brain is loaded, apoplexy may be excited indirectly, we may conceive the danger of those diseases of the lungs, which are

attended with difficult breathing, and consequent interruption of the circulation of the right side of the heart. In persons predisposed, the protracted act of inspiration, or expiration, is a frequent exciting cause of apoplexy; and hence, in those advanced in life, the slipping of a crumb into the glottis is an alarming accident. Lancisi relates the case of a servant, who had been cured of anasarca, arising from intemperance, by a course of oxymel of squills and an issue, but who, being weak, and breathless after any exertion, fell down in an apoplexy as he hurried after his master's carriage, and instantly died. Huxham says, that he has seen complete paraplegia induced by those violent peripneumonies, in which both sides of the lungs are greatly inflamed and obstructed. I knew a person, pinguem albumque vitiis, who had long been distressed by difficult breathing, so suddenly carried off, when we were beginning to entertain a hope of his recovery, that a female attendant, who was sitting in the room with him, heard no struggle. Difficult breathing, from a stricture of the larynx, has ended in apoplexy, as I have shown in my account of the diseases of the laryngeal membrane.

Inordinate contractions of the heart have been mentioned as a cause of apoplexy. They have preceded apoplexy, and are probably connected with the disease, and, at last, they may prove the immediate cause of the fit, by throwing the blood with violence upon the brain, and, in this manner, exciting the minute arteries.

Or, perhaps, apoplexy, in connexion with morbid affections of the thoracic viscera, may depend on some nervous sympathy between the brain and the chest. It is however certain, that many of those who have died of apoplexy had been subject to irregularity of the pulse, and to incubus, with palpitation of the heart.

That species of apoplexy which is induced by greatly exciting the stomach; by a surfeit, intoxication, or an overdose of narcotic drugs, has been called apoplexia gastrica. Those who are fond of nosological terms, may subdivide this species into apoplexia, 1. a repletione, 2. temulenta, 3. a narcoticis. It may, however, be made a question, Whether the oppression of the brain, caused by alkohol and narcotics, always strictly belongs to apoplexy? In the apoplexia a repletione, the disease is probably caused by the sympathy which exists between the stomach

and brain, and by the increased circulation arising from a meal of stimulating food. Some writers, overlooking these considerations, have laid great stress on the merely mechanical effects of a full meal.

I believe this is the proper place to mention, that symptoms, which would seem to threaten apoplexy, have arisen from morbid actions of the stomach and liver: I have seen several cases which remarkably illustrated this observation. The source of these symptoms is only to be detected by a very narrow examination. I knew one gentleman, who was florid and apparently healthy, who had lived in the early part of his life freely, three seasons in succession, alarmed by tightness across the temples, vertigo, tinnitus aurium, muscæ volitantes, and debility of the limbs. He was blooded several times, he used several courses of bitters, purges, mineral waters, alkalis, mercury, vegetable infusions, low diet, animal diet: in short, conforming to the views of different physicians whom he had consulted, he had gone the round of the materia medica and alimentaria, without much relief. At last it was discovered, that he used great quantities of sugar to his tea and coffee,

and ate preserves, honey, dried fruits, &c. from conceiving that they were aperient. He was interdicted the use of sugar and every saccharine substance, and his complaints left him entirely. It has been affirmed, that the vertigo which arises when the stomach is empty, is a symptom of dyspepsia; that which occurs after dinner, of determination of blood to the head. I have known exceptions to both the divisions of this aphorism.

There is, however, reason to think, that genuine apoplexy often depends on a diseased state of the liver. Patients with jaundice frequently die of apoplexy: the liver is never diseased without disordering the functions of the brain; and a diseased liver has been found in dissections after apoplexy, even when it was not expected. This subject I shall briefly resume, when I come to comment on the Cases separately.

The eclampsia and convulsions of pregnant and puerperal women sometimes end in apoplexy; and women, during the throes of labour, have been seized with apoplexy without previous convulsions. In one of the volumes of the medical facts and observations, there is a

case of a woman, in the last month of pregnancy, who died immediately after complaining of sudden and violent pain of the head: in the dissection of the body coagulated blood was found in all the ventricles, and the blood had penetrated the very substance of the right optic nerve. An interesting case of eclampsia forms the subject of a paper by Dr. J. Hamilton, jun. in the Medical Annals for 1800. The disease, in one of my patients, followed an attack of flooding. This may be supposed an example of what has been called by some authors, probably from defective observation, apoplexia a nimia evacuatione. I rather thought the attack, in this instance, was connected with an irregularity of the sanguiferous system, as it happened about the cessation of the menses, than with mere loss of blood. One of the most distressing cases I ever attended, was that of a gentlewoman, between fifty and sixty years of age, who had an alternation of those symptoms of excited circulation in the head, which generally precede apoplexy, with pruritus pudendi, accompanied with its most distressing symptom.

Authors mention that ischuria, rheumatism, and gout, have been superseded by apoplexy.

I shall soon have occasion to mention the affection of the brain which usually arises during these diseases, with my reasons for thinking that it differs from apoplexy.

Stoll has related a case which he considers as a periodic apoplexy; but I believe it is an instance of a masked disease, perhaps of the same nature with the apoplexia febricosa of Sauvages and Quarin; the patient sustained an accession of the symptoms of apoplexy every third day; and one of Stoll's pupils, Wilhelm, in his treatise on apoplexy, pertinently observes, that this periodic disease rather belonged to intermittent fever, which had assumed the mask of apoplexy, and of which there are many instances recorded, than to apoplexy.

In the remaining pages of this work, my chief objects are, to fix the cases in the student's mind, by pointing out the most remarkable feature of each, and to explain some of the concomitant circumstances of apoplexy. From considering that the more a clinical treatise is of a descriptive nature the better—that the shorter

the processes of reasoning are, and the oftener reference is made to facts and established principles, the more useful it is likely to become, I have hitherto been careful not to admit any suggestions but such as arose while the patient lay before me, or the diseased brain was exposed to view, or while the appearances it presented were fresh in my recollection; what follows is of a looser texture, and will, I hope, be read with more indulgence.

Case I.—Is an example of vitiated perception, so often experienced by those who are liable to apoplexy; and it has just suggested a similar case to my recollection. A lady, of vigorous and cultivated understanding, by whom I was consulted, along with Mr. Macklin, the state surgeon, and who, during a part of our attendance upon her, was menaced with apoplexy, complained of a very unusual appearance in luminous bodies: the flame of a candle was enlarged, of the shape of a tulip, and with a red centre; the moon appeared oval, with a central portion of a bright scarlet. All distant objects were hazy, yet she read and wrote without any difficulty. Similar affections I have known end in complete amaurosis. I have

witnessed some remarkable instances of profuse hemorrhage from the nose preceded by disorder of the stomach and biliary system, and all the symptoms which generally usher in apoplexy. One of my patients, a man not more than 42 or 43 years of age, of intemperate habits, and immensely corpulent, lost six quarts of blood from the nose in the course of two days. For a fortnight before this attack of bleeding, which was attended with great thirst, furred tongue, and a quick pulse, he had complained of headach, throbbing in his eyes, and a *girding*, as he called it, round his temples. Such also was the case of Dominic Vecchiotti, as mentioned by Hoffman.

Case II.—Is a remarkable instance of the vertigo which often affects persons who are threatened with apoplexy.

Case III.—Shows that the eclampsia of pregnant women sometimes ends in apoplexy. This case also leads me to observe, that the treatment of dropsical symptoms, when connected with an inflammatory diathesis, have been better understood by the physicians of the continent, than by English physicians. In III. and IV.

the anasarca was removed, apparently by blood-letting.

Case IV.—Dr. Kellie remarks: "This case appears to me a very interesting one. The patient seemingly, from her form, age, and habit of body, no way predisposed to apoplexy, is killed, as it were, by accident. Big with child, and arrived at her full time, she is employed with a fatiguing washing, stooping over her tub, with her head low, and the pregnant womb pressed against the great trunks of the abdominal blood vessels, increasing at once the determination of the blood to, and retarding its return from, the brain. She is struck with sudden pain and faintness, recovers a little, and perseveres in her work. But the fatal injury is done. A blood vessel is ruptured in the brain, and, while unconsciously asleep in bed, blood continues to ooze out, and, in the morning, she is found in a state of hemiplegia, which terminated in apoplexy and death. The ease with which the uterus performed its important functions in this case of general paralysis, is also deserving of notice. While the patient was apoplectic and unconscious of her sufferings, or,

at least, so deprived of the power of voluntary effort and motion as to be unable to express her condition and sufferings by any external signs, the uterus appears, as an involuntary muscle, to have acted in the most perfect manner in expelling the fœtus and secundines, and to have afterwards preserved its tonic contraction; so that the flooding, which might have been anticipated, did not take place after delivery." I have nothing to add to the remarks of this accurate and acute observer, but that I do not know a case more worthy of record than this, which I owe to his friendship.

Case V.—In 1793, when I was a student of medicine, I recollect having been present when a young man, who had been a short time under water, died unexpectedly. The manner of his death I cannot now describe, but it was said by the medical gentlemen, whom the accident assembled, that he died apoplectic: perhaps death was preceded by symptoms similar to those of the case to which I am referring. I regretted exceedingly that the friends of the master of the smack would not admit of the dissection of his body; without which, any

observations on the cause of his death must be conjectural. I may, however, be permitted to observe, that the symptoms indicated the origin of the disease to have been in the chest. Until within a quarter of an hour of his death he was distinct and pertinent in his answers to every question: but, from the colour of his face, and of the blood drawn from the temporal artery, as well as from the stupor, it is clear that, at the last, the arteries of the head contained a fluid which had not passed through the necessary chemical change in the lungs. It is evident that this man's situation differed from apoplexy. It strikes me that it resembled the affection which we are led, by late experiments, to expect from the interruption of the nervous influence in the eighth pair of nerves, (Dupuytreu, Biblioth. Med. 1807).

Case VI.—Is a case of apoplexy, induced by exercise taken immediately after a full meal. The patient, as often happens, was relieved by the fit of vomiting; but, even in this case, I should think the practice adopted much better than the usual means, namely, the exhibition of an emetic. The blood-letting induced sickness

and vomiting, as it very often does: I need not say that vomiting is much less dangerous after the vessels have been unloaded.

Cases VII., VIII., IX., X., XI.—Are fair specimens of apoplexy, and of the diseased appearances of the brain. In VIII. hemiplegia came before apoplexy; and, during part of the disease, there was the furious and unmeaning gesticulation which rather belongs to an advanced stage of phrensy, but which I have also witnessed in another case of apoplexy. X. and XI. are introduced for the minute anatomy of apoplexy. In XI. the exciting cause of apoplexy was, probably, the fit of vomiting, as in X. it may be supposed to have been the stooping. I have said, that I conceive apoplexy to be a disease of the smaller arteries of the brain: this I presume from having so often seen these vessels, as in VII., VIII., IX., X., XI., numerous and florid, and ruptured so as to admit the escape of blood. I do not mean to deny that a condition, not unlike apoplexy, may be induced by other causes, viz. by congestion of blood in the larger vessels of the brain; by obstruction to the free return of the blood from the brain; or, as in V., by changes in the che-

mical state of the blood; or even by the escape of blood from the rupture of a large vessel.

A tube was introduced into the carotid artery of one sheep, and another was killed by the butcher in the usual way, by which means a large syringeful of blood was procured, and forcibly injected into the tube: the struggles of the animal almost instantly ceased; it breathed irregularly; the pupil became dilated; the animal seemed insensible; it then ceased to breathe. When we had waited about a minute after the final inspiration, the butcher plunged his knife into the animal's throat, from which the blood flowed as dark as if it had been entirely venous, infinitely darker than the blood which had been used to fill the syringe; yet, upon comparing the brains of these two animals, we could not perceive that the one differed from the other, in the increase of the minute vessels. This experiment was repeated, with a similar result. Again, when, in consequence of external injury, blood has been extravasated between the skull and dura mater; and when, from the admitted incompressibility of the substance of the brain, the compression must fall on some other part of the vascular system, which is thus deprived of

its usual quantity of blood, hemiplegia, and symptoms not unlike those of apoplexy, take place; but, upon removing the clot, the brain, which had been depressed, often rises to its level, the symptoms of oppressed circulation disappear, and both sides of the body are left in possession of sense and voluntary motion. Finally, children are often seized with a sudden spasm of the glottis, when all the powers of the constitution appeared nearly entire, the muscles belonging to respiration are stopt, as the play of a pair of bellows would be prevented by a plug in the nozle. The air is denied admission into the lungs; the blood in the arteries resembles that usually found in the veins: as it is sent to the head without having undergone the necessary chemical change, the want of sensorial power is felt by the whole body; the heart ceases to beat; and the venous system is loaded with blood.

But I am convinced that these, and a variety of similar affections, ought not to be identified with apoplexy. In the animal killed by the forcible injection of blood, it did not appear that the minute arteries were excited. When extravasation takes place from external vio-

lence, as soon as the cause of oppressed circulation is removed, and the brain has regained its level, it at the same time recovers all its functions; which is seldom the case when palsy arises from idiopathic apoplexy. And, how much soever the vessels of the head are excited and loaded in consequence of strangulation, the blood is never found to have escaped from the vessels; and children, as I have witnessed, recover without any paralytic affection, after animation had been suspended for a considerable time, in consequence of suffocation. Such a state, like every one during which the minute arteries are stimulated, might lead to apoplexy, in a person of a certain constitution and habits; but without the diathesis there cannot be a genuine attack of apoplexy. Apoplexy appears to be something more than mere congestion of blood, with insensibility; and it is generally a hasty conclusion to say that a person died apoplectic, merely because he had comatose symptoms before death.

Dissection has repeatedly shown, that extravasation of blood in the brain, although it only occurs in apoplexy, is not a necessary part of that disease. Portal has justly observed, that

we have no means of predicting, from the symptoms, when we shall find the vessels ruptured, and when only in a state of turgescence. It has been affirmed, that palsy is always the consequence of blood extravasated: but paralytic affections, as well as apoplexy, have existed without any escape of blood from the vessels.

Apoplexy I have known almost instantaneously fatal. It is only necessary to lay open the head of a person who has been drowned, (XIII.), to show how suddenly the arteries of the brain may be excited. In this very sudden death, the vessels, which generally contain only the colourless part of the blood, are turgid and florid. When apoplexy is suddenly fatal, it appears that, from the powerful operation of the exciting cause, or the superior influence of the predisposing, the minute arteries are at once thrown into violent action, and oppressed circulation, to a degree incompatible with the continuance of life, immediately follows.

When hemiplegia seizes a patient an hour or two before an apoplectic fit, the vascular action probably has destroyed one hemisphere, as a source of nervous energy, before the circulation becomes generally oppressed. Upon what this

and other varieties in the state of the circulation during apoplexy depend, we can only conjecture. I have purposely avoided offering any opinion of the mode in which the derangement of the circulation acts upon the apparatus which supplies the sensorial influence. Speculations of this kind are useless while we are ignorant of the ultimate structure of the brain, which is of such subtlety as to elude every attempt to discover its nature. It would be equally vain to inquire in what manner apoplexy is occasioned by the sympathy of the brain with distant parts, we must be contented with the fact: with our present stock of information we cannot explain the nature of nervous sympathy. We are equally ignorant of the state of the extremity of the nerve, (whether it be active or passive,) when an impression is made upon it, as of the mode in which the impression, once made, is transmitted to the sensorium. All reasoning from remote analogies I wish to avoid: and I shall prolong this discussion no farther, lest I should be carried beyond a mere analysis of the disease, which is all I proposed to myself to exhibit.

In Case XI. the patient vomited the fluid

which used to be called atrabilis. I have seen that fluid rejected, in many instances, by patients who had diseased livers from drinking spirits; in two instances by patients in apoplexy; and by one gentlewoman who had dropsy of the ovarium. All these patients, but the last, were in a dying state when this symptom appeared.

Various were the opinions of the nature of this fluid, and its sources. Some supposed that it arose solely from a diseased state of the liver, others of the spleen; some supposed it bile, others venous blood. I think it demonstrable that this dark fluid is generally derived from the minute arteries of the inner surface of the stomach, and sometimes of the intestines. Does it arise from the arteries which secrete the gastric juice? These may have had their glandular structure destroyed, and the blood intended for supplying the secretion may have been allowed to transude, in consequence of the loss of resistance at the extremity of the arteries. The colour of the blood is, perhaps, changed in transitu; or it may be changed in the stomach by a partial digestion, as there

are always parts of the surface of the stomach little or not at all diseased.

I have not in any instance seen this discharge, unless accompanied by enlargement of some of the solid viscera of the abdomen; although I admit it has arisen from a disease of the membranous viscera, sometimes of the stomach alone. It is supposed to have a connexion with a varicose state of the veins of the abdomen. Great relief, in some abdominal diseases, has been known to follow the discharge of this atrabilis.

In Case XI. the vessels of the stomach had assumed a new action about the time of, or soon after, the apoplectic seizure; as it was not before evening that the dark fluid was thrown off. In the morning, as was his habit, the patient had vomited bile. His stomach was as much diseased as his liver; and although the increased vascularity which I have described was a recent affection, the stomach, probably, had been long diseased. In the liver we should have found the first morbid changes, as the liver of those who daily drink spirits is generally injured in structure, the stomach rarely; but, although

the morbid changes are first observed in the liver, the first symptoms of disease are often to be referred to the stomach.

It must be admitted that it is often difficult to know to which viscus we ought to refer the uneasy sensations which attend imperfect digestion. When disease of structure is apparently confined to the liver, the patient has been known to suffer greatly from dyspeptic symptoms—great anxiety, sickness, flatulence, and prostration. And, on the contrary, when the stomach alone appears to be the seat of disease, there is, not unfrequently, an imperfect or redundant secretion of bile, with listlessness, depraved sensation, tedium vitæ, &c. The work of the stomach is never well performed unless when the liver is sound, and the functions of the liver equally require a healthy condition of the stomach. As when either viscus is in a diseased state, the uneasy sensations felt in consequence are referable to both, the stomach and liver are to be considered, in their morbid states, as firmly linked as in health.

But in practice, it is of consequence to discover in which organ disease has begun; for, if we are able to restore the organ primarily af-

fected, the organs sympathetically drawn into disease, will often return to a healthy state in consequence.

It is probable that most diseases may be traced ultimately to some hurtful impression sustained by one or more of the great surfaces of the body—the alimentary canal, the lungs, or the skin. These impressions may act either upon the organ immediately exposed to their influence, or upon a distant sympathizing organ; the organ upon which the impression was made, sometimes continuing apparently in a healthy state.

When disease arises from errors in diet, the stomach is probably the organ first affected; such, however, is the nature of pathology, that, after many fatal diseases, nothing remains which our senses can take cognizance of. It cannot be denied, that the stomach has been the seat of great distress, even when the most skilful anatomist could detect nothing in its structure after death. Generally, however, the alimentary canal is not long materially disordered without affecting the parts which sympathize with it. These assume diseased actions, and are even sensibly injured in structure, and, in turn, draw

into disease, parts less immediately connected with the alimentary canal. Thus, from intemperance or errors in diet, the liver, which, probably from its complicated structure, is the part of the system most easily disorganized, is affected with an inflammatory irritation; the joints with gout, the face with gutta rosea, and the brain with a great variety of diseases. And it is not improbable, that a medicine which has reduced the size of an enlarged liver, and corrected its secretion, had first corrected some diseased action of the stomach, upon which this state of the liver depended: that the disease of the liver may have been only a symptom of a diseased stomach, and that the cure of the covert disease of the stomach was indispensable towards the cure of the obvious disease of the liver. When, therefore, we speak of an irritation of the liver as a source of disease of the brain, we speak of something which we can demonstrate, and we are silent with respect to the rest of the chylopoietic viscera, although possibly they are equally concerned, because we cannot show in them the remains of any diseased process, and because there is no satis-

factory pathology which does not rest on the evidence of the senses.

The attention of the profession is now awakened to the influence which is exerted over the rest of the organs of the body by the liver when irritated. Dr. Curry, of Guy's Hospital, has pledged himself to prosecute this important investigation. It is a large field to expatiate in; and, in such hands, it promises a rich harvest. The extent of the subject will appear by a few allusions which I shall make to the more common diseases of the brain; my principal purpose, however, being to prove the necessity of attending to the state of the liver whenever the brain is diseased.

In his annual course of lectures on the practice of medicine, Dr. Curry has taught, since 1801, that acute hydrocephalus is generally the consequence of an erathism, with a diminished or altered secretion of the liver. A similar speculation, to which I was led by my habit of examining the state of the abdominal viscera in young subjects, subsequently appeared in my essay on hydrocephalus, supported by evidence which it is now in my power considerably to strengthen.

My experience of phrenitis is very limited, as, indeed, must have been that of every physician who has practised only in Great Britain or Ireland. But I beg to state, that I lately became acquainted with the circumstances which preceded the death of a young man with all the symptoms of phrenitis, who, not long before his death, coughed up the contents of a hepatic abscess. The connexion of phrenitis with a certain state of the hepatic function, is, I believe, obscurely noticed by several of the older writers.

In dissections after apoplexy, we shall seldom fail to find the liver much diseased; and the disease of the liver to be one which, apparently, had been of slow formation. A gentleman, of very distinct observation, informs me, that he has seen apoplexy fatal in 24 or 36 hours, to patients under ascites connected with diseased liver, in whom the absorbents, in consequence of mercury, had begun to act with great vigour. An interesting case of this nature is related in the fifth number of the Dublin Medical and Physical Essays, by Dr. Mills. The patient, whose liver was hard and enlarged, had been afflicted with ascites and anasarca, but was relieved by

the very free exhibition of crystals of tartar; but, whilst "full of the hope of perfect recovery, he was seized with the symptoms of sanguine apoplexy, and was unexpectedly carried off." I am not well acquainted with the state of the liver in lethargy; but those whose habits are such as to disorder the function of the liver, are most liable to that disease.

The discharge from the bowels in tetanus denotes an excited state of the liver, and a vitiated secretion of bile. That purgative medicines would be useful in tetanus, was sagaciously conjectured by Dr. Hamilton; and in a case of tetanus from a wound, which I lately saw in the Meath Hospital, this practice appeared to have benefitted the patient, from whose bowels the secretions discharged were quite unnatural. One of my patients, whose recovery from tetanus traumaticus I imputed to very large doses of opium, also took a great many doses of jalap and calomel, by which he was salivated: but, in the progress of the case, I probably underrated the importance of the discharge of a great quantity of gelatinous dark green or mudlike matter from the bowels. The state of the abdominal viscera in several of the

diseases called by nosologists nervous, has not been sufficiently attended to. Some of these diseases, as well as the organic diseases of the brain, prevail at the season in which the hepatic function is subject to most irregularity.

I think it not improbable that we should often find disease of the liver after catalepsy, chorea, St. Viti, epilepsy, &c. The effects of purges in the first and second of these diseases, together with the appearance of the discharge, would seem to sanction this opinion. A girl of eighteen, who had all the symptoms of chorea, the pale leucophlegmatic look, the enlarged pupil, incessant and antic gesticulation, and paralytic weakness of one side, whose mind was not merely impaired in vigour, but deprived of its sense of propriety, had complained, for several years, of a pain in the region of the liver, which had been so severe as to require blistering. In this girl, when she was first put under my care, I could easily trace the margin of the liver an inch and a half, or two inches, below the margin of the ribs; and when I pressed the liver about an inch to the right of the cartilage of the sternum, she complained of great tenderness and pain. Chorea, as appears by an important

observation made by Dr. Willan, immediately arises from a diseased state of the circulation in the brain. According to that eminent physician, in two cases of chorea examined after death, from two to four ounces of clear lymph were found in the ventricles of the brain. The liver was prodigiously enlarged in Case XIX. And there is good reason to think, that it is often from an excitement in this viscus that convulsions arise, more particularly the convulsions of children during dentition. In short, I do not know a disease of the brain, or nervous system, in which it is not necessary to examine the state of the liver after death more narrowly than has hitherto been done.

Perhaps I am throwing a ray of light on an obscure subject when I state, on the authority of an accurate anatomist, Mr. Todd, one of the surgeons to the House of Industry, that, in every dissection he has made after idiotism and mental derangement, and he has made upwards of 400, he has found the liver, more or less, diseased. He observes after insanity generally no great change of colour, but the organ is more bulky, with a thicker edge, and always connected by præternatural adhesions, sometimes

of great extent, to the peritoneum. It would seem as if the affection of the liver were not, generally speaking, of a recent date, yet I understand that a great many lunatics are cut off by an obstinate bowel complaint.

That the brain should be suddenly affected in consequence of its connexion with the liver, is not more remarkable than that the liver should be suddenly disordered from affections of the brain. Yet this last is an established observation. I am informed, by a gentleman who has occasion to dissect a great many bodies, that, in diseases of the brain, he never fails to find the liver diseased either as a cause or a consequence. The same gentleman assures me, that the liver generally discovers the marks of recent inflammation after fatal injuries of the head. Every surgeon knows that abscess of the liver is a common effect of injury of the brain.

" Une femme, agée de 80 ans, qui n'avoit jamais eu de maladies, eprouva une grande contrarieté, qui lui occasionna un acces de colère si violent, qu'en moins de quelques heures elle fut prise d'un ictere général d'un jaune très-foncé. Le vingtieme jour, il lui survint deux depôts à l'avant-bras gauche. Le vingt-cinquième elle

eu des vomissemens bilieux; et elle mourut en repetant, qu'elle ne pardonnait pas l'offense qu'on lui avait fait."—*Obs. par M. L. V. F. Amard, Docteur en Medicine, &c. Bulletin des Sciences Medicales, Avril* 1810. I cite this as probably the most recent instance on record of an affection noticed by Riverius, the aurigo ab ira; and, if I mistake not, jaundice is related to have appeared as the effect of other passions. A commentary on the case related by Mr. Amard would lead to the consideration of the hysterical, dyspeptic, and hypochondriacal affections, which so often follow the depressing passions. This subject, however, it would be foreign to my undertaking to pursue.

Case XIV.—Although I do not think that this case belongs to apoplexy, it is important, in showing the connexion of the liver with the brain under new circumstances. When the quantity of ardent spirits swallowed at once is sufficient to extinguish life, the condition of the stomach and liver is generally neglected, and the cause of death is solely assigned to the state of the brain. The stomach, in three dissections which I have made, had precisely the appearance described in XIV., indicating that

high arterial action had existed. And although the structure of the liver had probably been long injured by the habit of drinking spirits, yet, in the congestion described, there appears to me something quite recent superadded.

Case XV. — In this case the liver was instantly excited, its secretion interrupted and vitiated, and the substance inflamed. The child was destroyed probably not so much by the increased action of the vessels of the brain, as by its excitement from sympathy, with a highly irritated state of the digestive organs. The effects of wine, even in a moderate quantity, in interrupting the biliary secretion of a healthy child, appears in the paper on wine and spirits, published by Mr. Sandford, of Worcester.

In the *Principles of Physiology*, by Dumas, the chapter in which he treats of the action of the brain on the organs of the chest, abdomen, pelvis, and on the extremities, and the reaction of these parts on the brain, is worthy of the perusal of every medical student, as containing a comprehensive and masterly view of the connexion which these parts have with each other.

In Case XII. the extravasation of blood took

place from the minute arteries on the surface of the brain. This may account for some irregularity in the expression of the diseases.

Case XVI.—I shall not, at present, comment on this case of serous apoplexy. It appears one of the most complete specimens of that disease. Enlargement of the ventricle probably always arises from increased vascular action, and consequent absorption of the substance of the brain; but the circumstances upon which this change depends, and the consequences of it, are not well known. The enlargement of one portion of a ventricle, while the rest of the cavity is of the natural size, would seem to indicate a very partial affection of the brain. I introduce the following narrative without any commentary or inference. A man, in a dying state, was sent into an hospital by his relations, that they might save the expenses of his interment. When he was admitted he was insensible, and he lived only two days: he had been long paralytic of his left side: the medical attendant was not able to collect any other particulars of his history. On dissection, the left ventricle was much enlarged, particularly the posterior horn: in this ventricle there was more

than an ounce of serum. The appearances presented by the surface of the left hemisphere were natural, as were those of its substance. The surface and substance of the right hemisphere were unusually vascular: this appearance was very striking, as contrasted with the whole of the left side of the brain. The right ventricle was of the usual size.

Case XVII.—This case is related in aid of the observation, that palsy, when it does not run into apoplexy, is sometimes attended with all the symptoms of an inflammatory disease. This is not the most striking illustration which I have seen, but it is the only one of which I have a written account: as it occurred soon after I had expressed a regret that I had not preserved the reports of similar cases, which were in my recollection, I observed the circumstances of the case with the utmost attention. In this case, the disease was gaining ground up to the time of the blood-letting. In Case XVIII., which ended in a complete hemiplegia, with temporary loss of speech, and permanent destruction of the mind, it is not improbable that early blood-letting might have arrested the dis-

ease. The first of these paralytic patients, at my first visit, appeared fast tending towards apoplexy. Every symptom indicated the necessity of using the lancet, which I should have recommended on the second day, even had there been no paralytic affection.

Cases XIX., XX., XXI., XXII., XXIII. —If, as Dr. Cullen has determined, there are no such diseases as catalepsis, extasis, carus, cataphora, and lethargus; or, if such affections do exist, they are mere modes of apoplexy, I am quite at a loss to give a name to these cases.

In most systems of nosology, there is an order of nervous diseases, under the title comata, of which the distinguishing features are a diminution or total loss of the powers of voluntary motion, and of perception, with somnolency. This order, according to Sauvages, consists of seven genera, namely, catalepsis, extasis, typhomania, lethargus, cataphora, carus, and apoplexia; and it does not appear that any medical

author, when Sauvages published his excellent work, doubted the generic existence of these diseases.

Case XIX.—It should seem that Dr. Cullen has denied the existence of catalepsy, because he had not seen or recognised an instance of that disease, in the course of his practice. But to believe only such facts as our own observation enables us to verify, would be such an excess in scepticism, as would soon check all inquiry. The testimony of Hoffman, Sauvages, and Heberden, men not likely to be the dupes of imposture, who have seen and accurately described catalepsy, are not to be impeached without the weightiest reasons.

Catalepsy is a state in which volition, and generally consciousness, is interrupted; the pulse depressed; the respiration obscure; and in which the limbs remain in the position in which they were when the patient was attacked with the seizure, or in which they are placed by the bye-standers. In extasis, which resembles catalepsy in every other thing, the limbs do not possess the same aptitude for remaining in irksome positions. If this circumstance be considered as a sufficient foundation for a distinct genus, extasis

is a more common affection than catalepsy. Case XIX. must be considered an instance of extasis. That described by Dr. Lubbock, in the Edinburgh Medical and Surgical Journal, would seem a mixed case. But extasis is probably but a form of catalepsy; or, more properly, they are forms of one disease. Extasis derived its name from its supposed cause; but, in fact, it has attacked patients who had not suffered any excessive emotion of the mind, while catalepsy has often appeared after extatic passion. The cases of extasis which Sauvages quotes from Tulpius and Ab Heers, were considered by these authors as cataleptic.

It is remarkable that Case XIX. appeared connected with a family constitution. The patient's father and uncle were, in their youth, subject to fits, which were not understood. But as I have read the case of her uncle, which was stated, in 1769, for consultation, I am convinced they were both cataleptic. Her father, after the middle of life, had three or four attacks of insanity. And I have often seen her brother, while labouring under an affection which corresponded with the description given by Sauvages of the catalepsis delirans. The

pathology of catalepsis and extasis is exceedingly obscure: systematic writers, with a caution equally laudable and uncommon, confess their ignorance of the proximate cause of these diseases. As the treatment is not well established, I shall take the liberty of mentioning, that I have seen a cataleptic affection end favourably, apparently, from a course of aloetic purges; and that in a case in which catalepsy was combined with a paralytic affection, and some other symptoms of excited circulation in the brain, the patient was relieved by blood-letting and brisk purgatives. Both these patients are now in a good state of health.

Cases XX., XXI., XXII., XXIII.—How much soever I may value the writings of Dr. Cullen, I cannot be blind to the imperfect classification of the comata in the Synopsis Nosologiæ, and the erroneous view given in the first lines. Yet I should scarce have ventured to express an opinion unfavourable to works which still continue the manuals of medical practice and nosology, had I not found the authority of other physicians, of equal learning and discernment, opposed to that of Dr. Cullen. I am unwilling, in discussing this subject, to intro-

duce the name of that celebrated teacher; but such has been the influence of his prelections and books over the minds of his contemporaries and followers, that, from his neglect of the lethargic diseases, they have scarcely been mentioned by any later English physician.

According to Dr. Cullen, the order of comatous diseases consists of only two genera, apoplexy and palsy; and, that palsy may conform to the general characters of the class and order, he has defined that disease "motus voluntarii nonnulli tantum imminuti, sæpe cum sopore." I need scarcely say, that the latter part of the definition is not derived from distinct observation; particularly as it is admitted that *sopor* is used in the limited and common sense, not according to some nosologists, "tam pro motuum quam pro sensuum feriatione."

But the most exceptionable part of Dr. Cullen's view of the comata is contained in the first lines. "Under the title of apoplexy are comprehended those diseases, which, as differing from it in degree only, cannot, with a view either to pathology or practice, be properly distinguished from it. Such are the diseases sometimes treated of under the names of carus, cata-

phora, coma, and lethargus." Lethargic diseases are not mentioned in the sequel of the work: an omission very remarkable, when we consider the space they occupy in the writings of those physicians, whose labours Dr. Cullen had no hesitation in profiting by on other occasions.

Coma vigil, or typhomania, is omitted by Dr. Cullen, I should conceive with propriety, as it is the opinion of the most respectable authors, in particular of Hoffman, that this affection is never primary; and, indeed, we shall find, that all the varieties of typhomania which the industry of Sauvages has collected, are symptomatic affections.

By some authors, lethargus is considered as a slighter affection than coma, while others consider it as more vehement. Some of the best writers are not perfectly consistent in their application of these terms. I rather think, had the genera of this order been less numerous, the subject would have been less embarrassed: for it appears, upon attentively considering the definitions, descriptions, and histories of lethargus, or veternus; cataphora, or coma somnolentum, or comatades, and carus; that they differ not in nature but in intensity; that the

same class of patients are affected by all these diseases, and that they flow from the same causes: that cataphora some time before death almost always degenerates into carus; from drowsiness without fever, from which the patient can be roused; his breathing becomes quickened, his countenance falls, and he is totally insensible—this is the extreme of the lethargic affections—a complete carus, from which there is no recovery. This, in fact, is the view which both Home and Macbride have given in their pathological outlines. In the PRINCIPIA of the former, coma somnolentum, lethargy, or veternus, and carus, are considered but as different varieties of one disease, of which carus is the extreme form. And Macbride has described lethargy as an imperfect carus, from which the patients can still be roused. I shall briefly consider all the varieties of this affection under the general term LETHARGY. I adopt this term as designating a prominent feature of the disease, and as being often applied familiarly to most of the genera of the order comata. VETERNUS, CATAPHORUS, and CARUS, may be considered as varieties of this genus.

I. Lethargy, as appears from Case XX., is

often a disease of great duration: according to Willis (somnolentia continua), Hoffman and Sauvages (cataphora somnolentum), lethargic patients eat and drink heartily, walk out, and attend to their domestic concerns: yet, in conversation, or while walking, or during meals, they now and then nod, and would fall asleep, unless constantly roused by their friends; and in this condition they remain for years. A case, in some respects similar to that which I have related (XX.), is to be found in Willis; in which, however, the patient was still more oppressed. A gentleman of a sanguine temperament, and, in his youth, of quick parts, from indolence and intemperance, became torpid and dropsical as he advanced in life: yet his constitution had not lost its powers of renovation; for when he lived temperately, and submitted to proper regimen, he quickly recovered. At length, while free from any dropsical symptoms, he became affected with somnolency to such a degree, that he would fall asleep whereever he was, or however employed. When roused he had perfect possession of his faculties, and, for a short time, he would talk consistently on any subject, but the stupor quickly returned.

From this affection, once and again he recovered, and he only relapsed when he indulged in intemperance. For some time before he died, he remained free from lethargic symptoms, and he was, at last, carried off by an asthmatic complaint.

II. In cataphora, a more inveterate form of lethargy, the patient passes much of his time in sleep, which is so deep that he cannot easily be roused; and when he has looked up, or answered a question loudly and importunately urged, he again relapses into this profound sleep. His countenance is pale, his pulse slow and oppressed, and his joints have little rigidity. Hoffman, in describing this affection, under the title of lethargus, gives some familiar illustrations of its effects upon the conduct. "Quidam matulam poscunt, manuque tenent, mingendi tamen memoriam mox iterum obdormiscentes amittunt, vel oscitantes os claudere obliviscuntur."

III. Carus is the extreme species of lethargy. (XXII., XXIII.) The patient is not to be excited by noise, shaking, nor even by pricking nor pinching the skin: as a confirmed lethargy or cataphora resembles concussion in many of

its symptoms, carus reminds us of that compression in which the brain labours beneath a large clot of blood: sensibility appears nearly exhausted. From the other lethargic symptoms the patient is, although with difficulty, to be roused; in carus any attempt to rouse him is unavailing. Carus has, but without sufficient consideration, been supposed distinguishable from apoplexy by the absence of stertor. For example, Sauvages describes his first variety of carus as beginning with cephalalgia and vertigo, with pyrexia, flushing of the face, heat of body, a frequent and strong pulse, and as affecting the plethoric, gluttonous, and intemperate. I rather think the affection thus described ought to be transferred to apoplexy. For, as in apoplexy the patients are often observed to breathe as softly as if they were in a natural sleep, stertor ought not to be considered as essentially a part of that disease. I am willing to admit, that I have found cases recorded which I know not whether to class with apoplexy or lethargy; and cases which, although approaching to one or other of these diseases, perhaps strictly belong to neither: but it is not a fair objection to the distinction which I am endeavouring to re-

establish, that there may exist cases concerning which we may be in doubt to which genus they ought to be referred; particularly as the obscurity arises from the neglect, rather than from the difficulty, of the subject. Carus, in general, is to be distinguished from apoplexy, not only by its peculiar symptoms, but as being the sequel of other comatous affections; as following lethargy. Indeed it is by no means unusual to see carus after apoplexy itself; the patient, after a certain time, becoming pale, with a slow depressed pulse, breathing softly, but totally inexcitable.

When these affections appear in sequence, the milder gradually degenerating into the more severe, we may generally discover that, for a certain time, the patient had been complaining of flushing of the face, or throbbing of the temples, or some symptom of increased activity of the circulation in the head, which he and his friends had probably slighted.

XXI. A sudden and permanent loss of recollection, with torpor and somnolency, has been called a paralytic attack; but when unaccompanied with loss of muscular power or of sensation, it is, with more propriety, to be considered

as lethargic: such an affection, although both in hospital and private practice I have seen it ranked under palsy, agrees with no definition of that disease: and although it also differs from the usual form of lethargy, it tallies with the following description of that disease given by Sauvages: "Lethargicus enim somnolentus est et torpidus, omnium utut recentium oblivisciтur, et præ segnitie nihil curat."

In the affection to which I allude, the injury in the first instance falls on the associating power. Any object presented to the eye is recognised as usual, but the thoughts which it was wont to suggest no longer present themselves. Whereas persons in hemiplegia are often in possession of every intellectual faculty. In the brain of paralytics who have also had lethargy, we discover the same morbid appearances which are seen in dissecting those subjects who had been lethargic before death, and who had not been affected with either palsy or apoplexy. But these appearances are not found to any extent, in the brains of such as have had apoplexy or palsy, unless they also have had some lethargic symptoms. I am disposed to conclude, that although palsy and lethargy are

often united, as being the diseases of the same period of life, they are not necessarily connected. Perhaps we are not sufficiently acquainted with all the circumstances which produce lethargy, to enable us sufficiently to investigate the disease. The observations probably would have been more numerous and accurate, had not the subject of late been overlooked by those who ought to have known, that while any morbid change of the brain was neglected, they entered upon its pathology with great disadvantages. At present, therefore, I shall limit myself to an attempt to restore lethargic diseases to their natural importance: for which reason it is necessary to revert to the views of the physicians of the 17th century, and to compare these diseases with some analogous affections of the brain.

Willis, in his chapter de lethargo, has described, with great accuracy, the two varieties which I have called veternus and cataphora: he terms these the actus and dispositio of the disease; the latter he considers as present when the sensations are blunted, and the patients are much inclined to sleep: when they are overpowered at those times when persons are supposed

least liable to become torpid—during dinner or on a journey. The patient is said to labour under the former state, when he is so buried in sleep that he can scarcely be roused by the strongest stimulation: and should we, by pricking or pinching, succeed in rousing him, it is but for a moment. A similar account might be extracted from the writings of other physicians. By all the medical authors of the same period, a propensity to sleep, and a forgetfulness of recent events, are said to be the two leading symptoms of lethargy.

The patients attacked with lethargy are often those who have been exposed to some determination towards the brain, which had been prepared for the complaint by the daily abuse of stimuli. I have heard of several elderly men who have been attacked with lethargy soon after they had travelled in the mail coach from London to Edinburgh. Cares and disappointments, busy days and restless nights, protracted studies, surfeitings, intemperance, and tobacco, all appear to have led to lethargy; yet sometimes we cannot discover any cause but old age. In elderly persons all the other causes act with vigour, and lethargy readily follows all those

diseases, such as rheumatism, gout, and apoplexy, which impair or break down the constitution.

Dissections after lethargy are uniform in the diseased appearances which they present. Surrounding the brain we shall find a watery deposition, generally of a citrine colour: sometimes a remarkable turgescence of the veins, and an unusual number of minute arteries are observed, on removing the dura mater. The membranes, particularly the arachnoid, under which much of the watery deposition is confined, are opake. The substance of the brain, especially the cortical matter, is flaccid and moist, from serous effusion. The ventricles, with every exhaling surface within the cranium and vertebral canal, have thrown out more fluid than can be reabsorbed. There appears a laxity of the arterial system; for we often find the effusion turbid, sometimes like lotura carnium. There are some other changes, which, however, are not so generally observed. For instance, the cineritious substance of the brain is of a darker colour than usual; and in many parts of the brain we find a change of structure. It is observed, that the corpora striata are found disorganized oftener

than any other part: they are wasted, of a deeper colour, and soft, and, as it were, approaching to dissolution.

As the morbid appearances left by lethargy are described with so much accuracy by several of the older physicians, it is surprising that late authors should have lost sight of the distinction thus established between this disease and apoplexy. Piso, after having described lethargy as "Perpetua in somnum propensio, et vigiliæ non nisi vi extortæ," and the pathognomonic and concomitant symptoms "*Pathognomonica*, sopor qui non facile potest evinci, mentis stupor, ac celer oblivio; *assidentia*, rara nimirum sed magna respiratio, oscitatio crebra, facies turgida, atque decolor, manuum tremor,"—thus explains what he conceives the proximate cause of a case of carus; "Quæ cum ita concludere fas est; carum in puero serosam capitis colluviem habuisse continentem causam, sive, in *spatiis inter cerebri membranas et cerebrum interjectis*, sive, in poris cerebri delitescens." And Willis, although nothing can be more unsatisfactory than his anticipations respecting the causes of lethargic diseases, distinctly pronounces their seat to be in the superficial parts of the brain.

It has long been remarked, that in lethargic complaints the diseased appearances are most remarkable on the surface of the brain; whereas, in the disease in which effusion into the ventricles is carried to the greatest excess, namely, chronic hydrocephalus, however weak the powers of combining, the memory is not impaired. One boy, whose brain was absorbed so that it must have resembled a mere membrane, in whom the ventricles must have contained four or five quarts of fluid, appeared to me to have rather a retentive memory, and certainly he did not sleep more than usual.

Lethargic symptoms, which affect a constitution not impaired by age, anxieties, nor intemperance, are not so alarming. Young or middle-aged persons have slept for weeks without interval. Nay, a case is related of a young man who fell asleep in spring and did not awake before harvest, and who recovered the use of all his faculties, both of body and mind: but I think it not improbable that such affections are more allied to catalepsy than to carus.

I have in my possession two dissections of very young subjects whose brains presented the appearances which belong to lethargy. Before

death they were both comatose. One of the children was erroneously supposed to have died of hydrocephalus acutus. Although the symptoms of the illness of the other child did not indicate a disorder with which I was acquainted, they distinctly belonged to a diseased brain. In both children, the surface of the brain was hid by a large deposition of serum between the tunica arachnoidea and pia mater. The substance of the brain was soft and moist, and in the ventricles there was scarce any fluid.

When somnolency is the only symptom of lethargy, or when, along with it, the memory is but little impaired, we may arrest the progress of the disease; but when there is great forgetfulness of recent events, we are not to encourage sanguine hopes of recovery.

Some of the morbid appearances which I have described are displayed, not only after idiopathic lethargy, but after lethargic symptoms, which have succeeded other primary diseases. When an increased action, particularly of the surface of the body, is suddenly stopt, it is common to find some internal part immediately affected, in which case no part is more liable to suffer than the brain. For example,

during an attack of inflammation of the lungs, or of the kidneys, symptoms of a diseased brain often arise, and physicians of all ages have declared the situation of the patient full of danger. Carus is symptomatic of, or consequent upon, many diseases, as apoplexy, torpor, or costipation of the bowels, &c. Piso relates a case of this kind, and such a case is related in my book on hydrocephalus. The symptoms of carus appear in the termination of many diseases appearing as the effect of the prolonged operation of the original disease, or arising when an important disease in some distant organ is superseded by an attack on the brain.

I. In fevers, in which the brain has been much affected, when, after the excessive agitation of violent delirium, typhomania is induced, and the patient gradually sinks into stupor, we never fail to find the tunica arachnoidea raised from the surface of the brain by a serous or gelatinous effusion; and the brain, more particularly the membranes and the cortical part, bears every mark of vascular excitement. In the tropical fevers, the patient is said to sink into a state nearly resembling cataphora: he is roused with difficulty, and can

only answer the simplest question; after which he again immediately sinks into insensibility. In chronic states of illness, consequent to the fevers of Jamaica, the functions of the brain are often impaired, but the traces of existing derangement are not always visible. In some cases the ventricles, and all the interstices of the brain, are full of water, and the whole surface of the brain appears pale, and as it were macerated. In this state of things, the prominent features of the disease before death are a pale and lifeless aspect, a pulse uncommonly slow, perhaps under 40, and a power of motion diminished in a wonderful degree, but without palsy. *(Jackson).* I have on several occasions observed a dilated pupil, paleness of the countenance, listlessness, debility, aphonia, and, apparently, total forgetfulness, after the fevers of children which had been attended with delirium. These symptoms were generally removed by the use of purges, and blisters to the head and neck. Some epidemic fevers are remarkably attended with lethargic symptoms. Sydenham observes of the continued fever of 1673, that the principal symptom was a kind of coma, which lasted for several weeks, and sometimes

ended in a total loss of recollection. Dr. Jackson's observations teach us what Sydenham would have discovered, had he examined the brain of any of his patients.

In phrenitis vera, which is often fatal on the third or fourth day, death is preceded by absolute stupor; and in phrenitis traumatica, when the disease is far advanced, the senses are completely lost, the patient only opening his eyes when assailed by loud noise, or violent shaking. I have seen the stupor so profound, that the patient, when pinched, did not withdraw his limbs, nor complain. Now, it is hardly necessary to observe, that we always discover effusion upon the surface of the brain in our dissections after these diseases. Physicians consider the lethargic symptoms an indication of the commencement of effusion, and as establishing a fatal prognostic: and yet, in spite of the pithy aphorism, "phrenitis a pneumonia lethalis," a patient of mine recovered from an ungovernable phrensy, which arose during pneumonia. I have seen a case of concussion, from a blow received between the left mastoid process and the tuberosity of the occipital bone, followed, as I conceive, by increased action and effusion,

terminate in a slow pulse, constant drowsiness, forgetfulness of every thing, aphonia, dilated pupil; the vital and natural functions remaining entire. When the first signs of convalescence appeared, the patient, in every thing but his look, was in a state of idiotism: his eye was clear, and his position, as he sat, natural; but no noise roused him, he attended to no signs, and he did not recognise his mother, who came from a distance to see him: he ate when food was put into his mouth, and followed with his eye the morsel when taken from him, but he betrayed no impatience when tantalized. When he recovered, which he did gradually, his voice was weak, and his manner slow: he had lost the recollection of the name of every thing; for instance, the names of the most common articles of food, yet he recognised them, and applied them to their proper use. I saw him, some months after the accident, recovered, with the exception of deafness of the left ear.

I have already said that lethargic symptoms often follow apoplexy and palsy. I have had occasion to observe the appearances which may be said to belong to lethargy, in the brains of those who, after having been apoplectic,

have died of carus: and, I believe, we shall generally find a large deposit of fluid on the surface of the brain of the maniacs who fall into a comatose state before death.

II. The annals of medicine abound with instances of metastasis and conversion in the diseases of the skin. Thus the exanthematous eruptions, when suddenly repelled, are followed by hurried and oppressed respiration. Tinea has ended in hydrocephalus; and erysipelas in lethargy. Several cases of this kind are annexed to Hoffman's "thesis de affectibus soporosis." One of these is the case of a corpulent and plethoric man, of fifty years of age, of a sanguine temperament and bad habit of body, who had an erysipelas, attended with shivering and fever. On the third day of his disease he allowed an empiric to apply to the affected part an epithem of comfry boiled in vinegar; immediately after which he fell into a deep sleep, from which there was no rousing him. He was let blood, glysters were administered, and nitro-camphorated powders given, and soon after the patient was roused from his sleep: but he, who had been of the most lively parts, and had possessed an incomparable memory,

had his mind entirely destroyed. His memory had suffered so much, that he could not recollect any thing which had happened to him. Every remedy was tried in vain. He remained several years in this deplorable state; during which period his appetite continued unimpaired, and his body was duly nourished.

When a patient, after a pleuritic attack, dies of carus, he is delirious before he sinks into stupor. This is also the course after ischuria. In some rare instances of coma after ischuria, it would appear as if the vessels of the brain assumed an action similar to the healthy action of the vessels of the kidney: fluid, with the colour and smell of urine, having been observed in the ventricles of the brain. "J'ai reconnu l'odeur d'urine dans une épanchement d'eau qui s'étoit fait dans les ventricles du cerveau d'un homme mort d'une suppression d'urine."—*Portal.* And yet this is scarcely more extraordinary than the case of a girl whom I saw in 1797. She vomited, at stated times, a fluid with all the sensible qualities of urine, the discharge by the urinary passage having long been suspended.

In many cases in which the patient is said to be in an apoplexy, I am disposed to think, were

his situation carefully examined, which is seldom done in the moribund state, that he would be found rather to have symptoms of carus. The apoplexia arthritica and rheumatica are often mentioned. Some of Musgrave's cases appear to have been translations from gout to carus: and, in the table of diseases which accompany acute rheumatism, given by Dr. Haygarth, although there are 16 cases of translation to the brain, not one of these appears to have been of an apoplectic nature. I have seen acute rheumatism first converted into what generally would have been considered typhus, but the patient at last died lethargic. Stoll refers to apoplexy the following case, which rather appears an instance of carus: "Quidam ex febre rheumatica per quindecim dies decumbens, repente delirabat, tandem sopore apoplectico correptus, paucos post dies periit. Multum aquosi laticis inter utramque meningem, et in ventriculis lateralibus, inventum fuit, item humor aquoso cruentus infra tentorium."

I have been the more circumstantial in enumerating these secondary affections, as they afford some explanation of idiopathic lethargy. Idiopathic lethargy, doubtless, arises from repeated

excitement of the brain; yet, in its commencement, it is often so obscure, and it has so many symptoms apparently unconnected with disorder of the brain, that it is generally considered as merely the effect of old age, and as a sign of the breaking up of the constitution from natural decay. But this view of the disease is inconsistent with the laws of the economy. From having long attended to the immediate causes of death, I have in my possession a number of reports made when patients were about breathing their last, and I scarcely think I ever saw one instance of death from mere old age; by which I understand the general failure of all the parts of the system. One organ is invariably worn out, by the morbid activity of its circulation, before the rest.

In all the varieties of secondary lethargy which I have adduced, there has been, in the first instance, an increase of vascular excitement. We may safely infer that this is also the case in idiopathic lethargy. Few persons, now-a-days, maintain the doctrine of a laxity of the absorbents as a primary cause of dropsy. Although there had existed little pain, sickness, or fever, we might have inferred increased

arterial action, from the serous effusion which is discovered on dissection. Even were the analogy between idiopathic and symptomatic lethargy less intimate, and were the nature of the latter doubtful, the case which I have quoted from Willis would have gone far towards establishing the nature of idiopathic lethargy. For intemperance and consequent excitement of the cerebral system, and lethargic symptoms, appeared as cause and effect. And, what is unfortunately rare, when the exciting cause was removed the disease subsided.

If the reader expect satisfactory information relative to the cure of lethargy, I fear he will not be gratified. I have tried no new medicines, nor have I returned to the use of hellebore; as I am convinced that all Anticyra will not relieve lethargy as it usually appears. The symptoms of increased arterial action with which the lethargic affection commences, are generally obscure, and do not alarm the patient nor his friends. In most cases the disease has been confirmed when I have first witnessed it. But in those instances, few indeed in number, in which I have been consulted early, I have with advantage adopted considerable activity of prac-

tive. When blood-letting was admissible, I have recommended it, and I have ordered cathartics and blisters, and enjoined the strictest attention to regimen. Purgative medicines have not appeared to me so useful in lethargy as might have been expected, unless in such cases as arise from torpor of the liver and intestinal canal: in such cases calomel is a very certain remedy. Diuretics have been inefficacious. A course of mercury was of no service to two of my patients, who were salivated, rather by accident than by design. The lethargy continued stationary. I have tried tonics, as they are called, without the smallest advantage. Limited topical bleedings have appeared to me useful. In one patient the application of leeches to the temples was followed by the abatement of a dull gravitating pain in the forehead, which attended when the confusion of ideas was greatest. Upon any increase of the symptoms this man expressed an anxiety to have leeches applied; and analogy would lead to the trial of issues and setons. Every thing which greatly stimulates the system of the brain ought to be avoided, such as the daily or frequent use of ardent spirits, strong wines, and tobacco. There

is an opinion widely spread and willingly believed, originating with, and perpetuated by, ignorant and designing men, that those who have indulged freely and long in tobacco and wine, cannot without danger depart from their use. I have seen so many memorable illustrations of the safety of a return to temperance in constitutions broken by a long course of inebriation, that I would have the experiment cautiously made upon all occasions. When lethargy has been induced by great excitement of the mind, change of scene; travelling by easy stages; the amusements of a watering-place; and a course of those mineral waters which relax the bowels, are well worth a trial.

I had almost omitted to say, that one of my patients who had delirium, and appeared sinking into stupor, after the interruption for five days of the urinary secretions, very unexpectedly recovered. This, as such cases generally do, belonged to a gouty constitution. The delirium did not appear until the day after the secretion of urine was restored. I confess the case appeared to me hopeless; and an application, from which I did not expect much benefit, relieved the patient in a way I had not calculated upon.

He had a large blister applied, which induced a strangurious affection—namely, a scanty secretion of urine, with uneasiness in voiding it; the delirium immediately abated. I was in no hurry to relieve the nephritic symptoms; by careful management they subsided in a few days, and the patient is now in health. In a similar case I should think it right to try the tincture of cantharides internally, or some of the turpentines.

.....Sed omni
Membrorum damno major dementia, quæ nec
Nomina servorum, nec vultum agnoscit amici
Cum quo præterita cænavit nocte, nec illos
Quos genuit, quos eduxit.

EXPLANATION

OF

THE PLATES.

PLATE I.—Represents the arteries of one of the hemispheres of the cerebrum, and enables us to estimate the quantity of blood which is conveyed to the substance of the brain.

PLATE II.—This plate represents the section of the brain of a watchman who was found dead in his box.

There were no marks of injury in the head, nor was there any suspicion of violence. He had taken several glasses of gin early in the night.

It was remarkable, that, on laying open the surface of the brain, no blood was to be seen in the vessels. On cutting into the substance of the brain it was of a cheesy firmness, and no spot of blood was any where to be observed: but, on opening the ventricles, they were found distended with dark coloured blood, and the coagulum was traced into all the cavities of the brain. From the left ventricle it was traced through the torn substance of the brain, to the corpus striatum, and central part of the hemisphere.

PLATE III.—This plate represents the base of the brain covered extensively with a coagulum of blood, owing to a rupture of the anterior artery of the cerebrum of the left side. The rupture of the vessel is sufficiently distinct without any letter of reference. The nerves have a peculiar appearance emerging from the dark coagulum.

PLATE IV.—Represents the effect of an extravasation of blood between the corpus striatum and thalamus nervi optici, which the patient survived for some time.

A. Corpus callosum.

B. Corpus striatum.

C. Thalamus nervi optici.

D. Coagulum of blood contracted and in part absorbed.

E. The extent of the irregular cavity formed by the extravasation, now chiefly containing serum.

PLATE V.—Is a delineation of those cavities which are found in the brain when a patient has suffered a shock of apoplexy a considerable time before his death.

THESE engravings, intended to illustrate some of the effects of apoplexy, were made from drawings of morbid anatomy in Mr. C. Bell's museum.

The first shows that the vessels are very minute when they enter the substance of the brain; and it is

scarcely to be conceived that the large quantity of blood which we sometimes find extravasated within the substance of the brain, could have been poured out but by the co-operation of a multitude of such vessels. This plate also enables us to foresee the effect of even a slight increase of the general action of the arteries in producing effusion or venous turgescence.

The second plate enables me to show the blood extravasated; and I recommend it as a subject for meditation, to those who dislike blood-letting when there is danger of a rupture of the vessels of the brain. —Yet, as in this dissection, the substance of the brain, unless near the coagulum, was free from the small drops of blood which proceed from the cut orifices of the blood vessels, and as the surface of the brain was bloodless, there must have been something different in the circumstances of the case from what usually takes place in apoplexy.

I do not pretend to offer a satisfactory explanation of the state of the circulation in diseases of the head; nay, not in any one of them. It appears a subject of the greatest difficulty, and, I believe, ought not to be attempted until the state of the circulation in health is explained *.

The following outline is proposed not as a theory, but as the most consistent view of the subject which I have been able to form.

There is good reason for believing—1. that there is an affection of the brain itself, primarily.

* I believe the state of the circulation of the brain, forms the subject of a paper which my friend Mr. C. Bell is preparing to present to the Royal Society of Edinburgh.

2. That this affection produces an excitement of the arteries of the brain.

3. That this, again, leads to absorption of the brain, interrupted circulation, venous turgescence, and serous effusion.

4. That sometimes the excitement of the brain is partial: the action of vessels of particular parts is excessive, and, in consequence, there is rupture and extravasation: or, perhaps, the rupture is owing to weakness of a particular part of the brain, the general action being uniform.

5. That there is an accidental rupture of an artery within the skull, which probably does not proceed from a primary affection of the brain, but from shocks or blows which the patient may have sustained during a prevailing activity of the vascular system of the head.

From this view, I should always expect the vessels of the head to be full in dissections after apoplexy, unless in the case of instantaneous death from a large extravasation made at once into the brain, by a sudden and violent action of the minute arteries, arising from some concussion, or from an unusually violent hemorrhagic effort.

The case to which the third engraving belongs was one of some interest. An industrious man returning home from his work, found his house empty of every thing: the bed he was to lie upon, and the tools of his trade, sold for gin, by his wife, whom he found in a gin shop, where she had been drinking and dancing. He brought her home, and in the pasage of his house struck her, and ordered her to go up stairs; she refused

to go; he carried her up upon his shoulders; and the contention continuing up stairs, he struck her again. There having been no one present, we have only the husband's account of her death. He said, that, whilst sitting on her chair, she fell down, upon which he threw her on the bed, conceiving she was in a fit, such as he had seen her in formerly. Some of her neighbours coming in, found her dead. Mr. C. Bell was requested to examine the body of this woman: the man was afterwards tried at the Old Bailey for murder, and Mr. Bell's deposition was nearly to this effect: In the abdomen and thorax nothing appeared remarkable, further than that the stomach contained a quantity of gin, and that there was a blush of redness on the lower orifice of the stomach and duodenum. On the head there were several bruises, but the bone was not at all hurt, and no extravasation appeared under the bone. On exposing the membranes of the brain, the vessels of the pia mater were empty of blood, as if from pressure. There was a serous effusion under the tunica arachnoidea, and in the cavities of the brain, similar to what has been found in those who have died from intoxication. On the sides of the brain there were what appeared to be spots of extravasated blood; but, upon tracing them towards the base, they proved to be streams of blood which had flowed from a vessel ruptured in the base of the brain: the base of the brain was covered with coagulated blood, in which also all the roots of the nerves were involved. On dissecting the cavities of the brain, the blood, it was found to have penetrated into the third ventricle, by perforating

its floor. Upon taking out the brain, and tracing the vessels in the base, the anterior artery of the cerebrum, going off from the internal carotid of the left side, was found torn half way across: from this source came the extravasated blood.

The cause of this woman's death was the bursting of the blood from the ruptured vessel, and the pressure on the brain, or, more correctly speaking, on the vessels of the brain. As to the cause of the rupture, Mr. Bell's opinion coincided with the best authorities in pathology, that there is a state of the vessels in which an external injury or shock is more apt to produce rupture, and drunkenness may be supposed the artificial state of excitement which most resembles this state of the vessels. Being asked, Whether the blows were the cause of the rupture? he said he conceived it very likely that a shock would rupture the vessel: and being then asked, Whether he conceived that this woman was more likely to have a vessel ruptured from having been intoxicated? he was of opinion, that intoxication, and the struggle, were likely to produce such a degree of activity of the circulation in the head, that a less violent blow might produce rupture than what in other circumstances would have proved fatal. The man was acquitted.

In Plate IV. is delineated the middle stage between the coagulum of pure blood, which is seen when the patient dies in the fit, and the serum filling a regular cavity, which has been observed in those who have survived an attack of apoplexy for a considerable time. There is here represented that rusty yellow colour

which stains the substance of the brain in the neighbourhood of the rupture.

Plate V. represents one of these cavities filled with serum, and completes this part of the anatomy of apoplexy. We may consider these cavities, which were originally filled with blood, and afterwards with " a serous limpid fluid," or, perhaps, with " yellow or brown gluten," as a proof of the activity of the absorption within the brain. It also appears that these cavities are lined with a tough substance or membrane, which obtains the power, not only of absorbing the red particles of the blood, but of secreting a fluid, which is of a nature perhaps less irritating than the original extravasation. One of these cavities I have seen in the brain of a person who died after having long been manaical, and who, there was reason to think, had sustained a stroke of apoplexy: the matter it contained was coagulated blood, which had nearly lost its colour, with some serum. In the progress of the deposition and absorption of the serum, the coagulum gradually dissolving in the serum, the cavity at last is left free of the original coagulum, and full only of serum.

The following quotations show that extravasation, even when extensive, is not always fatal: " Brunnerus tamen, vir acri ingenio, in ea quoque muliere cujus apoplexiam annis propemodum quinque ante ejusdem mortem curaverat, ex iis quæ sive in vivente animadverterat, sive in mortuæ cerebro deprehendit, argumenta non dubitavit colligere, quamobrem in cerebri ejusdem substantiam effusus sanguis jam tum fuisse

videretur. Quemadmodum autem in altero hæmispherio *tres* ipse *cavernulas jam olim factas, nunc quasi callosas ac cicatrice obductas circumcirca corpus striatum* deprehendit quod propterea *flaccidum obscuri subflavi coloris et emarcidum apparuit ceu atrophia laborasset;* sic mecum animadvertas haud ita absimilia occurrisse viris clarissimis, nostrumque amicis Antonio Leprotto, et Jano Planco. Hæc enim quæ latine reddo, Arimino ad me Plancus scripsit Kalend. Aprilis 1721."—"Paucis abhinc diebus cadaver incidimus viri illius qui Junio superiore te Patavii consuluit de hemiplegia, quæ a forte apoplectico insultu, in sinistra parte relicta erat. Non hinc mortuus est tamen, sed a cordis et præcordiorum dilatatione, quam tu præclare ex iis quæ præposueras, remediis, jam tum videris dignovisse. Ceterum hæmispherium cerebri dexterum, tempus versus, quasi abscessu aliquo videbatur erosum fuisse; ibi enim substantia deerat ad quatuor transversos digitos in latitudinem, ad sesquidigitum in profunditatem. Proximus autem nervi optici thalamus duabus tertiis partibus minor erat, quam sinister, subflavus præterea, nec secus se habens ac cicatricem duxisset." Nec mihi ipsi antequam has, a te remissas, epistolas relegerem, propria de hoc genere observatio defuit, cum aliis nonnullis ad te mittenda."—Morgagni Epistola, II. § 16.

The dissection referred to, is in Letter III. § 6. It is imperfect, as the history of the case previous to the fatal attack was not to be obtained. The appearance of the cavities is thus described: "Dum cerebrum assulatim inciderem, non solum puncta, ac filamenta

sanguinea vel plura quam soleant, passim occurrebant; sed in medullari singulorum hæmispheriorum substantia singula inventa sunt cava, parvum unum ad latus externum thalami dexteri nervi optici ea forma et magnitudine, ut ovale minimum prunum continere vix posset: connivebat, nisi quatenus fusco quasi glutine, seu muco semisiccato referriebatur. Cavum autem alterum in omnes dimensiones amplum, sed præsertim in longitudinem, quippe quod ad totum latus externum sinistri ventriculi producebatur, plenum erat sanguine," &c.—Epist. III. § 6.

These cavities are generally found in the medullary part of the brain, and are lined with a tough substance or membrane. Morgagni naturally enough concludes, that they are the remains of the lacerations formed by the extravasated blood, in attacks of apoplexy which the patient had survived. These lacerations, he supposes, are from an aneurismal state of the arteries; but he begs his reader not to think that he conceives them to be true aneurisms, or varices gradually enlarged to that size: it being more natural, he observes, as well as consistent with the delicacy of their coats, which is peculiar to the vessels ramifying in the brain, to suppose, that when they have arrived at a moderate degree of enlargement, which, however, may be scarcely perceptible, they are suddenly ruptured; and that, according to the diameter of the vessel, the size of the rupture, the degree of plethora, the vis a tergo, and the laxity of the brain itself, sooner or later, larger or smaller cavities are formed; and that these, in proportion to the greater

or lesser laceration of the cavities, or to the situation of the laceration, are sometimes bounded by the substance of the brain; sometimes open into the ventricles, and sometimes outwardly upon the surface of the brain. Thus, he continues, the soft substance yielding to the impulse of the blood, the apoplexy and laceration are formed at the same time; and, if the power of the heart and arteries does not languish, the laceration increases, and with it the disease is increased, unless the physician interferes to save the patient.

Bonetus has given a dissection in which three of these cavities were found in the brain: they contained a thick mucus, and were caused by apoplexy. Consult also Portal, Anatomie Medicale, Tome IV, p. 72. Appendix to Baillie's Morbid Anatomy, p. 152. Abernethy's Surgical and Physiological Essays, Part III, p. 17. Charles Bell's Dissections, Vol. I. p. 91.

FINIS.

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Plate I.

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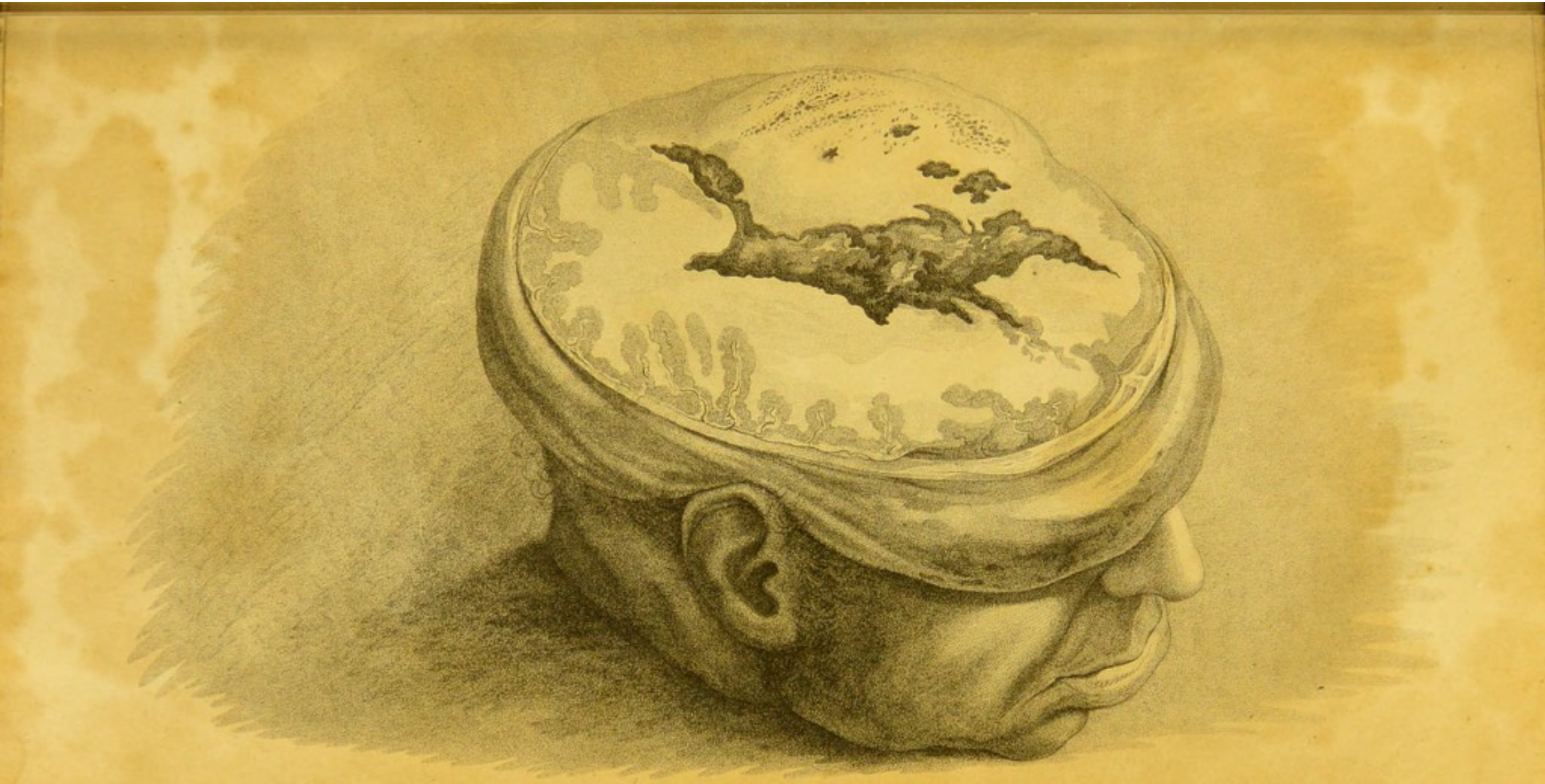

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Plate III.

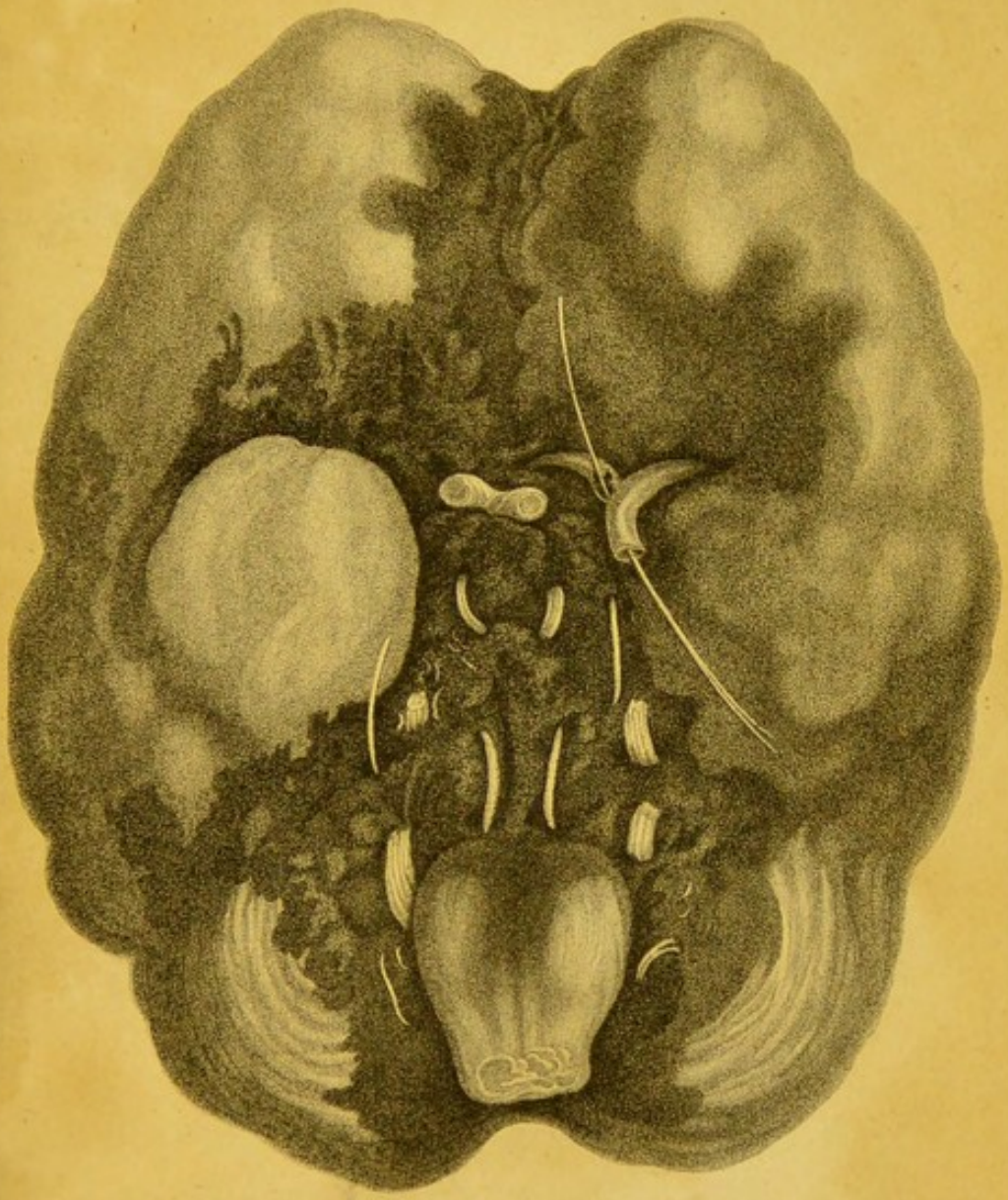

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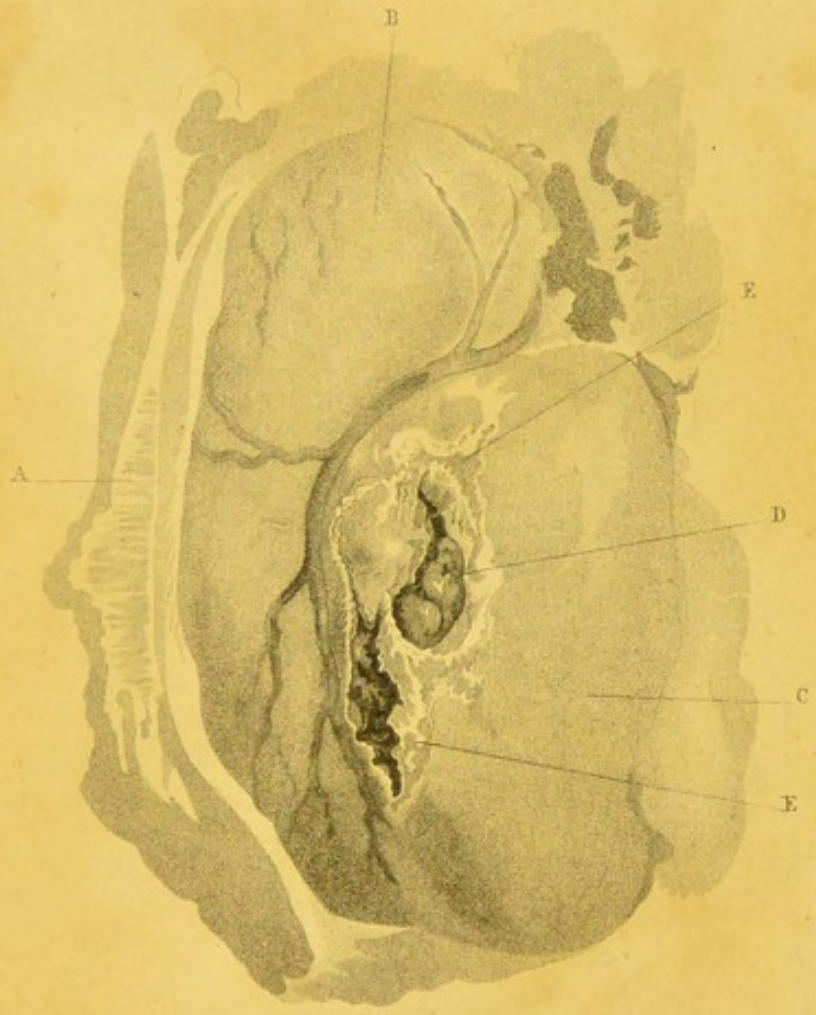
Plate IV.



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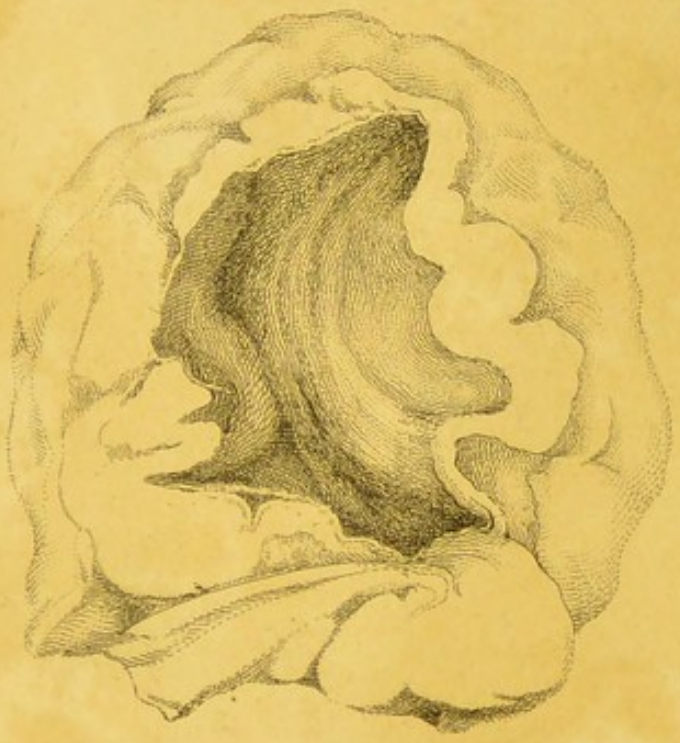

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