A paper showing the use of the spleen : showing also the use of the respirable element of the air to the blood / by T.H. Pasley.

A PAPER

SHOWING THE

USE OF THE SPLEEN:

SHOWING ALSO

THE USE OF THE RESPIRABLE ELEMENT

OF THE

AIR TO THE BLOOD.

BY

T. H. PASLEY.

He who does not understand MOTION, is necessarily ignorant of all things. ARISTOTLE.

"No THEORY OF NATURE is otherwise than false, which has not for its basis the INERTIA OF MATTER."

JERSEY:

PRINTED AND PUBLISHED BY P. PAYN.

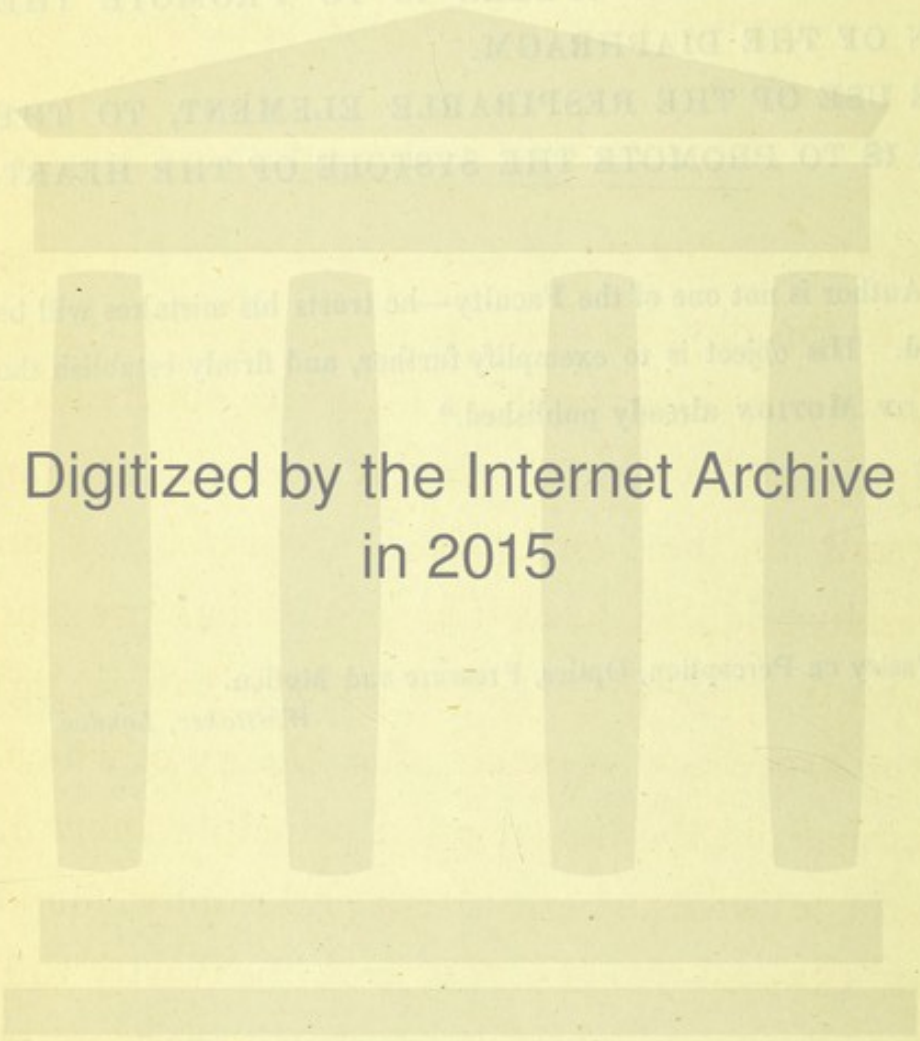
1839.

THE USE OF THE SPLEEN IS TO PROMOTE THE MOTION OF THE DIAPHRAGM.

THE USE OF THE RESPIRARLE ELEMENT, TO THE BLOOD, IS TO PROMOTE THE SYSTOLE OF THE HEART.

The Author is not one of the Faculty—he trusts his mistakes will be overlooked. His object is to exemplify further, and firmly establish the THEORY OF MOTION already published.*

* See Pasley on Perception, Optics, Pressure and Motion.
Whittaker, London.



A PAPER,

SHOWING THE USE OF THE SPLEEN.

&c. &c. &c.

That the use of the spleen has remained undiscovered to this day, is owing to Philosophers being so tenaciously wedded to their favourite but irrational principle—*attraction*, a principle, which, although repugnant to the *inert* nature of matter has been universally adopted ; but its adoption has prevented mankind from viewing in a simple mechanical light, the true procedure of nature, the theory of which is deducible from the fundamental principle *Inertia*.

As the rational and consistent philosophy, founded on THE INERTIA OF MATTER, must be vastly different from the system which arbitrarily assumes that Matter is not inert but can act of itself—that is, can *attract* and *repel* its like : so, before the final

adoption of either, the question should be agitated and decided, whether Matter be inert or not, whether it be active or inactive. If it be *inert* it can do nothing, neither attract nor repel ; it is *cause* in no instance, and to it no *effect* whatever can with reason be imputed. On the other hand, if Matter can attract and repel its like, it is an *acting cause*, it is not inert.

It may however at once be reasonably presumed that Matter, from consisting in unorganised atoms of mere brute atomic substance, and each atom, from being in itself unity of substance, is devoid of every thing like a *self-acting property*—a property possessed by nothing without organisation and vitality—rather than it should be maintained in the face of common sense that every atom in creation can act in a twofold manner, that each should constitute not one, but two *physical* powers ; by which there would be double the number of powers or forces, to keep the system of nature in motion, as the system contains molecules of matter. And while these universal means for carrying on the system are assumed, it cannot be denied the existence of a third universal power, *uni-*

versal pressure; which, in fact, makes the other two superfluous: for any thing like this triplicity of *universal* causes, is opposed to all correct ideas of *simplicity*; a principle closely followed up by all who may be concerned in mechanical practice and certainly most undeviatingly maintained throughout the sublime performances of HIM whose omniscience is conspicuous in all his works; from the whole of which we learn, that to be simple the fewest causes, even to unity of cause, and shortest means, should be sought after and direct our opinions in the lofty pursuit after the truths, not secrets—for if not all, there is nothing secret—of Nature.

Were attractive and repulsive properties possessed by matter, as being elementary properties, they could not be either communicable or removeable, but must be identified with the substance of matter: whereas we make iron and steel magnetic and unmagnetic, "attractive and unattractive," Nor is there anything to which these properties are attributed, even the magnet and loadstone, but, by means of fire, can be shown to be possessed of nothing of such imagined elementary properties, And notwithstanding attrac-

tion by inert atoms, and by bodies formed of such, has been countenanced for centuries, *there is not in all Nature one single instance* DEMONSTRATIVE *of the assumption being true.* Besides, as all phenomena attributed to these occult powers, from consisting in effects and results produceable by pressure, indicate that nothing more is wanting to cause them than physical impulse, so is pressure not only an analogous, but a competent cause for the production of the whole.

Although all Nature is in motion, and is throughout in an acting state, yet no part acts or moves itself; part is impelled by part all through, as if the whole were cause of every occurrence, and of every change: as if the whole pressed or were pressed forward as cause in every instance of local change. Now, were matter not *inert*, of what use is this general pressure, for the production of local change. Could every atom by attracting move every other, so would everybody find cause of motion in the attraction of some other body: but what then could ensure direction or order of motion; and *could* matter at the same time repel, of what use would be attraction. On the other hand as motion universally needs for cause

that which is truly universal, of a physical nature and analogous to the physical effect motion, so from existing pressure answering the whole of these conditions—for as far as motion extends, there must be a physical impelling cause—it may with reason be concluded that the state of pressure under which all things exist, has been designed to be the *Universal Cause*, and this in consequence of the inactivity, the inertia of matter. Existing Pressure, effects every thing erroneously imputed to the occult properties, attraction and repulsion; and would have a useless existence were not matter devoid of the power of action, or were it not *essentially inert*. The foregoing general heads admit of the following arrangement, which it is necessary here to set forth as being illustrative of the cause of motion generally, therefore of the motion of the diaphragm which the spleen Promotes.

MATTER consists of atoms or molecules, and of such are all manner of bodies constituted.

MATTER being *essentially inert*, neither in the elementary nor bodily state is it *cause* or can it produce any kind of effect whatever. Inert matter acting, at-

tracting and repelling, is as irrational as dead men walking, and as absurd as the right leg walking forward and the left leg backward, at the same time.

No Theory of Nature is otherwise than false which has not for its basis the Inertia of Matter.

The atoms of matter are unalterable : one inert atom cannot act on or alter another. The consistency of nature in all things from the beginning, evinces the unchangeableness of the materials, that is, atoms, of which the world is composed.

There is reason for assuming that the *shape* of the whole of the atoms of matter is spherical. For as inert unchangeable matter can be subject to change of place only, so to effect this *uniformly* on combined atoms, as in the expanding of bodies, there must be permanent openings in all bodies for the admission of a physical cause of separation ; and the spherical shape is that only, which, while it permits immediate contact, leaves empty spaces uniformly throughout, in every kind of body, for the entrance of a physically expanding or displacing cause, without which there are no means of accounting for the expansion, decomposition, and ultimate dispersion of the elementary atoms of bodies.

Local change is that only to which bodies, formed of inert unalterable atoms of matter, can be liable by any possibility; and local change is the effect of physical impulse.

In every instance whatever the known General Pressure is the physically impelling cause: two causes to produce the common effect, motion, being unnecessary.

ESSENTIAL *action* and ESSENTIAL *change* must be foreign to *inert unchangeable atoms.*

CAUSE is that which impels; it must be in motion to be in action and in motion as long as it is producing effect.

EFFECT consists wholly in the impulsively produced motion of that which is impelled.

RESULT is the altered condition of a body, after the body or its atoms have ceased to be impulsively acted on.

REST, being a state of inaction requires no cause

Vis Inertiæ, or the force of inability, is as great an absurdity as, the *heaviness of nothing.*

MOTION is the local condition of a body while the body is not allowed to remain at rest; it is the State of

a Body while the body is being made to pass through contiguous portions of space.

IMPULSE *is as constant as the duration of motion*, inasmuch as effect *must* be produced by its *equal of cause*. Therefore a body is being impelled through the entire of its trajectory or of its orbit, and that which impels it is necessarily in contact with the body impelled the whole of the way.

In vacuo, as there is no impelling cause, there can be no motion ; hence in planetary motion we have reason for concluding that space is not a vacuum ; and as to keep the planets in motion, requires nothing short of a medium in a state of impulsive pressure filling planetary space, it follows that space is a plenum.

How the general pressure originated it may be impossible to say, nor has science aught to do with creative measures—still as "imagination's airy wing has always rest in view, the place however distant," we reason thus : inert matter cannot of itself act on matter, neither can it suffer change in either substance or essence : therefore the essential nature of matter cannot be cause in any instance, or concerned in the production of any phenomenon whatever, any more

than from the physical nature of matter Inertia can be made cause. Immaterial cause to account for material effects is by no means maintainable. Therefore, and of necessity, we revert to existing pressure as a universal cause, and the only means consistent with the inert nature of matter.

Next, as to the origin of the phenomenon, the general pressure, there can be nothing of error introduced into science in proposing that out of the all-wise manner of putting together the parts of the system, has emanated the general, the universal motive power, pressure. Neither is it unreasonable to conceive, that, from the first this state of pressure may have been originated and may now be maintained by means of the motion into which the same pressure retains the heavenly bodies. A planet may affect the medium it is passed through, so as to form a current—as it were a gulph stream current—of that medium against a neighbouring planet; this second may do the like against a third, and so on throughout the entire circle of bodies belonging to the solar system —as, did the water displaced, lifted and forced forward at and from the bow of a ship under sail, con-

tribute, by its forcible flow, to the continuance of the motion of a preceding ship, and this latter by its motions similarly beget a forcible flow against another remote ship, and the motion of this in like manner stir up a stream against a third ship a-head, and so on throughout a general round of vessels—to which might be added, that, as the forced up water at the bow is supposed to occasion a forcible flow from ship to ship, so may it be conceived that the depression of water in the wake of each ship, would further induce the continuance of such a circulating stream, as should keep in motion these bodies by means of the motions by which the steam itself has its motion perpetuated. On this idea cessation of motion becomes a physical impossibility, and the entire system remains self-regulating, which most probably is the state and order of the planetary system.

> " In human works, though labour'd on with pain,
> " A thousand movements, scarce one purpose gain,
> " In God's, one single can its end produce,
> " Yet serves to second too some other use—
> " All served, all serving, nothing stands alone,
> " The chain holds on and where it ends unknown."

Although the origin of pressure may not be discoverable, the existence, nature and effects of this source

of physical power are undeniable. The origin and nature of attraction being not only unknown, but undiscoverable, as well unintelligible, has not prevented this absurd nominal from being considered for centuries a really natural physical cause.

And as to the whole amount, sum, or maximum of pressure, it is not by barometrical calculation the truth is to be ascertained, which gives but fourteen pounds the square inch as the general average. We must refer to phenomena on the largest scale, such as earthquakes, tornados, volcanic eruptions, tempests, whirlwinds, moving bogs, the great water-spout, the force of steam and water during the process of congealing—to the force necessary to effect the expansion, contraction, and tenacity of metals, to the whole of which no common cause is rationally assignable but that of pressure.

As there cannot be two causes of impulsive effect or motion, and as that by which the greater planetary motion is produced, is capable of effecting the like on a minor scale, so all motion great and small is referrible to the Medium of Space, on the pressure of which, it will be found, all atomic, equally as all pla-

netary motion, depends. The planets float, as it were, within the Medium of Space: by it they are forced orbicularly through the same medium; and it in turn pervades every planet and every thing in the bodily form; which is owing to the atoms of matter being spherical, and the smallest possible interstices they originate, by aggregation, being too large to exclude or prevent the forcible introduction of the atoms of the Medium of Space. The exclusion therefore of the Medium of Space from the whole of the interior of bodies is a physical impossibility.

As from being composed of spherical atoms, all bodies must be porous uniformly throughout; and as from the smallest interstices of bodies being larger than the atoms constituting the Medium of Space, so may the Medium of Space within a body and within every body, be likened to the water in a submerged sponge.

Bodies of every kind must of necessity be saturated with the Medium of Space. Still the filling up or saturating quantity is not always the same in the same body, which depends on the more or less of the larger interstices being previously occupied by other elemen-

tary atoms. But under all circumstances, and be the quantity of the Medium of Space within a body what it may, it may be considered the fact, that, the portion of the Medium of Space within a body is continuous with the like medium in space generally; or that the Medium of Space is continuous from without to the very heart or centre of the densest body; consequently the force of the general pressure, or the force of the pressure of the Medium of Space, is, after this manner, carried, as it were, not only to the centre of the body, but to every elementary atom belonging to the body. By means of which each and every atom becomes moved centrifugally the instant the external pressure on the body is, as is the case in a medium of fire, reduced; this constitutes the expanding process: and the atoms of the body will be wholly dispersed, provided the medium by which the body is surrounded presents recipient interstices for the atoms of the body so expanded; in this consists the decomposing process.

It being, most decidedly, irrational to reject the general pressure as the cause of motion universally, the next consideration is to ascertain the means employ-

ed by Nature, for not only obtaining pressure of every degree downwards, but for subverting the equilibrium of pressure on the same body, as on this latter desideratum depends the phenomenon motion: for as equal pressure on opposite, or on all sides, of a body, retains the body at rest or does not put the body into motion, so, when we see a body in motion in the air, we have most certain evidence that the opposite sides of the moved body are pressed unequally. The question then is, what subverts the equilibrium of pressure on the body, which occasions it to be unequally pressed, therefore moved? What causes the body to be under a greater degree of pressure on one side than on the opposite; and, how is it that the maximum of pressure does not prevail in all cases: in a word, what are Nature's *minus-pressure* means?

The following instances, I imagine, will clearly show in what consist the *minus-pressure* means, the interposition of which reduces the full force of the general pressure on a body—by which the maximum of pressure is, as it were, intercepted—also, how, by the same *minus-pressure* means, a body may be unequally pressed on different sides, therefore forced out of rest into motion.

As a vacuum, if presented to one side of a body which is at rest and under the general pressure, would cause the body to be under a less degree of pressure on that side than the opposite, also cause it to be moved by and in the direction of the greater pressure, so, but in a less degree, is the general pressure on a body reduced, when, instead of a vacuum, highly rare elementary matter covers one side of the body. When a body is wholly covered with elementary matter—as by an invisible electric atmosphere—it is under equal but reduced pressure on all sides: when it is but partially covered, it is under reduced pressure on the side which is possessed of the elementary matter; and it is put in motion in consequence of the greater pressure being on the opposite or uncovered side.

The elements of matter are the means by which the equilibrium of pressure is subverted, and as vacuity is to the rarest element, so is any one element a minus-pressure medium or means, to any other element of grosser atoms. The pressure on and within a body, is reduced proportionally to the rarity of the elementary matter attached to the surface and

occupying the interstices of the body. Hence, elementary matter generally, that is, matter in the elementary state,—which, from not being cause in any instance, but only promoting means,—I have, in all cases wherein it promotes motion, designated by the appellation *minus-pressure means.*

A polished needle when dry floats, but when wetted or smoked does not float, it sinks. It is manifestly under greater pressure when it is precipitated, than when it floats. Had it an electric atmosphere round it the pressure on the needle would be less than were it not possessed of any such atmosphere. That it does possess a minus-pressure Atmosphere, when dry, is inferable not only from the reduced pressure the dry needle is under requiring some such interposing cause, but from the bed formed in the water in which the needle lies, being so much larger, every way, than the needle itself; and as the needle does not rest on, but above the water, that is above the bottom of the hollow bed, the inference is, that something as an electric atmosphere is attached to the needle, and that by this Atmosphere the water is displaced beyond the sides of the needle; and that on this electric at-

mosphere the needle rests. The whole of which is corroborated by the needle being precipitated at once, when wetted or when blackened with smoke, either of which, by removing the minus-pressure atmosphere, leaves the needle under greater pressure than when it was dry and bright.

All calculations on the tides, having attraction in view as cause—so much is attraction but a mere name for anything or nothing—stand good, on the principle of minus-pressure means unequalizing the pressure on the surface of the ocean and thereby promoting the ascent of the water. The sun and moon may be considered as intercepting or lessening the force of the general pressure on the sea, immediately beneath them respectively, which promotes the ascent of the water and the subsequent flow or tides.

In the phenomonon of the water-spout we have sensible proof of the ascent being promoted by minus-pressure means. From a cloud descends the spout, empty, funnel-shaped, and consisting of electric or elementary matter ; as it approaches the sea, the water is forced upward towards and into it. That this arises from the elementary matter of which the

spout consists, being a means of lessening the general pressure on the water whence the column took its rise, is as certain as that the barometric fluid is forced to ascend and continues elevated owing to the want of pressure on the top of the column; and as, that, were there no reduction of pressure, there would be no water, no quicksilver elevated.

Capillary ascent is erroneously attributed to attraction by the tube, but this is nothing short of "reason run riot:" inert bodies cannot attract any more than lifeless ones walk and talk, neither could the attraction of the tube be washed away or any way removed, yet, as, if the tube be "heated" or the water "hot" there is no capillary ascent, so neither is there any attraction in the case; the ascent is promoted by the electric matter within the tube, which matter intercepts the pressure above it from the water beneath it. This minus-pressure matter is, in design and service, as the torricellean vacuum above the quicksilver; and is removeable by fire, warm water and friction; cold water contributes to its increase.

Fire or flame placed over an immersed tube, promotes the ascent of the water within the tube; if the

fire be removed the water falls; and the minus-pressure means consist in the elementary matter set free from the body in combustion at the top of the tube. It will be said the air is rarefied at top, well, be it so, still rarefied air is elementary matter, and as it prevents the water within the tube being under as great pressure as were it away, it is therefore, a true minus-pressure means. From the whole of these circumstances, it seems conclusive that matter in an elementary state lessens the general pressure on bodies.

CAUSE is the same in all cases; so are the means for bringing the cause into action; and by the same means which unequalises pressure on bodies, it is, that we are enabled to exist amidst a cause or medium of pressure, which, if unopposed by minus-pressure matter, would leave the Earth an uninhabited mass. We live in a medium the pressure or force of which is productive of bodies of the tenacity of steel, yet so mixed is that part of it which immediately surrounds the globe with minus-pressure elementary matter, as reduces the pressure generally of the Atmosphere on the Earth to an average of fourteen pounds the

square inch. So that were the atmosphere away, were that portion of the uniform medium in which the Earth is enveloped, which accompanies the earth, and to which is given the name Atmosphere, away, neither life nor vegetation could exist on the surface of the globe. And what is the atmosphere, this general minus-pressure means, but matter in the elementary state, such as contributes substance for the formation of all kinds of bodies, and into which the elementary substance of all manner of bodies is evolved, as decomposition proceeds.

On the common principles—pressure and minus-pressure means it is that a body becomes dissolved in a menstruum. A salt is dissolved in water, in consequence of the fluid presenting empty interstices to the atoms of the salt and from the atoms being forced out of the salt into those interstices by the centrifugal pressure of the Medium of Space within the salt. When simple water does not produce solution, the object is obtained by adding to it substances which shall originate in it such recipient interstices as correspond with the size of the atoms of the substance to be solved.

The last instance I shall advance in proof of pressure and minus-pressure means being cause and promoting means in all cases of motion, is that of continuous motion. *The truth of our philosophy depends* ALTOGETHER *on the discovery of the cause of continuous motion.*

All bodies contain minus-pressure matter which is removeable without injury to the texture of the body which has been for a time deprived of the same: and the body acquires again the like of that of which it had been deprived, from the medium, liquid or aeriform, in which it may be circumstanced.

The body—it may be repeated—which has minus-pressure matter equally on all parts, is pressed equally all round, and of consequence is in the state of rest; still it is under a less degree of pressure than were its minus-pressure matter away: and were the minus-pressure matter removed from one side only, the body from being under unequal pressure on opposite sides, will be pressed forward, that is, put in motion. To make an inert body be in motion, something must push or press it more on one side than on the opposite, by which it is under unequal pressure on oppo-

site sides, and if free to be moved must be in motion. Hence it is evident that motion of a body is but the effect of the body being impulsively pressed more on one side than the opposite and thereby forced from out of its resting place through contiguous portions of space.

To put the body in a state so as it shall be pressed unequally on opposite sides, is the direct and sole object obtained by the sensible impulse given previously to projectile motion taking place. Let the first impelling cause be the hand, steam, condensed air set free, or exploded gun-powder, each tends to the same object, that of subverting the equilibrium of pressure on the body, without which being effected motion has no beginning.

The state of unequal pressure on the same body is obtained thuswise: the great velocity of the first impelling cause—of the hand in throwing a stone—carries or drives the projected body or stone as rapidly forward; and because the momentum the stone possesses is greater than that possessed by the minus-pressure matter in the rear of the body, this latter is left behind in the air, as would be dust from the rear, but not

from the front of the body. The body or the stone retaining its minus-pressure matter in front while losing it from the rear, is under unequal pressure on opposite sides; the stronger pressure in the rear forces the body forward through the entire of its trajectory. And as the body during the entire of its motion is constantly *recovering* its natural quantity of lost minus-pressure matter, so is it as gradually becoming under less unequal pressure on opposite sides and of consequence its motion is equally on the decline. So when the rear of the body has acquired its full or natural quantity of minus-pressure matter—the pressure on the rear and front being thereby equalised—the body is no longer pressed forward and is of necessity at rest.

The fallacy of the theories of motion hitherto promulgated is evident. *Force is* not "*put into*" the projectile, nor is '*motion*,' neither of these being anything which one body parts with, which passes through the intermediate space, and which enters into another body; neither of the two, force or motion, is anything substantive. The force and motion of a body have never been, nor can ever become the

force and motion of any other body. Neither of them is cause in the case, each is but the effect of the body being impelled. It is nonsense to say a body has acquired the force and motion of another body, or that it is moved by its own force or its own motion. Equally unreasonable is the notion, that a body continues in motion because it cannot stop itself. Suspend the systole of the heart, and although the blood cannot stop itself, yet where is the arterial flow. A comet cannot stop itself, but does it, *unimpelled*, "rush lawless through the sky." Has it innate motion? Can it have motion without an equal of cause? Again,—"Motion, *once impressed*, would cause a body to move for ever in empty space, because it cannot stop itself, owing to its inertia"—which is refuted by the dynamic axiom: *No effect can exceed its cause or be produced by less than its equal of cause.* Otherwise, motion, from impulse *once* impressed—or after impulse has ceased, is, either effect much greater than its cause or so much motion without cause or impulse, which is effect without any cause. In vacuo or empty space, from there being no impelling cause, there cannot, by any possibility,

be motion. *Impulse is to motion as indispensable as air to animal existence.*

Now, without aiming at professional precision, it may be theoretically advanced, that the circulation depends on the blood acquiring minus-pressure matter at the expense of the air, in the lungs; which elementary matter, from being connected with the blood returned from the lungs to the heart, lessens the pressure on the parietes of the ventricle; and then by the greater pressure being on the outward surface of the heart it is, that the collapse or systole of this all-important organ is produced.

For of what use, it may be asked, except to unequalize pressure and thereby promote the motion of the blood, can the elementary matter be, which the air contributes and the blood acquires at every inspiration of the breath. It is not retained permanently by the blood, nor can it be said to combine with or be nutritive to the flesh, as its insensible transpiration through the body is obviously inferrible from its influx continuing the whole of life. It is not an air or gas—the membrane of the lungs being impervious to anything of the kind—but a pure and simple

element, which adds no weight to the blood. It is that which when added to nitrogen converts it to atmospheric air; and which, when the quantity saturates the nitrogen, the resulting aeriform mixture is oxygen air; and hence it is that nitrogen is expired when oxygen is inspired. The heart, by the forcible collapse, sends the blood through the arteries and capillaries into the veins, the ascent; in which latter, there is reason for thinking, is promoted by what may be named mucillaginous minus-pressure means. The mucous lining of the veins, or rather minus-pressure contents, is as likely to be accessory to the ascent of the blood, as is oil of orange to that of water between two plates of glass. It is from the minus-pressure matter included in lint, cotton cloth and wick, sponge and hard sugar, that these bodies respectively. *promote* the ascent of water. A piece of cotton candlewick makes a good *filtering* syphon, with this singular advantage, it discharges from the *shorter* leg, all others from the longer. In each and every of these instances of ascent, there is evidently a minus-pressure means concerned: and if the mucous lining of the veins promote ascent of the blood, by

causing this fluid to be under reduced pressure, we may well conceive that in like manner the slime on fishes is not uselessly formed, but may be designed to lessen the too great pressure these animals would be under at great depths of the sea.

Having, in the foregoing instances, exemplified the principles of the THEORY OF PRESSURE AND MINUS-PRESSURE MEANS, the whole, it will be found, are included in the following universal law.

"WHEREVER THERE IS MOTION THE PRESSURE OF THE MEDIUM OF SPACE IS CAUSE: AND IN ALL CASES WHATEVER, MOTION IS PROMOTED IN CONSEQUENCE OF MINUS-PRESSURE MATTER SUBVERTING THE EQUILIBRIUM OF PRESSURE.

After the foregoing exposition of principles and facts—towards effecting the illustration of the answer to the previous question—*Wherein consists the Use of the Spleen?*—the question is almost self-answered, the case and solution being apparently inseparable, and really so to those who will take the trouble of studying the subject and make themselves acquainted with the Theory of Nature, which theory is rationally deducible from the Inertia of Matter. The

answer to the foregoing question is: "The use of the spleen consists in promoting the rise or upward motion of the *diaphragm.*"

The diaphragm is lifted up convexedly and afterwards depressed to its former level, which, by reducing and enlarging the capacity of the chest, makes this membrane, the diaphragm, the principal organ concerned in promoting respiration. The diaphragm is lifted by the cause of all motion, the pressure of the Medium of Space within our body in consequence of the equilibrium of pressure on it having been subverted: and the direction of motion indicates that the pressure is greater on the posterior than anterior surface. From which it is inferrible that the anterior surface has acquired minus-pressure matter from some contiguous organ, which organ is most probably the spleen. For as the blood within the spleen is made similar to venous and arterial blood alternately, and as it acquires and loses the respirable element intermittingly, which element the anterior or surface of the diaphragm should possess and lose intermittingly, to promote its motion upwards and downwards; together that hitherto no function whatever has been assigned

the spleen, while its utility, in some way or other, cannot be denied; the inference therefore is, that the blood in the spleen is the medium of conveyance of minus-pressure elementary matter to the upper surface of the diaphragm, and for the purpose of *unequalising* the pressure on the opposite sides of the diaphragm; on which state of unequal pressure depends the elevation of this organ of respiration. So, when the depression of the diaphragm takes place, it is from the minus-pressure matter having escaped from its upper surface and the equilibrium of pressure having become restored in consequence. As the blood in the spleen acquires and loses the respirable element during each inspiration, it may be, that the diaphragm receives from the spleen the same element between every two inspirations, or, during the period of every expiration; and that this alternating order, in the receipt and transfer of minus-pressure elementary matter, is the means of occasioning the process of breathing to be intermitting.

I am aware of the opinion being entertained that the spleen is *seemingly* useless; yet all must allow there is not—there cannot be a universally superfluous or needless organ in the animal system.

Something must lessen occasionally the general

pressure on the uppermost surface of the diaphragm: and to effect which, the diaphragm must be supplied with minus-pressure matter, to promote its motion. And although a diseased spleen may have been lessened or even wholly removed by decay or the knife, still it may be maintained, that, by the part to which the spleen *was* attached—by the orifices, as it were, of a vascular fleshy channel—the diaphragm may continue to receive—although imperfectly, or deficiently as to the healthome quantity—the vivifying element of the air; which latter is indispensable towards subverting the equilibrium of pressure on the opposite surfaces of the diaphragm. It may be remarked also, that, as when in perfect health we are compelled frequently to make a full or more lengthy inspiration, so, in thus *assisting the functions of the organ of respiration*, for the use of the diaphragm only, can the respirable element at such time inhaled and *for minus-pressure purposes*, be required.

All Nature has but one theory, yet the Faculty think that the laws evinced in the animal economy are different from those of physical nature. But are not the skeleton and fleshy organs, even the brain, physical? The mistake is discoverable at once by deducting all our sensations, which are so frequently

imagined to be physical causes within the body ; and then what remains but a sublime system of machinery, which, when inanimate or out of motion, is resolveable into elementary matter, the like of that which is obtainable from bodies of every description when decomposed. It is imagined, also, that the pain felt at times is in the diseased part of the body ; but let the nerves of the body be separated from the brain, and then the hand may be thrust into the fire without the smallest degree of pain being excited ; pain, therefore, is not in the flesh or bones, but is confined to the sentient something named Mind. Another oversight of the Learned Faculty is their reasoning being confined to what are considered sensible, tangible, ponderable organs ; to flesh, fluids, bones and cartileges ; without once referring to the invisible agents—*not immaterial*—which, and although unnoticed by the sagacity of the greatly *book*-learned, are the sole *promoters* of the animal functions ; and on which depend, *without being cause*—in any instance—all the motions of the organs which belong to the animal system.

Gout and rheumatic affections may be accounted for on the principles and theory of minus-pressure means.

The nervous fluid conists most probably in a portion

of the Medium of Space within each of the nerves. For, as there must be a connecting link between the brain and most distant body in every case of *visual* sense excitement, in order that the remote body or object shall act, at least mediately, on the brain ; so, the Medium of Space only is that which can be continuous from the brain through the optic nerve, thence through the Atmosphere, thence through the regions of space to this or that one of the known fixt stars, said to be looked and seen. Hence to protect the brain against extremes of pressure by this medium, which extremes would keep the mind in a state of endless torture, it is conceivable, that a minus-pressure means, either simply elementary, or as a mucillagenous covering, surrounds the nerves: or, it may be that for such purpose minus-pressure elementary matter is intermixed with the nervous fluid, the Medium of Space within the tubulously structured nerves. But whatever may be the fact, it is inferrible from the pains apparently in the limbs, at other times flying apparently from limb to limb, that this is owing to the minus-pressure matter within, or exteriorly coating the nerves, being reduced from its natural quantity ; or, as would be said of a film or web, rent here and there, by which the Medium of Space within

the nerves is made liable to be so acted on, as to have its pressure on the brain suddenly altered at every constitutional change to which the body is subject and the brain, in consequence, to be more or less lacerated in every instance, by which are originated in the mind those torturing sensations named pains of rheumatism and pains of gout.

It may here be noticed the many self-acting qualities and properties erroneously attributed to muscular fibrine. But as every mechanical performance has its mechanical motive power, independent of the machinery, so is the pressure of the medium of space from without to within a muscle, the acting cause in producing all muscular motion. Flesh is neither sensible nor irritable ; nor of itself can a muscle contract or expand.

The following is a crude illustration of the offices of the diaphragm and spleen. A handkerchief held horizontally is under equal pressure on both sides, for if not it would be pressed out of that position. Supposing then the pressure to be lessened on the anterior surface by throwing smoke on it, the unaltered pressure beneath would raise the flexible plane upwards, diaphragm-like. Then, as the smoke vanishes and the pressure in consequence becomes equal on both

sides, the convexity subsides and the former horizontal position becomes restored. The diaphragm receives minus-pressure matter on its anterior surface from the blood of the spleen: the spleen acquires the like from the air during respiration; and this elementary matter has no other use in the system than that of promoting the motion of the organs which first receive it and from which, in due order, it should be transferred for the purpose of subverting the equilibrium of pressure which is productive of motion.

Should the foregoing be found to correspond with the natural fact, I admit that it may be considered less in the light of a discovery, than a consequence of the correctness of the THEORY OF PRESSURE AND MINUS-PRESSURE deduced from the principal INERTIA. For which Theory complete, see Note, page 8.

ERRATA.—In page 26, 12th line, after the word gunpowder, read "the impulse by." In the 22d line of the 32d page, for "together that hitherto," read "together with the circumstance, that hitherto."

BROUGHAM COTTAGE, JERSEY,
20th July, 1839.