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ORIGINAL COMMUNICATIONS.

ART. VI.—*Congenital Hydrocephalus, (with remarks)* By Wm. Hales Hingston, M.D., L.R.C.S.E., &c.

Hydrocephalus, like accumulations of water in any other part or organ, is a disease of debility, proceeding from a relaxed condition of the secernents of a part; from inactivity of its absorbents, or, as more frequently happens, from both; the *cause* of the disease being rarely manifest.

Accumulations of fluid are met with in various parts within the cranium: "inter integumenta ipsa externa; inter haec et cranium; inter cranium et cerebri membranas; inter membranas ipsas; harumque duplicaturas; inter has et cerebrum; inter cerebri plicas; in cavitatibus ipsis."* The fluid, once secreted in any part, spreads with little resistance to another. If the disease occur in infancy, (and infants are most generally the subjects of it,) the bones of the cranium, not yet united by their bony sutures, yield to the internal pressure. Somewhat later in childhood, and while the *fontanelles* are yet unclosed, they, by a preternatural fulness,† or bulging outwards, warn us of the mischief going on within the skull.

Hydrocephalus is occasionally congenital, sometimes rendering the head so large, as greatly to impede, and add to the danger of, delivery.

The appearances, which these congenital malformations present, are not uniform. In the majority of cases, the whole head enlarges gradually; but, in not a few, we may observe protrusion of one side only; while in a still smaller number, an egg or pear shaped tumour is visible beneath a *fontanelle* or an attenuated parietal or other cranial bone.

"The mode of origin or pathogenesis of congenital hydrocephalus differs most probably in no essential particular from that of the chronic

*Van Swieten, "*Commentaria.*".

† I speak *generally*, and not in ignorance of the fact, that in some cases of hydrocephalus, the fontanelles are depressed.

hydrocephalus which commences in the extra uterine periods of life. . . . . The general arrangement of the skull of the fœtus, and the manner in which the cerebrum itself is developed, are both highly favourable to an excessive accumulation of serum. And I believe that the really essential part of congenital hydrocephalus, that which arrests the developement of the brain, is the affection of the ependyma; that in proportion to the degree to which the hydrocephalus has advanced, and according to the period of fœtal life at which it commenced, it does, in various manners and to different extent, arrest the developement of the brain, and occasion monstrosity of it; and so far contains the ground of its alliance with hemicephalus, hydrencephalocele, singleness of the cerebrum (cyclopia) &c."†

The substance of the brain in this affection, resembles the *ramollissement* of French pathologists. Sometimes the whole organ, sometimes the portion in immediate contact with the water undergo softening.

So much then, for general remarks, by way of a preface to a case which came under my observation some time ago.

Mrs. W., a stout healthy woman, *æt* 30, sent for me on the morning of the 4th Sept. last. I was told that she was suffering from violent labor pains, which threatened abortion,—that a midwife had been in attendance during the whole night, but that no progress had been made. I found the woman on my arrival on her back, with knees in a flexed position, countenance expressive of great suffering, eyes suffused and red, skin hot, pulse 115, hard and wiry.

The midwife* was on her knees in the patient's bed, both hands beneath the counterpane, lips compressed, tugging away during a "pain (!)" most energetically, and perspiring as copiously as if the fee would be regulated by the visible amount of cutaneous exhalation. On making a vaginal examination, I found the *labiæ*, from the unwarrantable handling they had received, very much tumified, hot, and painful; the *os uteri* not dilated, but tilted forwards behind—I might almost say, *above* the symphisis of the pubis—so high, indeed, that with difficulty could the tip of the finger be brought near its edge. A large tumour—tender on pressure—occupied the hypogastric region. Recognising this as a distended bladder, I introduced the catheter, and drew off fully two quarts of dark offensive urine, with sudden and complete relief. The rectum, also in a loaded state, was emptied by castor oil. During the three following days the catheter required to be used twice daily, and at the

* Rokitanksy's Patnological Anatomy, Vol. III, p. 276, Amer. ed.

† I think it but justice to state that the self-styled midwife is an unqualified and unlicensed woman.

end of that period the retroversion was reduced, and the uterus ascended to the superior strait.

I saw nothing more of my patient until two o'clock on the morning of the 13th March. She was then in labour; the *liquor amnii* had escaped the day before. The pains were severe, and at short intervals. On examination, the breech of the child was found to be presenting. During a remission of pain, the feet were brought down, and the body soon followed, but the chin, by a violent pain, was forced against and rested upon the symphisis, and any attempt at altering its position immediately induced violent pains. Having succeeded, eventually, in placing the head in a more favorable position, every attempt at extraction was made for upwards of two hours, but without avail. At length I resolved upon diminishing the bulk of the child's head—a resolution which cost me but little pain, as the pulsation in the funis had ceased upwards of an hour and a half before. At this stage of the proceedings, I was joined by the professor of midwifery, McGill University Dr. Hall, who fully coincided with me in the opinion that craniotomy, afforded the best possible chance of safety to the mother.

The patient, therefore, having been placed upon her left side, the body of the child was drawn towards the back of the mother by Dr. Hall, (who had already very dexterously placed the head in the "1st position," of Naegele, and who, with myself, had fruitlessly endeavored, by depressing the chin, to accomplish delivery in that way,) forming an obtuse angle at the neck. Introducing my left index finger, I passed it upwards as far as the obstructed nature of the passage would admit, and, guided by it, introduced the perforator, entering the neck at a point corresponding with the sixth cervical vertebra. Partly by a cutting, partly by a sawing motion, the instrument soon reached the cranial cavity, when, on opening it, a gush of fluid escaped from between the handles; the bones of the skull then collapsed, and the whole slipped easily away. The patient, although in a highly excited state from the consciousness of having such a formidable instrument within her, admitted, during the operation, and afterwards, that she experienced no pain whatever.

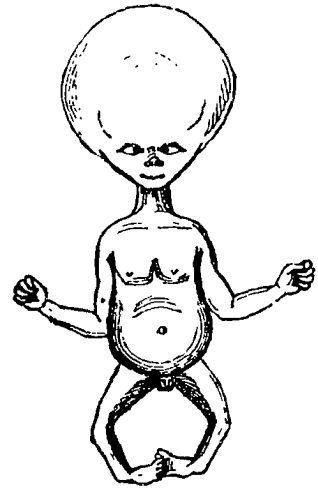
On observing the child, we were struck with the enormous size of its head, which, on measurement, was found to be as follows:*

From occipital protuberance over vertex to nasal spine, . .	22½ inches.
Greatest circumference of head	29½ "
Altitude	6 "

* It must be borne in mind that these measurements are proximately, not absolutely, correct. The bones of the skull were, as nearly as possible, filled out to their previous

There was exaggerated strabismus of both eyes; the body was well formed, and of the usual size of a male † child at that period. All the fingers and toes of the body were permanently flexed, and talipes varus of both feet completed the deformity of this truly ugly little specimen of mortality.

The accompanying wood-cut, from a sketch by my very excellent friend, Dr. Angus MacDonnell, will convey a better idea of the appearance of the little gentleman.



On opening the skull from above, the membranes were found to be thickened, and of a deep red color. The pia mater, firmly glued to the arachnoid, was dotted here and there with a pale cretaceous substance, intimately united with it. About a half pint of serous fluid still floated over the cerebral surface of the base of the skull; a film of cerebral matter, about one line in thickness, thickly studded with tubercular matter lined the membranes, except at the superior surface, where it became gradually thinner, and was ultimately lost; so that the fluid must, some weeks prior to birth, have escaped from its cerebral covering, and been converted into a hydrencephalocele. The small mass of matter repre-

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dimensions, but the absence of the contained fluid rendered precision impossible. Moreover, the forcible traction employed, previous to resorting to craniotomy, must have interfered with the shape, perhaps, increased the size of the skull.

† Dr. Georget, in the "London Medical Repository," Vol. 14, observes: Monstrous, diseased, or mal-formed fœtuses, are generally of the *female* sex. "Is it," he enquires, "that this sex possesses less energy of organization than the male? or that the generative power is longer and more perfect, in the latter than the former?"

senting the brain, and resembling softened cortical substance, bore no resemblance, except in color, to what it should have been; no convolutions or irregularities were visible on its surface. The *optic nerves hung loosely in the cavity*, but no trace of others could be detected. The upper part of the spinal cord seemed to have undergone absorption, for no part of it could be detected from that point of view, and friends seemed indisposed to permit an examination from behind.

To a few points of interest in the above case, I would wish, briefly to draw attention, in the order in which they have been related, and—

1stly. *Retroversion.* Retroversion of the uterus, in the early months of pregnancy, is the result, generally, of some mechanical force applied to that organ. We may readily understand how easily a preternaturally distended bladder may tilt over the fundus, and leave it in the hollow, or resting on the promontory, of the sacrum. In this case the uterus was in a position nearly the reverse of natural; the funnus pressing against the rectum, the os behind the symphysis and against the neck of the bladder—preventing, in this way, the action of these two emunctories.

2ndly. *Retention of Urine.* At first the cause, afterwards the result of the displacement of the uterus. In this case, so little inconvenience was felt from the distension of the bladder, that the patient thought I was directing too much attention to it, and was not a little surprised at the relief which followed its evacuation. The pains, moreover, were of a character to mislead; they were strong, "bearing down pains," which the patient aided, by forcibly pulling at a bandage tied to the bed-post, for the expulsion of the fœtus, as she thought—a condition, which, if not speedily relieved, would have occasioned rupture of the bladder.

3rdly. *Breech presentation.* In Denman's midwifery we read the following:—"It is some comfort to women to be informed, and I believe the observation is almost universally true, that affections of this kind (dysuria) are never produced, except in those cases in which the presentation of the child is natural." If Denman's observation be correct, this case must be considered a rare, if not an unique exception; although I can really perceive no reason why exceptions should not be of frequent occurrence.

4thly. *Craniotomy.* Craniotomy in head presentations, is, by obstetricians, considered to be one of the easiest operations which could, for the extraction of the fœtus, be performed. Facility, however, vanishes in presentations of the breech and feet. The head, if large, or even if of average size, with contracted pelvis, lies so high in the "brim," that the obstetrician's finger cannot always afford a safe guide to the point of the instrument. In the case under consideration, the whole head, with the

exception of the depressed chin, was entirely above the pectineal line. Had the bones of the skull been lined by the ordinary brain matter, collapse might not have followed perforation, and labor might have required to be terminated in some other way; but, notwithstanding this apparent objection, it appears to me reasonable to attempt evacuation of the head through the passage formed in the long axis of the neck, rather than to thrust an instrument unprotected into the cranium, probably, but possibly between the wall of the vagina and uterus, or into the uterus itself. The additional injury to the child would be of small moment, as the operation would not be undertaken until long after the child had ceased to exist.

"Doctors differ" with regard to the period which should elapse before having recourse to craniotomy in hydrocephalic cases. Dr. Ramsbotham is of opinion that it is especially dangerous to allow a hydrocephalic head to remain for any considerable time locked in the pelvic cavity; because from its compressibility and the open state of the fontanelles, it so completely adapts itself to the shape, and moulds itself into the irregularities of the cavity, as to occasion strong, uninterrupted, and almost universal pressure, upon the lining structures, to their imminent and certain hazard,* while the fluidity of its contents adds on physical principles to the danger of these effects. "We know of one case of this kind, in which a hydrocephalic head produced fatal laceration of the cervix uteri. In another case, where the child presented footling, the spine of the neck and part of the soft tissues, covering it, gave way under the traction employed, and the dropsical head was thus emptied and allowed to pass.† Dewees‡ once saw rupture of the uterus from hydrocephalus, which craniotomy, early performed, might possibly have prevented. Ramsbotham§ relates the case of a patient who was delivered of a hydrocephalic child, who had been in labour from Sunday, when the membranes broke, to early on Friday morning, when R. first saw her; she died the same evening. Another author writes: "hydrocephalus in the child is not a common cause of protracted labour, but the diagnosis is very difficult where it is, and if the nature of the obstruction be not early ascertained, the result has generally been unfortunate. * * * Should the pains have continued strong for some hours, and the head have not entered the brim, the perforator should be employed without loss of time."‖ Blundell¶ wishing to guard against undue interference, condescends to be witty:—"Where the head is hydrocephalic, you may,

* Ramsbotham. American Edition, p. 178.
† Forbes Medical Review, Vol. XII., p. 480.
‡ Midwifery, p. 527.
§ Process of Parturition, p. 272.
‖ Lee's Midwifery, p. 42.
¶ Obstetric Medicine, p. 60 and 61.

if you please, carry your hand into the uterus; you may, if you please, burst the vagina; you may, if you please, rupture the uterus, turn the child, and pull its head from its body; but have some little mercy. Give a trial of those natural efforts, which, by the wise accoucheur, are never hastily distrusted. The natural efforts failing, puncture the head, should the lever or forceps have been previously tried without success."

In breech and footling cases, these instruments are useless, and only protract a delivery which cannot be accomplished with them. Craniotomy, therefore, should be had recourse to, so soon as we are satisfied that we have made use of as much exertion as we think ourselves warranted in doing, after the head had been placed in the most favorable position.

5thly. *Size of Head.*—A better idea of this may be formed by comparing it with "average size" heads of a fœtus at birth, and of a British Canadian

	Fœtus at Birth.	British Canadian.	Mrs. W's. Child.
From occipital protuberance over vertex to nasal spine,	5½*	11	22⅜
Greatest circumference, ...	11	22¼	29½

The records of midwifery that I have been enabled to consult afford no such instance of a hydrocephalic monster—one alone excepted:—"In 1834, Mr. T. Marsh, Coleford, Gloucester, attended Mrs.———, in labor with her sixth child. After long delay, Mr. M. dispatched a messenger to some five miles distance for instruments, but before his return, nature—the safest of accoucheurs—had accomplished delivery. The dimensions of the child's head were as follows:—Radix nasi to protuberantia occipitalis, 26 inches; front occipital circumference, 32 inches; ear to ear, across vertex, 24 inches. Around chin and across vertex, 30 inches."† If these measurements be correct, we must, in order to account for unassisted delivery, suppose one of two things to have existed, either an extraordinarily capacious pelvis—such a pelvis as we sometimes "read of"—or a scalp loosely covering the fluid, or, probably, both. Excepting, therefore, Mr. Marsh's case, as an extraordinary anomaly, the largest circumference I have seen recorded is 27 inches.‡ Instances of hydrocephalic heads, under this in size, are numerous. Two

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* In these measurements of the child's head, no allowance is made for the elongation, which usually, and sometimes to a great extent, occurs in labour.

† London Medical Gazette, vol. xvii., p. 486.

‡ I distinctly recollect having read of a head of this circumference, but on again looking for the passage containing it I am unable to find it. This, however, makes me no less certain.

are related by Smellie, in which large heads were expelled.* "I have known," says Merriman, "one hydrocephalic fœtus pass entire, whose head was *seventeen* inches; another passed alive, and lived an hour, whose head measured in circumference *twenty-two* inches; both the above labors were long and painful."† In Perfect's case, the head extracted whole, the breech having originally presented, measured 24½ inches in circumference.‡ Heads much under those related by Smellie and Merriman are occasionally met with by accoucheurs.

6th. *The amount of Fluid.* If the size of hydrocephalic heads vary, the amount of fluid varies also.

In 1751 a Mr. H. relates a case of a fœtus where the head contained a large quantity of bloody serum.§ Ramsbotham (père) relates two cases in which he supposed each cranium to have held many pints of fluid.‖ In Smellie's first case, *three* pints were collected on the cranium being punctured.¶ In case 20 between two and three pints were poured into the skull, through the opening by which the hydrocephalic fluid was extracted.* Mr. T. Smith, Surgeon, Great Milton, delivered a woman of a child, whose head contained *four* pints of fluid.† In a case related by Dr. Georget, *four* pints of a clear yellowish fluid were evacuated by means of a trochar previous to delivery.‡ A woman pregnant for the eighth time, was delivered by Dr. Hyewier of a fœtus whose head contained *one quart* of yellowish coloured serum (*L'Union Medicale*).§ Mr. Robertson, of Aberdeen, relates the case of a woman who died 45 hours after delivery of her eighth child, from the effects of pressure upon the organs within the pelvis caused by a hydrocephalic head which contained *four* pints of water.‖ A case is mentioned by Blanchard in which four pounds of water were evacuated from the head of a fœtus after birth.¶ The case related by Mr. Marsh already alluded to, the head contained 154 ozs, or 9lbs 10 ozs of fluid!* The amount of fluid in the case of Mrs. W's child, cannot be stated with anything

* Smellie's Midwifery, vol. ii., p. 14 and 210.
† Merriman's Midwifery.
‡ Ramsbotham, p 272.
§ Smellie's Midwifery, p. 42.
‖ Practical observations, part 1.
¶ Collection 31.
* Ibid 35.
† Lancet, 1847.
‡ London Medical Repository, vol. 1st
§ Lancet, 1847.
‖ Medical Gazette, July 13, 1840.
¶ Good's Study of Medicine.
* London Medical Gazette, vol. 17, p. 986.

like certainty, for we unfortunately forgot to fill the cranial cavity, a proceeding which would have saved much trouble. But, supposing the cranium to have been a paraboloid, then

The circular base being, ...	29.5 inches
Altitude, ...	6
The contents or solidity would be, . . .	207.75 cubic inches.

And allowing 28¾ cubic inches to the pint, the cavity would have contained about seven and one-sixth (7 1.6) pints, wine measure. From this must be deducted the amount represented by the scalp and bones, for the measurements were external; they, being much attenuated, may be represented by 1.6th of a pint, leaving seven pints of fluid;* a quantity much greater than that in any of the cases enumerated, with the exception of Mr. Marsh's.

7th. *Amount of Brain.* I have been unable, notwithstanding diligent search, to find but two instances resembling this, in *this* particular. Sir Astley Cooper some years ago, published a case under the somewhat attractive title of "A child without a brain."

Breschet, Surgeon *en chef* to the Foundling Hospital, in Paris, relates the case of a child who lived to the age of 12 days, whose cranium was of the ordinary size, which contained no brain whatever.† Had gestation, in Mrs. W.'s case been prolonged to about a week longer; the small amount of brain which existed at the time of parturition, would have been entirely absorbed. As it was, the brain was represented by about a drachm and a half of softened, greyish matter, which might have been easily folded up, and concealed in a thimble.

In what part of the brain, and at what period of intra uterine life was this fluid first secreted? It should here be stated, that, during the two months preceding delivery, the patient suffered very much from heat in the right side, which compelled her to lie with cold, wet clothes, applied to the part. In the abnormal position of things, the fœtal head corresponded to that tender part. Could not the inflammation within the child's cranium, attended, as it no doubt was, by increased heat, have been experienced by the mother? With a small quantity of amnial fluid, I perceive no reason for doubting that the increased heat experienced by the mother was caused by the hydrocephalic head lying in immediate contact with the abdominal parietes. And, granting this assumption, I should say, in answer to the latter question, that the fluid was secreted at, or shortly before, the period when the patient first complained of

*In this calculation no allowance is made for the unevenness of the cerebral surface of the base of the skull.

†London Medical Repository, vol. 18.

pain and heat, namely, two months prior to delivery. "Hydrocephalus—whatever its results—is originally an inflammatory affection situate in the substance of the central parts of the brain, generally terminating by *ramollissement* of those parts, combined with serous effusion,"* and, as an inflammatory affection, is characterized by one of the symptoms of inflammation—heat.

In answer to the former question: most probably in the ventricles, these became expanded into large elliptical cavities, and, adopting the description of the first living pathologist, "the cerebral mass around the ventricles, especially towards the top of the head, became attenuated. Internally and inferiorly, the serum by its pressure flattened the corpora striata and optic thalami, and passing into the third ventricle, it forced these bodies asunder also; the corpora quadrigemina became smoothed, the commissures stretched, and the grey commissure wasted; the pillars of the fornix were forced apart, and, with the septum, driven up against the corpus callosum."† The relative situation of things having been thus changed, the fluid still continued to increase until what remained of the brain, no longer bore any resemblance to what it should have been.

A question here naturally suggests itself: how are we to account for the fact, that the brain can have its substance absorbed; its structure completely destroyed, and yet consistent with life? While the simplest derangement of its functions, is attended with so much peril, during its scarcely less vegetative infant life.

8th. *The strabismus, talipes, and fixed flexure of the fingers and toes.* These malformed conditions—intra uterine symptoms of the congenital disease had evidently existed for a considerable period. The flexors of the fingers and toes had contracted some time prior to birth, and remaining in that condition, the palmar surfaces of the phalanges had been arrested in their developement. This deformity was so great, that tenotomy could not have restored them to a straightened condition, without partial dislocation.

As obstetricians are agreed that the diagnosis of hydrocephalus, *ante partum*, is at all times difficult, might not this abnormal position of the smaller joints materially assist in forming an opinion, in arm and footling cases?

Lastly. *Recovery*—Which, notwithstanding a severe illness, was rapid and satisfactory.

Montreal, July, 1856.

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*Abercrombie on diseases of the brain, 2nd Ed., p. 148.
†Rokitansky's Pathological Anatomy, vol. 3, p. 275.

VII.—*Nutrition, physiologically and pathologically considered.* By JAMES BARNSTON, M.D., Edin.

As introductory to the more immediate subject of this paper, we conceive it essential to premise an inquiry into what might be called the primary basis of nutrition, viz., the *nature of organic life*—the agencies which originate, maintain and arrest the vitality of animate particles, and the laws which govern matter so called organized—points which, if ascertained *a priori*, will aid materially in our forming clear conceptions relative to nutrition, in its ultimate physiological and pathological conditions.

In viewing, respectively, the two great kingdoms of Nature—the animate and inanimate world—the first peculiarity which serves to arrest the attention of the observer in the condition of *motion* in matter: In the inorganic or inanimate creation, we observe this phenomenon of motion imparted to mineral matter, otherwise inert or motionless. Whether we view this inorganic matter, in its whole, as an aggregate mass, or consider it in its elementary condition, in the form of simple individual atoms, we discover agencies acting upon it, serving to maintain the inert mass or atom in a state of activity. These agencies are of two kinds—general and specific. The general agencies or powers are strictly physical in their nature, and actuate in common upon every species of inorganic matter. Such are, gravity, caloric, electricity, &c. The special or specific forces which operate on inert matter, are those with which nature itself was originally endowed, and are in their nature essentially chemical.—We have strong experimental evidence for believing, although we cannot reduce it to the validity of *fact*, that matter, which in the aggregate mass forms unnumbered separate systems or worlds, is, when ultimately viewed, constituted of different species of minute particles or atoms, each having a definite form, and possessing distinct properties of its own. The atoms of the same species of matter, possessing properties alike, will not act on one another so as to produce activity in any one of their number, even though placed in the closest contact, since they are all in a state of *equilibrium* in relation to their forces or powers, which are identical. Now, what is required in order to excite action in these atoms or particles and produce the phenomenon of motion? It is clear that forces of the same nature cannot excite this activity. In order to the active operation of matter, or an atom of matter, we must conceive the existence of some stimulus or reciprocal power, which would act *antagonistically* to those powers already existing. The result of this antagonistic force, which operates as soon as it comes within reach of its *sphere of*

action, is manifested in the excitement of those forces which formerly were latent or dormant—the complete disturbance of the inert atoms—their consequent disarrangement and their subsequent re-arrangement in a new form. This is just what is observed to take place in every active process in the inorganic or inanimate world, and cannot be better exemplified than in the congelation of water by the melting of ice.

The process of combination and decomposition—the union and disunion of individual particles of different species of matter—the destruction of one compound and the formation of another, as well as the manifestation of motion in aggregate masses of inorganic matter, are all referable, as phenomena of activity, to the operation of existing forces, which are resident in matter and lie dormant or latent in each species of matter till excited to a state of activity, so soon as they are brought to bear to each other that relation which is antagonistic or reciprocal.

Asserting, then, our belief in the existence of antagonistic forces, as essential to the activity of the inert atoms of inorganic matter, we may, reasoning from analogy, also conceive the existence of forces and powers which would operate in originating and maintaining the living atom of organic nature.

Matter, as presented to us in the organized form, is compound in its nature—that is to say—it is composed of an infinite number of particles or atoms, not only distinct from each other as constituting different species, but distinct also from those atoms which we observe as constituting the inorganic world. Although received as ultimate particles in the organized structure, they are chemically compound and built up of constituents which, we know, are derived from the inorganic world, and, as such, subject to chemico-physical laws.

But the ultimate atoms of organized structure are not inert, as those of the inorganic world. They exhibit an incessant or *perpetual* motion; and this is manifested in the formation, growth and decay of organized textures. In order to constitute it a living particle, and one fitted to enter into and form a portion of an organized texture, it must be endowed with a power or force to actuate it. This force, which may be properly designated an *organizing agency*, is one which is essential to the very existence of an organizable and organized atom. It cannot be considered apart from, or independent of, organized matter; nor can we maintain the idea, as some physiologists do, that it is a superaddition to matter, when the latter is brought, as it were, into a condition of being organized. Matter cannot be organized or brought into a state of organization without its actuating influence. All organized matter is

ultimately constituted of inorganic elements, which are consequently subject to chemical laws, and we know that chemical laws or forces cannot operate so as to impart *life* to the kind of matter over which they preside; we must therefore look for another power or force which will serve to originate and maintain vitality in matter so called organized, and it is to this power that we give the name of organizing agency, which we believe is imparted to inorganic matter so soon as it comes in contact with an organized body to which it bears a relation. It gives to that matter the power: 1st, of becoming organized; 2nd, of being or remaining in a state of organization, and, 3rd, of acting the part of an organizing agent in the conversion of matter to organization similar to that of itself. Viewing organized matter in this light, we perceive that there are two distinct classes of agencies or powers operating upon it, viz., the organizing agency on the one hand, and the chemical forces on the other—the former serving to maintain the condition of organization, while the latter, on the contrary, operates powerfully to reduce or bring back the organized matter into its primitive state of inorganization. These two powers, therefore, act antagonistically in relation to each other, and it is to this reciprocal or stimulus—as a result of these powers acting on matter in opposition to one another—that the phenomenon of perpetual motion is manifested in it. As a result also of these operating powers, we observe the phenomenon of constant motion accompanied by incessant changes, which in fact, constitute the individual processes of formation, growth and decay.

The organizing agency, of which we have spoken, extends its actuating power to all kinds of matter which is organized and cannot serve to specialize the difference in the nature and qualities of the various textures. Every organized texture which exists in a living body must be possessed of distinct properties of its own to distinguish its species from that of another. These properties may be termed specific, as being limited to the kind of matter which possesses them and as acting upon it alone, so as to preserve its original nature and qualities distinct.

Keeping these details in view, we observe a wide line of demarcation between the two great kingdoms of nature, and yet a marked analogy, both in the phenomena of their respective actions and in the general and special agencies which guide, actuate and govern them, as separate systems. It is by thus contrasting their nature and operating agencies, that we can obtain a clear knowledge of the nature of organic life, or life as exhibited in an organized body; and from what has been considered, it may be safely inferred that *life*, in the acceptation of the term as applied to an organized body, is the manifestation of activity in

matter resulting from the operation of an organizing agency on the one hand and of chemico-physical forces on the other; which, acting as they do reciprocally, serve to produce a definite relative arrangement in the particles of matter so as to form and maintain the condition of organization.—Having now discussed these preliminary considerations, for the better elucidation of the process of Nutrition, let us now proceed to enter into detail respecting the nutritive process itself, as manifested to us in the simplest as well as in the more complex forms of life; and notice those intimate changes observed to take place in all textures, from the time they are becoming organized to the period when disorganization or decomposition takes place.

And, in the first place, let us remark that all organized or organizable matter is derived more or less directly from the inorganic world. Every atom, particle or cell, both animal and vegetable—simple as it is organically—is constituted of inorganic elements, which, taken up singly, combine in certain definite proportions, at the same time influenced by a new power which subjects them to an arrangement fitted for their organization. This transference of inorganic to organic matter—this transformation of inorganic elements into organized structure—is very beautifully marked out to us in the vegetable world.

Do we not find an intimate relation between the inorganic and vegetable kingdoms of nature? Have we not discovered the fact that a correspondence relates between the consumption of certain elements of the one and a proportionate appropriation and development or growth in the other? The vegetable seed sown in the soil and placed in circumstances favorable to its development, is duly excited to activity by the mutual operation, on the one hand, of that organizing agency which previously lay dormant in it, and on the other, of the forces resident in the inorganic matter which surrounds it. Thus stimulated to action, it appropriates certain materials from the soil, with which it builds up its structure. The inorganic elements taken up observe an arrangement favorable to their being organizable. They become organized, and in their organization they virtually become a portion of the vegetable, which is nourished by a process of selection and assimilation. But, connected with the process of organization, we observe another change of quite an opposite nature continually going on. This change consists in the destruction of part of the organized texture, its decomposition and return to its primitive elements, which are inorganic. But this decomposition is accompanied by a process of elimination or separation of the decomposed elements from the vegetable. This process of elimination of effete matter is essential to the preservation of the organized structure, for by these

means, it gets rid of matter which is not only useless but detrimental to it, and thus its organic and functional condition is preserved in a normal and healthy state. From what we have advanced, you will perceive that nutrition in its simplest form, is, in reality, a complicated process. It consists of a proportionate number of changes, necessary to the life of an organized tissue. These changes constitute individual processes, the sum of which is nutrition. These processes may be thus stated as they occur—1st. That of adoption or selection of organizable matter; 2nd, That of its assimilation or its being made like or similar to the organized matter which has appropriated it, and which in consequence of that assimilation and addition is developed and increased in size; 3rd. That of the decomposition of that portion of the organized tissue which has served its functional purpose and its return to the elementary form, and 4th. Its elimination or separation from the tissue as useless and effete matter.

In the simplest and most perfect of organized structure—the *vegetable cell*—these processes are observed with united regularity. The vegetable cell is an independent living structure, and in it we observe *all* the functions of life—as manifested in an organized structure—performed in all their simplicity, beauty and perfection. In it—as an independent body—all the chemico-vital processes of selection and elimination, of assimilation and decomposition, of secretion and excretion, are portrayed with that precision and harmonious perfection—observed in the most complicated living organism—the human frame. But it may be asked—Why this selection of certain elements? Why this decomposition of organized tissue? The first is, we conceive, not the result of an unknown, mysterious and indescribable power—designated, by common usage, "*vital attraction*," called into existence by the prolific imaginations of vital enthusiasts of modern times, only calculated to limit and stagnate our research and lull us into the false security of a hypothetical doctrine, which has no foundation, but in the minds of its unequivocal supporters!

If the premises upon which we based our previous observations be correct—the only natural and indeed reasonable conclusion to which we can arrive—respecting the appropriation of certain kinds of elements by organised structure for its nutrition, is, that the same is the result of a mutual and relative bearing between the matter appropriating and the matter appropriated—the latter subject *at the same time* to a controlling power antagonistic to the power of appropriation; or, to be more explicit, in order to the appropriation of matter in due amount and quality for proper assimilation, two powers of relative bearing are requisite,

which are the following, viz:—1st. On the one hand, a power of receiving assimilative matter by the tissue which is to be nutrified, and 2nd. An antagonistic power of *control* over the amount and quality of that matter which is being appropriated from the other. It may be likened to a process of *giving* and *taking*, two acts which are essentially different and distinct.

With reference to the second query, it is clear that since we have assigned the process of organization to an organizing agency, the gradual diminution of that agency will be followed by a corresponding gradual cessation in the process of organization, and the total loss or extinction of the former, will be accompanied or succeeded by *death* of the organized tissue. The chemical forces have now free and complete control over the dead organized tissue, which becomes speedily decomposed and disorganized, and ultimately returns to its primitive elementary condition. But what, it may be asked, becomes of the organizing influence which has thus departed? Let us again for a moment turn to our vegetable cell. We found its life constituted of a series of changes, forming, in their aggregate, the great process of nutrition. It has, however, another function to perform ere it dies, and that is the function of reproduction, the last and all-important one, for the preservation of its own species. Its whole power is exercised in order to the formation of a germ which is to be its subsequent representative—"like unto itself."

Upon it then does the dying cell stamp its parental impression and to it impart the same organizing influence which originated and maintained its own existence. Springing up from the same species of matter, recipient of the same primary impression, animated by the same organizing influence and subject to the same special laws of nutrition, the offspring through successive generations, *lives* to be like unto the parent. It is thus we discover an intimate relation between the function of nutrition and the function of reproduction, as displayed in the simplest and most perfect of organized structure, and as such we cannot sever the one from the other, but may, without compromising our safety, extend a wide latitude to both and graduate a *centre* of *nutrition* into a *centre* of *reproduction*.

The minute details which we have just entered into will sufficiently serve to guide us in our reasonings with reference to nutrition as manifested in the most complicated of organised structure. In the nutrition and growth of a simple cell we observe all the changes which constitute the individual processes of selection or appropriation, assimilation, organization, destruction of tissue and elimination of effete matter. These individual processes considered separately, exhibit all the phenomena of

the great process of nutrition, (which is used in its most extended signification), and since nutrition cannot be normally carried on in any organ, without the proper and simultaneous co-operation of all these processes, we cannot, therefore, limit our ideas of nutrition to one individual process to the exclusion of the others, but we must derive our conceptions of it, as a great complicated function from the *mutual* and *combined* workings of several different processes, which, acting as they are wont to do, in complete harmony with each other, maintain the health and normality of the whole organism. The nutrition of an intricate and complicated structural organ is in all respects identical to that of a single independent cell, with certain peculiarities, however, *incident* to its *peculiarity* of *texture*.

We find the plant nourished through the intervention of cells, which select, assimilate and organize materials that are subsequently carried to all parts of the plant, by means of vessels, each organ appropriating from these vessels, for itself that kind of matter which is destined for its nutrition and growth. We find a double nutrition, as it were, constantly going on in the plant, viz: the nutrition of the cells in the organization of inorganic matter taken from the soil, and the nourishment of the individual organs of the plant from organized matter, which circulates through the vessels that ramify in their tissue. The same double process is carried on in the economy of the animal organism, and for its nutrition, we find the organised elements of the vegetable most suitably adopted.

In this we discover a graduated scale of organization and a progressive advancement from the organization of the inanimate elements to the most thorough elaborated animal structure. To this end do the three great kingdoms of nature, the mineral, vegetable and animal, unite in just and harmonious co-operation.

If we examine minutely into the nutritive process, as carried on in every organ of the human body, essentially the same elements enter into action. What are these? *cells* and *vessels*. The cells are vital bodies of which the organ is partly composed. They are situated in proximity to the vessels, which ramify minutely through the whole organ and carry in them that fluid, the blood, which contains the elements necessary for the nutrition of the organ. Now! what is the nature of that process? And what are the laws which govern it?

The phenomena of the process may be thus expressed. The fluid or blood which circulates within the vessels, parts with a certain portion of its elements—which, passing through the vessels are thus appropriated by the cells, which are in close contact with them, to be assimi-

lated or made like the organized texture of the organ. There is in fact an *exudation* of a portion, and a certain portion only, of the contained fluid, the blood, through the coats of the containing tubes or vessels, into the cellular structure without. But why this exudation and why this peculiar portion of matter only? We believe it to be the result of two powers (adverted to before), which continually operate, so long as the phenomena exist. These two powers are, one the power of *appropriation*, on the part of the tissues, and the other the power of *control*, on the part of the vessels. The power of appropriation on the part of the tissues, merely serves to draw fluid from within the vessels. If it acted alone, it would undoubtedly draw every constituent of the blood (with the exception probably of the blood globules, which cannot pass through, the obstruction being mechanical) as may be proved by injecting a fluid of the same consistence and density as the blood, into the blood vessels of the dead body, when it will be found that every constituent of the fluid without discrimination, is exuded through the vessels of the organ into its proper issue. How is this to be explained? Only, we conceive, upon the supposition, that there is absence in the dead body of that controlling power which exists in the living and modifies the passage of the fluid elements of the blood; and this, coupled with the circumstance, that diminution or loss of this controlling power in disease is followed by an abnormal exudation as to kind and quality, proves the absolute necessity for the constant operation of this power to control and modify the exudation of certain kinds of fluid matter rom the blood in order to the proper nutrition of any given tissue. In short, we conceive, the functional office of this controlling power to be the allowing to pass nutritive matter alone, and the keeping back that portion of the blood, which, if exuded, would act detrimentally on the tissue.

The appropriation of fit materials and the assimilation of these by the tissue which appropriates them do not constitute the whole process of nutrition. In order that nutrition of an organ be maintained healthy and normal, there must be a process of destruction of the older tissue, and its subsequent elimination—to give place to the more recently organized portion. As there is a constant *building up*, so there must be a corresponding process of *breaking down* of tissue.

To eliminate or carry away this broken down tissue, every organ is supplied with another class of vessels, whose sole function is directed to draw off the effete matter, which can serve no further purpose in the economy of nutrition, and if retained, would upset the balance of standard healthy nutrition.

Viewing nutrition in this light, we may safely say, that every organ in its nutrition, is in relation to itself, its own eliminator—nay more and equally true, as has been well remarked by Paget—every organ, in its nutrition, stands in relation to the whole body, as an *excretory organ*. As a reasonable deduction founded upon this generally received doctrine, we may advance a step further and maintain that every organ in relation to its ultimate nutrition is *extra vascular*. However minute the ramifications of vascular supply through an organ, its own peculiar and proper tissue is extra-vascular. Every individual cell which appropriates matter from the blood vessels, stands without the vessels and is in reality an extra-vascular body. In general the ultimate elements of an organized texture are in close proximity to the coats of the vessels which ramify throughout the whole organ, but in some few cases these ultimate elements are situated at a comparative great distance from the vessels from which they obtain their nutritive supply. The best example of this is cartilage—the ultimate elements of which are placed much more distant from the source of their nutritive supply than those of any other organized structure. But cartilage cannot be considered a non-vascular structure in contradistinction to other tissues, for all other organized structures are in their ultimate nutrition extra-vascular structures, and as such their ultimate elements in the organic sense of the term must be considered non-vascular.

Having now presented these observations on the general physiology of ultimate nutrition, let us advert but briefly to those pathological conditions which serve to implicate and disturb the healthy nutritive process; and let us remark in the first place, if the views which we have advanced in reference to the laws which govern healthy nutrition be correct, it is evident that any alteration in these laws will be followed by a change in the nutritive process—a deviation in the one will lead, as a natural consequence, to a corresponding deviation in the other. But in order to understand cause and effect, let us examine into the phenomena of a pathological lesion of nutrition.

Now in all pathological lesions of nutrition there is, in general, a manifest change in the quantity and quality of the normal exudation—we say normal exudation for it is probable, nay almost placed beyond a doubt, that all the elements which enter into the nutrition of an organ exist in, and are derived from the blood. In almost all lesions of nutrition there is an increase in the amount or quantity of the normal exudation. Again, as a general rule, pathological processes are accompanied by an alteration in the quality of the normal exudation. These two conditions, viz: *alterations* in the *quantity* and *quality* of exuded matter may exist

to a greater or less degree either separately or combined. We have said that the elements of pathologica. exudation all exist in the blood. Thus we find among the elements of the blood which are exuded-water, which exists in the blood-plasma to the average extent of 880 to 906 parts in a thousand, is often increased to the amount of 970 to 988 in a 1000 parts in recent pathological exudations. Again the albuminous elements of the blood may be exuded abnormally in the form of complete solution, or in form of solution which coagulates spontaneously, or in the form of viscid matter colloid or gelatiniform.

Now the only reasonable explanation we can give for the phenomena of pathological nutrition, is by supposing the elementary powers of nutrition to be at fault. For since we believe the normality of the nutritive process to depend upon the mutual and constant operation of existing forces which govern that process, any alteration in the power of these forces will be accompanied by alteration in the process itself.

What is the alteration in these powers or forces? It consists in a *diminution* in the *amount* of elective and controlling power of these forces. The greater the diminution of controlling and elective power, the greater will be the change in the quantity and quality of the exuded matter. It is thus that we conceive every morbid process to be *retrograde*; that is to say, it is the result of a *diminution* of the controlling power of the vessel on the one hand, and of the appropriating power of the cells in the tissue on the other. Thus, therefore, in every morbid nutritive action, there is a *lowering* of the vital forces or powers—a marked deviation from the standard of health and a nearer and nearer approach to death.

ART. VIII.—*Effects of acetate of lead in large doses.* By ALEXANDER LANE, M.D., Royal Navy, Janesborough Villa, Mahone Bay, Nova Scotia,

GENTLEMEN,—An article in your journal for this month by Mr. Aran, induces me to send you the following, perhaps you will think it worthy of a place in your columns, it will throw much light upon the same subject published in a work by Doctor William Grove Grady of Dublin, in 1849.

(From Dublin Medical Press, June, 1842.)

"Some time ago a patient of mine laboring under phthisis confirmata was attacked with hæmoptysis, the remedies recommended in such cases were resorted to without relief, as a final measure, I had resource to the

acetate of lead, administered it in the usual doses, but without producing the desired effect. The powerful astringent nature of this medicine tempted me to hazard what I then considered a large dose, without opium; more particularly as the quantities I had already given did not appear to have had any direct effect upon the system. I therefore gave five grains, and waited the result with anxiety, four hours passed away without any untoward symptom, and the disposition to hœmorrhage seemed less. I then repeated the dose, and waited four hours more with less anxiety, after which, I again repeated the dose, thus making fifteen grains in eight hours, without producing any other effect than that of arresting the disease. This patient eventually died of phthisis, but the hæmorrhage did not again return during life.

"The result of this case led me to doubt the poisonous nature of this drug, at least in moderate doses, and an opportunity soon offered itself to me of testing, whether in reality it was as dangerous as it was generally supposed to be. A lady laboring under hæmorrhagia applied to me. The complaint had been of long standing and had resisted all medical treatment. I commenced the acetate of lead in doses of ten grains every four hours, removing the disease on the evening of the seventh day without giving any inconvenience to my patient. The lady had also a disposition to tubercular phthisis, which has since appeared, and this has led me to suspect that, this medicine may possess some influence over disease of the lungs, prior to the commencement of the suppurative process.

"I am now giving this medicine in a very aggravated case of hœmorrhagia in doses of ten grains every two hours, with a very fair prospect of ultimate recovery, notwithstanding the digestive organs have suffered considerably from one year's drenching in quackery.

"I am of opinion that a drachm or even two of this medicine might be given with perfect safety in desperate cases, and I am in the hope that, when its full power shall become known to the medical world, it will become more general in those fatal disease. I have no doubt of its power in arresting hemorrhage, more particularly from the lungs and uterus, and as for the stomach, its effects should be instantaneous. Should you think what I have communicated to you worthy of notice in the columns of your most valuable publication, I will at some future day detail the result of the efficacy of this medicine in my practice, and I trust this will induce my medical brethren to try its effects, and test its efficacy."

The above, you will observe, was published in 1842. And seven years afterwards a Doctor Grady, of the Kilmainham Cholera Hospital, dis-

covers? that the acetate of lead may safely be given without opium!!! What a discovery! Seven years after my publication, perhaps he was only a student then. It appears that he consulted the work of Dr. Graves, but his doses were too small. I formed an opinion then, which time has not changed, that, if the acetate of lead was to be protected by opium, a chemical change must, of necessity, take place. The acetic acid of the lead, must combine with the active principle of the opium and form an acetate of morphia, and consequently leave the lead free. Thus changing at once the entire nature of the drug, and as a matter of course, all its astringent and other qualities. I trust you will think these observations worthy of a place in your columns.

Your obedient servant,

A. LANE.

REVIEWS & BIBLIOGRAPHICAL NOTICES.

XII.—*Report of the Committee for scientific inquiries in relation to the cholera epidemic of* 1854. Presented to both Houses of Parliament, by command of Her Majesty. London, 1855. pp. 129.

Appendix to the Report of the Committee for scientific inquiries in relation to the cholera epidemic of 1854. pp. 352.

Report of the Medical Council to the Right Hon. Sir Benjamin Hall, Bart., M.P., President of the General Board of Health, &c., &c., in relation to the cholera epidemic of 1854. pp. 9.

Report on the results of the different methods of treatment pursued in epidemic cholera. Addressed to the President of the General Board of Health, by the Treatment Committee of the Medical Council. pp. 28.

Report on the results of the different methods of treatment pursued in epidemic cholera in the Provinces throughout England and Scotland in 1854; being supplemental to the metropolitan Report, addressed to the President of the General Board of Health, by the Treatment Committee of the Medical Council. pp. 24.

Letter of the President of the General Board of Health, to the Right Hon. the Viscount Palmerston, Secretary of State for the Home Department, &c., &c., accompanying a Report from Dr. Sutherland on epidemic cholera in the Metropolis in 1854. pp. 120.

Report on the cholera outbreak in the parish of St. James, Westminster,

during the autumn of 1854. Presented to the Vestry by the Cholera Inquiry Committee. July 1855. London. pp. 175.

The disposition which the Government of Great Britain has, of late years, exhibited to encourage all inquiries having for their object the improvement of public health and the consequent prolongation of human life, must be a source of gratification to all who take an interest in the advancement and success of sanitary science. In all that relates to the health of communities, governing bodies have usually evinced an obtuseness of perception, not to say stupidity, a dogged determination not to be convinced by the clearest and most conclusive statistics, which is really inexplicable when we consider that such bodies often include many of the most talented men of the community. Errors have been perpetuated and nuisances unabolished, although their mischievous and deleterious effects on the sanitary condition of the people have been made so plain that he who runneth, even though a fool, might read. This state of affairs, however, cannot much longer exist. The severe lesson which England has learned in the Crimea must have a salutary effect. The overweening conceit of hereditary office-holders, their undisguised contempt for everything not having the stamp of antiquity, their dogmatism and impatience of advice must now have received their death-blow. For it is a fact, no less true than melancholy, that, to the ignorance and *red-tapeism* of a few miserable routinists in office, Great Britain is indebted for the loss of one of the finest and most heroic armies that ever left her shores. Had the warning voice of science been for one moment listened to, many a brave, whose bones now lie scantily covered with earth on the bleak hill sides of the Crimean Peninsula, would be still living, ready and willing to fight his country's battles in some other quarter of the globe.

"In presenting our Report," say the Medical Council of the General Board of Health to the President, Sir Benjamin Hall, Bart., "of Inquiries, conducted under your sanction, into the course and phenomena of the late epidemic of cholera, the Medical Council may be allowed to express their satisfaction at science having at length been recognized by the state as the ally of civil jurisprudence, and as the guide to a more enlightened code of medical police. They trust that this propitious movement may be regarded as the inauguration of a system ultimately destined to carry its ameliorating influence through all the ramifications of our sanitary institutions."

The gentlemen composing the Medical Council found it expedient, "from the multifarious character of the objects embraced by this wide inquiry," to distribute these objects into several classes, and to entrust

the examination of each class to a special section of the Council. "Of such special sections of the Medical Council there were three: one, constituted to report on such *scientific inquiries* as it had seemed expedient to constitute, and consisting of Dr. Arnott, Dr. Baly, Dr. Farr, Mr. Owen, and Mr. Simon; a second, to digest from the general mass of contributed material whatever facts could illustrate the relative advantages of rival *methods of treatment*, consisting of Dr. Alderson, Dr. Babington, Dr. Paris, Dr. Tweedie, and Mr. Ward; a third, to invite from the cultivators of science in *foreign countries* any information which could be given as to the results of their kindred investigations, consisting of Dr. Babington, Mr. Bacot, Sir James Clark, and Mr. Lawrence." We shall now endeavour to lay before our readers some of the information gleaned, and results arrived at by the different committees. The report, then, of the Committee for scientific inquiries, is divided into three sections. 1st. Statistics. 2nd. Ætiology. 3rd. Practical pathology. From the first we learn that the number of deaths occurring in London from diarrhœa and cholera, during the epidemic of 1854, amounts to 17,919 persons. By an estimate based on the returns made by the medical practitioners for the Board of Health, the number of persons that were attacked at all ages by cholera was 24,917 persons, by diarrhœa of some severity 329,778; by diarrhœa of slight nature, about 519,487; thus making 874,182 persons who were touched by the epidemic, while 1,642,866 persons escaped. The average mortality was 46 per cent; that of the hospitals being 51 per cent, whilst that of cases treated at home was 42 per cent. The power of recovery from this disease varies considerably for different ages:—"35 deaths at the age 15 to 25 imply that 100 persons of the age have been attacked; at the age 45 to 55, 50 deaths imply 100 attacks; at the advanced age, 75 to 85, 71 deaths by cholera imply 100 attacks." So that the chances for recovery of the young person is vastly greater than that either of the adult or aged. Like in all other places where cholera has appeared, in London certain districts were severely visited whilst others enjoyed a comparative immunity. "The districts arranged in the order of the rate of mortality from cholera, display a regular series of numbers expressive of that rate, ranging from 6.10, and 11 at one extreme, to 142, 165, and 170 at the other extreme." The opinion has always prevailed that cholera spreads more rapidly and exhibits a greater degree of virulence wherever there is a dense population. The inquiries of the committee, however, overthrows this commonly received opinion; proving as they do, that unless other and more potent agencies are present, the influence of mere density may put down as *nil*. "The mean mortality by cholera and diarrhœa, in the 18 most open districts

of London, (40 in 10,000), is nearly the same as (42 in 10,000) the mortality in the 18 most dense districts." Elevation, as was pointed out by Mr. Farr after the epidemic of 1849, has a marked influence over the course of the disease, high altitudinal ranges apparently being inimical to its development and rapid spread. This, we think applies more to comparative altitudes of localities, than generally to high elevations, The population of London is distributed over the low ground on both sides of the Thames, and over a great number of elevations and depressions, which ascend from the south bank of the river up to Blackheath and Norwood, and from the north bank up to Highgate and to Hampstead. The four lowest districts, Newington, Rotherhithe, St. George Southwark, and Bermondsey, are on or below the level of the Thames at high water; the mortality by cholera to 10,000 in these districts was at the rate of 112, 195, 121, and 179 in the last, and 144, 205, 164, and 161 in the previous epidemic. Hampstead, Islington, Marylebone, and St. Pancras are at average elevations of 350, 94, 87, and 73 feet above the Thames, and the mortality by cholera in these highest districts was at the rate of 12, 11, 17, and 10 in the last, of 8, 22, 17, and 22 to 10,000 in the former epidemic." The thirty-six districts of London being arranged according to the degree of their elevation above the high-water mark of the Thames; the mean mortality by cholera was, to every myriad (10,000), 156 in the districts on or below the level of the high-water mark, 31 in the districts of 2 and under 20 feet of elevation, 44 in the districts at 20—40 feet, 36 in the districts at 40—60 feet, 23 at 60—80 feet, 17 at 80—100 feet, and 10 at 350 feet of elevation. "Independently of any hypothesis," say the Committee, "it may now be stated as the experience of two epidemics in London, that such local varieties of effect, group into masses for comparison, have been more nearly inverse to the elevation of soil in the affected districts than proportionate to any other general influence that we could measure."

The material on which the second or ætiological section of the report is based, forms solely the 352 pages of the appendix, and consists of able and scientific reports on the meteorology of London by Mr. Glaisher, of the Royal Observatory, Greenwich—in certain chemical and microscopical investigations of air, by Dr. R. D. Thomson and Mr. Rainey, both of St. Thomas' Hospital,—and in a chemical and microscopical examination of the water supplied to London, the former being conducted by Dr. Thomson, the latter by the celebrated microscopist Dr. Arthur Hill Hassell.

"Mr. Glaisher's inquiries have related to the *pressure of the atmos-*

phere total and aqueous; to its *temperature*, mean and extreme; to its *moisture*, absolute and relative; to its *density*; to the directions and amount of its *movement*; to the *chemical and electrical* influences that act in it; to *haze, fog, mist, and rainfall.*"

The pressure of the atmosphere rose considerably above its normal amount when the epidemic reached its height. From the 25th of Aug. to the 19th of September, the readings of the barometer was above 30 in.; and for three days in this period as high as 30¼. The temperature, also, was greater than usual; the excess of heat, averaging, during fifty four days, while the disease was at its maximum, 2° .6; and during one week of the same period the excess amounted to 6¼°. "The atmosphere, during the prevalence of cholera, was less full than usual of aqueous vapour. In July, August, September and October, it was further than usual from saturation; and from June to November it contained, in weight of vapour *per* given measure of air, 1.20th less than its average." The density was, with the exception of the months of January and December, in excess. During the most fatal days of the epidemic, there was scarcely any movement of the atmosphere, no ozone could be found at any station near the metropolis, and scarcely any rain fell. Mr. Glaisher gives the following summary:—"The three epidemics were attended with a particular state of the atmosphere characterized by a prevalent mist, thin in high places, dense in low. During the height of the epidemic, in all cases, the readings of the barometer, was remarkably high, the atmosphere thick, and in 1849 and 1854, the temperature above its average. A total absence of rain and a stillness of air, almost amounting to calm, accompanied the disease on each occasion. In places near the river, the night temperatures were high, with small diurnal range, with a dense torpid mist, and air charged with the many impurities arising from the exhalations of the Thames and adjoining marshes, a deficiency of electricity, and, as shown in 1854, a total absence of ozone, most probably destroyed by the decomposition of the organic matter, with which the air in these situations is so strongly charged. In both 1849 and 1854, the first decline of the disease was marked by a decrease in the readings of the barometer, and in the temperature of air and water; the air, which previously had for a long time continued calm, was succeeded by a strong S.W. wind, which soon dissipated the former stagnant and poisonous atmosphere. In both periods at the end of September, the temperature of the Thames fell below 60°, but in 1854 the thermometer again increased, the air became again stagnant, and the decline of the disease was considerably checked. It continued, however, gradually to subside, although the

months of November and December were nearly as misty as that of September."

Dr. Thomson and Mr. Ramey experimented on the atmosphere of a Hospital ward filled with cholera patients—on that of a ward partially filled with cholera patients—on that of an empty ward after cholera had left the district—on the external atmosphere adjacent to St. Thomas' Hospital, and on air collected from within a sewer. All that was found peculiar in the air of the cholera ward were mycelia of fungi, not differing from those which had formed in solutions of vegetable substances after exposure to the air where no cholera was present; and extremely minute, colourless, indistinctly beaded fibres, resembling in their general characters that form of vibrionia called "bacterium." The former, however, were also found in abundance in the air of the ward after the disappearance of cholera, and the latter in very large quantities in the air of a sewer, when no cholera was present. Hence they cannot be looked upon as of much value in our estimate of the proximate causes of the disease.

Dr. Hassall having examined microscopically many specimens of water, obtained from houses wherein one or more of the occupants had suffered from cholera, reports—"That the whole of the numerous specimens of water subjected to examination contained organic matter, dead and living, animal and vegetable; that the quantity and kinds of organic matter varied considerably in different cases, but were usually more or less constant for the same water; that some waters abounded in living animal or vegetable forms of different genera and species; containing also a large quantity of dead organic matter, amongst which were frequently to be detected fragments of the husk of wheat, hairs of the same, starchy matter of different kinds, cells of potatoes and other vegetable tissues, with, in some cases, fragments of altered muscular fibre—these latter structures and elements being undoubtedly derived from the fœcal matter contained in the sewage."

Our readers will find in the first number of our third volume, a notice of Dr. Snow's work "on the mode of communication of cholera," in which this gentleman's novel theory regarding the propagation of cholera is stated and dissented from. Notwithstanding the array of facts favoring his peculiar views industriously collected by the talented author, and the force of his argumentation, we were of opinion that the history of cholera epidemics entirely disproved the opinion that the diffusion of the disease is solely to be attributed to persons having by some means or other, but principally through water inhibited, swallowed some of the cholera poison—this poison being derived from the evacuations of cholera pa-

tients. We stated at that time that diarrhœa is a precursor of cholera that everything tending to excite inordinate action of the intestines so far places a person in a situation favorable to an attack of the disease and that of all substances liable to induce diarrhœa, water charged with organic matter in a state of decomposition standing pre-eminent, nothing was more likely than that persons drinking water derived from the Thames opposite London, should suffer from diarrhœa, and suffering from diarrhœa during the prevalence of an epidemic of cholera, that they should be attacked by this disease. We are pleased to see that the committee hold similar views to our own. "The admixture of *decomposing organic matter*," say they, "in the water supply of the metropolis being attested equally by chemical analysis and by the microscopical evidence just adduced, we do not hesitate to speak of this contamination as one that may have exercised great influence on the spread of cholera among the population." And again, in referring to Dr. Snow's suggestion that the intensity of the outbreak in Golden Square and vicinity, was to be attributed to the waters of a certain well in Broad Street being contaminated with the rice-water evacuations of cholera patients, they report:—"After careful enquiry, we see no reason to adopt this belief. We do not find it established that the water was contaminated in the manner alleged; nor is there before us any sufficient evidence to show, whether the inhabitants of the district, drinking from that well, suffered in proportion more than any other inhabitants of the district who drank from other sources. The water was undoubtely impure with organic contamination; and we have already argued that, if, at the times of epidemic invasion, there be operating in the air some influence which converts putrefiable impurities into specific poison, the water of the locality, in proportion as it contains such impurities, would probably be liable to similar poisonous conversion."

With regard to the results of different modes of treatment, we learn from the Report of the "Treatment Committee," that the order of percentage of failure to stop the disease in its earlier stages, or in that of premonitory diarrhœa, is as follows:—salines, 13.6 per cent; chalk mixture, 8.9; calomel with opium, 6-9; opium, 0; calomel, 2.4; chalk with opium, calomel and astringents, 1.5; sulphuric acid, with opium and calomel, 1.3; sulphuric acid, with opium, 0; chalk with opium, ammonia and catechu, 0.2. Taking sulphuric acid, with and without opium, and with calomel as an adjunctive remedy, 1.31. Taking chalk with and without opium, together with aromatic confection and ammonia, with catechu, kino, logwood, and calomel as an adjunctive reme-

dy, 1.31. This shews in a marked manner a decided preference to the astringent plan of treatment in the early stages of the disease, or in the premonitory diarrhœa. In cases of collapse, the treatment by calomel and opium stands highest in the scale of success; whilst that by calomel in small doses, by castor oil, and by sulphuric acid are much the lowest. The percentage of deaths following different plans of treatment being, calomel and opium, 59.2 per cent. calomel (larger doses) 60.9; salines, 62.9; chalk and opium, 63.5; calomel (small doses) 73.9; castor oil, 77.6; sulphuric acid. 78.9. "Amongst 800 cases of cholera in the Provinces throughout England and Scotland, 534 cases of consecutive fever are reported to have occurred, or 29.2 per cent. Of the treatment of consecutive fever in the Provinces, 56 cases were treated with salines, 6 died; 101 with aperients, 8 died; 1 with diuretics, 0; 21 with stimulants, 14 died; 3 with external irritants, 2 died; 6 with nourishment alone, 2 died. The most successful mode of treatment in consecutive fever, according to the foregoing table, appears to have been by aperients."

The reports before us contain a vast amount of scientific and practical information relating to cholera which it is beyond our power to condense within the compass of a single article, and as our journal is so limited in size and as there are so many works demanding our attention now lying on our table, we are constrained to dismiss the subject at this point. We cannot do so, however, without expressing our satisfaction at the tardy recognition by the Government of Great Britain of the importance of scientific inquiry in matters relating to the health of the community, of which the establishment of the Committee to inquire into everything relating to the cholera epidemic of 1854, is a pleasing evidence. Investigations carried out as thoroughly and scientifically as those of Mr. Glaisher, Dr. Hassall, Dr. Thomson, and Mr. Rainey, will not only reflect credit on the parties themselves, but will also tend to elevate our profession in the eyes of the public, and rescue it from the pitiful jokes and sneers of those who believe that the sum total of medical science consists in knowing how to make a bolus or draw a tooth, to bleed, purge, vomit, and blister the million.

XIII.—*Physical exploration and diagnosis of diseases affecting the respiratory organs.* By AUSTIN FLINT, M.D., Professor of the theory and practice of Medicine in the University of Louisville; honorary member of the Medical Society of Virginia and the Kentucky State Medical Society. Philadelphia: Blanchard and Lea.

Montreal: B. Dawson. Quebec: Middleton and Dawson. 1858 pp. 626.

The present work is limited to the diagnosis of affections of the respiratory organs, principally, by physical signs. The author says his method "has been to treat of the physical signs as regards their individual character, their significance and diagnostic relations, separately and combined, without imposing on myself restraint on the score of brevity. Whilst I have desired not to be tediously minute or diffuse, I have intentionally amplified somewhat after the usual mode of oral teaching." Upon all these various points the reader will meet with a full and ample description, embodying the present state of medical knowledge and the results of the author's own extensive experience. The practitioner who desires to rise above the level of a *practical character*, will here derive the information that will enable him to assign a reason for what he says, and to define what he hears. As an analytical treatise Professor Flint's work ranks in the highest order of merit. To impress more forcibly on the mind, the various truths that is discussed, a recapitulation is given at the end of the detailed account of each important subject. And as from the former a conclusion might be formed of the efficiency with which the latter has been executed; we select the following extract which is a summary of the physical signs of phthisis.

"Diminished vesicular resonance on percussion at the summit of the chest, varying in degree from slight dulness to a near approach to flatness, present on one or on both sides, but in the latter case more marked on one side. The dulness, in general, proportionate to the abundance of the tuberculous deposit, increased sonorousness occasionally observed at the summit of the left side, due to transmitted gastric resonance. The sound tympanitic in quality and high in pitch; the vesicular frequently replaced by a tympanitic sound on either side when the sonorousness is not increased constituting tympanitic dulness; an increased sense of resistance in proportion to the amount of crude tubercle.

A tympanitic resonance over a circumscribed space at the summit, present and absent, at different examinations, in some cases presenting an amphoric, and the cracked-metal intonation, constituting the evidence afforded by percussion of the existence and situation of tuberculous excavations.

On auscultating the broncho-vesicular, and the bronchoid respiration, the latter denoting tuberculous solidification. Frequently with these modifications, diminished intensity of the respiratory sound; occasionally, suppression of all respiratory sound; interrupted or jerking respiration. Exaggerated vesicular murmur on the side either healthy or least af-

fected; the crepitant, sub-crepitant, sibilant or sonorous mucous and crackling, or crumpling rales occurring as contingent signs, their significance dependent on their being found within a corner at the summit of the chest; abnormal transmissions of the heart sounds especially at the right summit, increased vocal resonance when situated on the left side of the summit; an acute and more or less intense souffle or bellows sound accompanying whispered words, especially if present, on the left side; bronchophony and occasionally transmission of speech, complete or incomplete, over tuberculous solidification; friction sound limited to the summit of the chest.

The cavernous respiration occasionally observed alternating with suppression, or gurgling, occasionally amphoric, and very infrequently, pectoriloquy, constituting the evidence afforded by auscultating the respiration of the existence, and situation of excavations; the characters of the cavernous and bronchial modifications of the respiration sometimes combined (broncho-cavernous respiration); splashing on impulse, seen and felt, existing within circumscribed space at the summit, signs of cavities furnished by the act of coughing; occasionally, when the cavity is very large, metallic tinkling.

By inspection, flattening or depression, at the summit, either confined to one side or more marked on one side than the other; the clavicle generally more prominent but occasionally receding with the ribs; diminished expansibility with the act of inspiration, the range of motion found to be lessened as well as size of the chest at summit, by mensuration.

Disparity at the summit of the chest in vocal tremitus, provided it be found to be greater on the left side. A splashing succussion sound in some cases of very large excavation."

XIV.—*The causes and curative treatment of sterility with a preliminary statement on the physiology of generation.* By AUGUSTUS K. GARDNER, A.M., M.D., permanent member of the National Medical Association; fellow of the New York Academy of Medicine, physician for the diseases of women in the New York Northern Dispensary, &c., &c. New York, DeWitt & Davenport. 1856. pp. 163.

Obstetricians as well as others are fully aware of the great importance of the subject of sterility, and the necessity there subsists for being thoroughly versant with its manifold causes and their special treatment. Cases of the kind are by no means of rare occurrence and they gener-

ally present themselves to notice under circumstances of a most embarrassing and anxious nature. Thus perplexing on their own account; they are rendered, not unfrequently, still more troublesome by being through previous mismanagement, complicated with various accidents, the results of improper treatment at the hands of empirics. The volume above mentioned contains in a few short chapters a perspicuous and instructive account of the physiology, pathology and therapeutics of sterility: a study of which will tend to remove the difficulties, we referred to, on future occasions, when advice is sought for the remedy of this particular abnormality. So far as we know, Dr. Gardner's work is the best of those that have been written on similar subjects, and we will be disappointed if it does not obtain a rapid sale among the interested. The publishers are deserving of much praise for the finished way in which they have brought it out. The lithographs are highly colored and exhibit an artistic skill well worthy of attainment.

XV.—*How to nurse sick children.*—Intended especially as a help to the nurses at the hospital for sick children; but containing directions which may be found of service to all who have the charge of the young. New York: S. S. & Wm. Wood. Montreal: B. Dawson. 1855.

This interesting little handbook is well adapted, by the pithy and practical hints it contains, to give matrons and others, sound and valuable directions, about the management of their children, at that tryirg period of existence when

> "The human blossom blows, and every day,
> Soft as it rolls along, shows some new charm."

XVI.—*The dissectors manual of practical and surgical anatomy.* By E. Wilson, F.R.S., author of a system of human anatomy, &c. The third American from the last revised London edition. Illustrated with 154 wood engravings. Edited by Wm. Hunt, M.D., demonstrator of anatomy in the University of Pennsylvania. Philadelphia: Blanchard & Lea. Montreal: B. Dawson. Quebec: Middleton & Dawson. 1856.

Taking the various dissectors, whether the Dublin, or Edinburgh, or London; the manuals from Holden downward; the guides either as the venerable Hooper or the younger Ellis; taking them "all in all we

ne'er" have "looked upon the like" of Wilson's manual as the embodiment of possessions that exactly suit and suffice the rising brood of Montreal anatomists. We do not speak *sine experientia*; but, most advisedly, after a mature consideration of the wants and services we have seen manifested in the dissecting room. Of kindred books one is too recondite, another too unmeaning, a third too singular, while all are too different in names and statements to the text of the popular work on descriptive anatomy. Wilson is already the usurper, and steps in again; for while he has served the closet student with all he can desire in his admirable "system" he affords the practical student its familiar companion in a suitable "dissector."

XVII.—*On the organic diseases and functional disorders of the stomach.* By GEORGE BUDD, M.D., F.R.S., Professor of Medicine in King's College, London; late Fellow of Cain's College, Cambridge. Pp. 283. 1856. New York: Samuel S. & William Wood. Montreal: B. Dawson. Quebec: Middleton & Dawson.

Headaches, their causes and their cure. By HENRY G. WRIGHT, M.D., M.R.C.S.L., Fellow Royal Med. Chir. Soc.; Physician to the St. Pancras Royal Dispensary. Pp. 140. 1856. New York: Samuel S. & William Wood. Montreal: B. Dawson. Quebec: Middleton & Dawson.

We have already given our opinion of the above works. The notice of Budd on the stomach will be found in the 12th number of our last volume. We have consulted it frequently and are able to assure our readers that the favourable impression of its practical character, which we received on our first perusal of the work, has only been strengthened by subsequent examinations.

The Messrs Wood have brought out an exceedingly neat copy of that excellent little monograph of Dr. Wright's on headaches. In the first number of the present volume we noticed the English edition, a copy of which was presented to us by the author. The American reprint is in every respect equal to the English edition, having, moreover, the additional recommendation of cheapness.

THERAPEUTICAL RECORD.

Chronic Bronchitis.—Morphiæ hydrochl gr 1.16 ter in die. As a preliminary step, all sources of irritation are to be attended to, especially

the liver, stomach and bowels. The Croton oil liniment was also efficacious.

Diarrhœa.—Tannin is usefully prescribed in this disease, exhibited in the state of solution with either the aromatic sulphuric acid or dilute sulphuric acid; it readily dissolves in these fluids, and the compound is productive of the most marked benefits.

Syrupus ferri iodidi.—The following is the most simple and convenient method. No fire is required, and the syrup may be produced as pale as water in 10 or 15 minutes. Iron filings, washed clean, gr. 126 or more; iodine gr. 252; distilled water 2 oz. Mix together in a flask, shake until colourless and filter the solution into ℥x of thick simple syrup.

Vomiting.—Dr. Reynold's of Newbern, Ala., says that he has recently succeeded in arresting two cases of vomiting, which had resisted the usual remedies, by the administration of a teaspoonful of sublimed sulphur. The dose is to be repeated if immediately rejected.

Sore Nipples.—℞ ext. opii. gr. j; ligr. calcis ol amygdal aa ℥iij. Dip a piece of lint in the mixture and apply to the affected parts.

Anæsthesia by Carbonate of Soda.—A nail was removed while the toe was rendered insensible by this gas. The toe was placed in a large mouth jar and the gas generated. The vacant space between the toe and jar was filled up with raw cotton. In 15 minutes anœsthesia was produced, and the nail could be bent and twisted without causing the slightest pain.

Iodo-tannic fluid in Ulcers.—The following is especially indicated in atonic wounds and old strumous ulcers. Iodine 5 parts; tannin 45 are thoroughly rubbed together, and 500 parts of cold water are gradually added. This is filtered and evaporated to 100 parts. A stronger preparation is also formed by combining 5 parts of iodine with 10 of tannin and evaporating to 85 parts of water.

PERISCOPE.

Microscopy of the Kidney.—At the April session of the New York Academy, Dr. Isaacs read a continuation of his paper on the Microscopy of the Kidney, in which he proved still more decidedly than at the previous meeting, the fallacy of some of the physiological views of Bowman and other European authorities, and demonstrated to perfection the true anatomical and physiological relations of some important parts, especially the connection between the malpighian tufts and the uriniferous tubes. His investigations have settled this vexed question, so that there can no longer exist any doubt of there being anatomical connection and a direct functional relation between these two parts. He tied the renal artery of a cat, after putting the animal under the influence of chloroform, and was then enabled to see the passage of blood directly from

the capilliary tuft in the tube; and he has proved to exist, what others have denied, because they failed to see, the presence of nucleated cells upon the surface of the tuft, as well as upon the inner surface of the capsul of the tube, which embraces and covers the tuft. The cells of the capsule he discovered to be of a different chemical character from those of the tuft—as nitric acid, while it destroyed the former, had no effect upon the latter. Upon his inability to discover any cells upon the tuft, Bowman based his theory that the office of this congeries of capillaries was to separate water only from the blood; a theory which is subverted by Dr. Isaacs' discovery of cellular formation upon them. He furthermore demonstrated the presence of various substances in the tube, such as bile in a jaundiced person, and various salts which could only have got there through the malpighian tuft.

Pneumonia discussed in thirty-three Aphorisms.—The following condensed series of aphorisms are taken from the excellent work on Diseases of Nursing Children, by M. Bouchut.

Primary pneumonia, which is also called pneumonia d'emblee is rare in children at the breast.

Pneumonia usually follows simple bronchitis, or bronchitis complicating fevers, or acute febrile diseases.

Primary pneumonia is usually lobar.

Consecutive pneumonia is always lobular.

Lobular pneumonia is sometimes discrete, sometimes confluent.

The pneumonia of children at the breast is almost always double, and usually attacks both lungs.

Lobar or lobular pneumonia is observed under two anatomical forms, slightly differing as to structure; these are intra-vesicular and extra-vesicular pneumonia.

Intra-vesicular pneumonia, usually primary, leads to congestion and thickening of the walls of the cells of the lungs, with the formation of an internal plastic deposit, which constitutes the character of red and grey hepatization.

Extra-vesicular pneumonia, always consecutive, only produces congestion and the thickening of the walls of the pulmonary vesicles without fibrinous plastic secretion in the interior of these vesicles.

Chronic pneumonia, more common in the infant at the breast than in the adult, is always lobar.

Pneumonia often engenders the formation of fibro-plastic miliary granulations in the interior of the cells of the lung, in lymphatic and scrofulous children, or in the issue of parents tainted with scrofula.

The developement of lobular pneumonia is favored by the crowding of children in the wards of a hospital.

Ordinary and frequent cough, accompanied by fever and anhelation, should make us fearful of an invasion of pneumonia.

Expiratory, groaning and jerking respiration is a certain sign of the existence of confluent lobar or lobular pneumonia.

Panting respiration, accompanied by a continual movement of the nostrils, is a sign of pneumonia.

Dullness of the chest is generally but slightly defined in the pneumonia of children at the breast.

When dullness of the chest exists in a young child with a very bad cold, pneumonia should be feared.

Dullness confined to one side of the chest in a young child rather indicates pleurisy than pneumonia.

The subcrepitant rale which accompanies the cough, the fever, and anhelation, confirm the diagnosis of confluent lobular pneumonia.

Bronchial respiration, which is rare in children at the breast, always belongs to lobar pneumonia, and sometimes to confluent lobular pneumonia.

Bronchophony, that is to say, the resounding of the cry, indicates that pneumonia has arrived at its last stage.

The exaggerated vibration of the thoracic walls at the time of the cries, indicates pneumonia, whilst their absence, on the contrary, points out the existence of pleurisy with considerable effusion.

The acute or moderate fever, at first continued, presents numerous exacerbations in the course of pneumonia.

Primary pneumonia, or d'emblee, is less severe than consecutive pneumonia.

Pneumonia consecutive to simple pulmonary catarrh is often cured.

Pneumonia consecutive to measles, scarlet fever ro small pox, is a very serious disease.

The pneumonia of children at the breast is especially, a serious disease, in consequence of the complications which proceed or follow its developement.

The pneumonia of children at the breast has a great tendency to pass into the chronic state.

The pneumonia which is consecutive to the developement of fibroplastic miliary granulations, or to tubercular granulations, is usually fatal.

Expiratory, groaning and jerking respiration, accompanied by movements of the nostrils, announces that the life of the child is in great danger.

The swelling and œdema of the hands, or of the feet, which comes on in the course of pneumonia, indicates an approaching death. (Trousseau).

The return of the secretion of tears, which has been suspended in the attack of pneumonia, is a good augury for its favourable termination. (Trousseau.)

One or two leeches at short intervals, several blisters in front of the chest and doses of ipecacuanha, are sufficient for the cure of simple acute pneumonia.—*Virginia Medical Journal.*

On Necræmia. By Dr. C. H. Jones, F. R. S.—This term is applied by Dr. Williams to that condition of the blood, in which it appears to be itself primarily and specially affected, and to lose its vital properties. It is, in fact, death beginning with the blood. The appearance of petechiæ and vibices on the external surface, the occurrence of more extensive hemorrhages in the internal parts, the general fluidity of the

blood, and frequently its unusually dark or otherwise altered aspect, its poisonous properties as exhibited in its deleterious operations on other animals, and its proneness to pass into decomposition, point out the blood as the first seat of disorder; and by the failure of its natural properties and function, as the vivifier of all structure and function, it is plainly the medium by which death begins in the body. The blood, the natural source of life to the whole body, is itself dead, and spreads death instead of life. The heart's action is faltering and feeble; the atonic vessels become the seat of congestions, and readily permit extravasations. The brain, insufficiently stimulated, after slight delirium, lapses into stupor; the medulla no longer regularly responds to the *besoin de respirer*; and the respiratory movements become irregular. Muscular strength is utterly lost; offensive colliquative diarrhœa, or passive intestinal hemorrhage often occurs; sloughing sores, or actual gangrene of various parts are easily produced; and putrefaction commences almost as soon as life is extinct. The track of the superficial veins is marked by bloody stains; hypostatic congestion takes place to a great extent; the blood remains fluid, and stains the lining membranes of the vessels. Rokitansky describes the blood as often foamy, from the developement of gas, and of a dirty red raspberry-jelly colour; its serum dark from exuded hæmatine; and its globules swollen up by endosmosis. Coagula are either totally absent, or are very soft and small. The exudations are of a dirty red—turbid, thin. There is scarcely any rigor mortis; the tissue of the heart and of other organs is flaccid and softened, and stained by imbibition of the serum. Gas is quickly formed in the vessels and in the areolar tissue, in giving rise to a kind of emphysema. It is remarkable that this necræmic condition, or one closely resembling it, may be brought on by violent shocks inflicted on the nervous system, as well as by any introduction of miasmatic or animal poisons into the circulation. Violent convulsions, overwhelming emotions, the shock of an amputation stroke of lightning, even a severe exhausting labor, are mentioned by the German pathologist as having produced this effect. More common causes are however, malignant scarlatina and typhus, yellow fever, the plague, and the disease called glanders. It may be said, generally, that the early appearance of sinking and prostration in any fever, indicates that the blood is thus seriously affected. We are ignorant what is the exact nature of the changes which take places in this condition of the blood.—Probably they are more of a vital than merely chemical kind—that is, they affect the properties of the blood more than its composition. The blood globules do not appear to be destroyed; but they circulate probably some time before death, as so many dead particles prove to be enlarged and to stagnate in the capillaries, and to part with their contained hæmatine. The fibrine is in great part destroyed: but how this comes to pass we are ignorant. We can perceive, on the whole scarce anything more than that the powers of vital chemistry rapidly decay, and those of ordinary chemical affinity supply their place.—[*Braith-waite's Retros.*]

The Medical Chronicle.

LICET OMNIBUS, LICET NOBIS DIGNITATEM ARTIS MEDICÆ TUERI.

ARE WE TO HAVE A MEDICAL CORONER FOR MONTREAL?

Are we to have a second Coroner? would probably be a more pertinent question. Some time has now elapsed since Mr. Coursol resigned the office, and as yet, we have not heard who is destined to be his successor, or, indeed, whether he is to be succeeded by any one. We know that applications have been forwarded to Government by medical gentlemen of this city who, from their abilities, learning, and scientific acquirements, would discharge the duties of the office with honor to themselves and benefit to the community. Not a whisper has reached us, however, as to what the intentions of Government may be. Surely they cannot have come to the preposterous conclusion that the largest and most populous city in British North America, is sufficiently supplied with one Coroner. Great as our faith is in the present healthy state of morals in Montreal, we are nevertheless obliged to confess that, if the duty be done thoroughly, there are a sufficient number of mysterious deaths to amply engage the attention of two Coroners. Toronto, we all know, is a wicked place, but Toronto with a fewer number of inhabitants than Montreal has now *four* Coroners. The "ancient capital" and other places, with far inferior populations, are supplied with two. Why then should this city have but one? It is unjust to the gentleman at present holding office that all the responsibility should be placed on his shoulders. He ought, we think, to protest against the longer continuance of this state of affairs, and urgently demand the appointment of a capable colleague. And that that colleague should be a physician, will, we are certain, be admitted on all hands. The recognition of the claims of the medical man to this office has been tardily recognized, but is now becoming universal. Soon Great Britain will have none but medical Coroners; and, judging from the last two appointments at Toronto, and numerous others lately made throughout the Province, it is evident that our own Government hold healthy views on the subject. Let them, therefore, appoint immediately a gentleman to fill the place vacated by Mr. Coursol, and let the gentleman selected be a member of the medical profession. By doing this they will exhibit in a forcible manner their anxious care for the interests of the public.

USEFULNESS OF THE COLLEGE OF PHYSICIANS, &c., C.E.

[The following letter reached us too late for present comment. Its subject is of immense importance to the profession, and can not be suffered to slumber in oblivion. It shall be known throughout the length and breadth of the land; and we will have great pleasure in again recurring to it, in the hope that the tree may yet bear fruit.—Eds. Med. Chron.]

A multiplicity of matter, unconnected, it is true, with those of a professional character, but requiring an extended correspondence, precluded me from acknowledging the receipt of your extremely well-conducted and interesting medical periodical; and I may add, from also addressing you an article for your next issue. You may, however, rest assured, that I feel a deep interest—an interest which ought to pervade the whole body of the profession in advancing by every possible means, the medical literature of our common country—in the absence of which our noble profession can never be elevated to that position and high consideration, which its importance, as well as usefulness, can so justly claim.

You may long ere this have observed the indifference and apathy with which—in a public point of view,—so important an institution as the College of Physicians and Surgeons, has been regarded—this, mainly, is not only to be attributed to the want of imparting to, and bringing the proceedings more frequently before the public; but to the operations being apparently, and merely, confined to an examining Board of Governors, into the qualification of candidates for admission to practice and study, —instead, as in other countries, of assuming a more enlarged range in the general interests of the profession, and in those hygienic measures which involve the public health and public safety, from those disastrous and calamitous pestilential and epidemic diseases, which have already, from time to time, invaded and decimated this Province, as well as the recommendation for legislative adoption of enactments for the better regulation and administration of Quarantine. And I regret that Dr. Morrin whose professional life (and in which we can never separate Dr. Wolfred Nelson, and our late President Professor Holmes, and others I would gladly name,) has been devoted to the public good, should not have persisted in bringing before the College, in a more ostensible form, his very judicious suggestions with regard to the above important subject. In England, France, and the Continent of Europe, where similar bodies (from being composed of men of the highest professional acquirements and intellectual character) are, at all times, fully recognised and consulted by Governments in all matters essential to the

protection of the public life and health, and whenever these are menaced with danger by the invasion of pestilential and malignant disease, I cannot forego for our own College of Physicians the same appreciation and regard, on the part of our Provincial Government, particularly as in the Prime Minister we have the advantage of possessing one of the most liberal minded gentlemen in the Province, formerly a distinguished member of the medical profession, and who has in every instance, in his legislative capacity, never lost an opportunity of promoting its interests and elevating its character. Our college would then take rank among the scientific institutions of the older countries. Let us not, however, despair.—With great regard, your very faithful servt.,

A. VON IFFLAND.

Grosse Isle, July, 1856.

MEDICAL NEWS.

During 1855, there died in Brooklyn, N. Y., 3893 persons; 421 of phthisis, 177 of pneumonia, 154 of croup, 286 of cholera infantum, 239 of scarlet fever, 48 of measles, 9 of small pox, and 61 of typhus and typhoid fevers.——In Buffalo there is a Spiritual Church where the new gospel is rapped out piecemeal. It numbers most of the homœopaths as members, the only female physician, and the residue is formed of similar heretics.——Mr. Owen has been appointed superintendent of the Natural History department of the British Museum, at a salary of £800, and Mr. Quekett, Professor of Histology, and Conservator of the Museum of the Royal College of Surgeons, London.——Hydrophobia has never been known to occur in Cyprus or Egypt. In Prussia, 1658 deaths have occurred from it alone in 10 years. Of the cases, the average length of sickness was 66 days; in two exceptions line was protracted to 365 and 360 days respectively.——Dr. Ramsay, editor of the late "Blister and Critic," was lately arrested on the charge of fabricating testimony in support of false pension claims. He procured $5000 bail, which was forfeited by his absconding immediately.——In the little town of Wick, England, there are 42 insane. Their imbecility is said to be caused by want of nourishing diet, and by frequent intermarriage among relations.——The entire collar bone has been lately removed by Dr. Blackman, U. S., for caries. The patient was able to attend to his business in 10 days. ——An Irish doctor advertises that the deaf may *hear* of him at a house in Liffy Street, where also his blind patients may *see* him from 10 till 3.——It is proposed to appoint inspectors of milk in New York city, to prevent the great adulteration which is practised there in this important article of diet.——A medicine has been lately advertised, of which *some* of the virtues are —" one bottle will cure a common pathology! one to three will cure *habeas corpus*! Four bottles will cure the under humor! Six to eight bottles will cure consumption, even if the lungs are gone! Nine bottles will cure aurora borealis! And to cure a broken bone, wash the parts well with the medicine! Price $1 per bottle; to the clergy, half price.——An eminent English physician states that among his female patients, the dolourcux, loss of eyesight and pain in the ear are complaints which have become very frequent in his practice, since fashion required the dressing of the back of the neck instead of the head.——The Boston Medical and Surgical Journal says that physicians are more moral than clergymen, and that the fact may be easily sustained by criminal statistics.——The Thomsonians are a-coming of it. In a late address, the speaker anticipated the day when "the banner of medical reform, which the immortal Thomson first unfurled, shall wave in triumph over the head of every opposition, and the proud and bigotted sons of the *allos-pathos* and *similia similibus* systems of medication shall have crouched beneath it, as did the mighty English lion at the feet of the American eagle." ——Ed. Thomas, a surgeon by profession, but for the past 20 years a pauper in Clerkenwell workhouse, and officiating therein as undertaker, was placed at the bar lately, on remand, charged with mutilating the body of a deceased pauper, by sawing off the head.——Mons. J Sichel, the oculist at Paris, has been authorized to wear the decoration of commander of [Spanish] order of Isabel the Catholic.