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ORIGINAL COMMUNICATIONS.

ART. XX—*Cases of Operation for Cataract.* By W. R. BEAUMONT, F.R.C.S., Eng.

Case 14.—Cataract of both eyes; capsular, or capsulo-lenticular of right; lenticular of left; pupillary margin of both irides adherent—the right much displaced and contracted; right eye amaurotic—with the left he can readily distinguish between light and darkness. His sight began to be impaired eighteen months before admission to the hospital, and for the last nine months he has been unable to find his way about. Keratonyxis. Prognosis rather unfavourable.

Charles Shepperd, aged 27, was admitted August 26, 1850, into the Toronto Hospital, and on the 31st I performed keratonyxis on the left eye, some small portions of the broken up lens passing into the anterior chamber. Cold water dressing was constantly applied.

September 3rd, (three days after operation) the conjunctiva was very slightly injected, and he had suffered no pain in the eye.

September 6th, (six days after operation) the pieces of the lens which had fallen into the anterior chamber, had entirely disappeared.

September 21, (three weeks after operation), I repeated the operation, which was not followed by inflammation, the sclerotic conjunctiva being only slightly injected.

October 27th, (five weeks after second operation) he could readily perceive the number of fingers held before him, and a fortnight later, the absorption of the lens progressing, he began to see rather better by the aid of very convex glasses.

January 17th, 1851, he left the hospital, having remained so long on account of inflamed fauces and rheumatic pains. He could readily discern large objects, but the cataract was not yet wholly absorbed.

The prognosis was not very favourable on account of the amaurotic condition of the right eye, and the adherent and contracted state of the pupil of the left, the eye operated on.

Case 15.—Lenticular cataract of right eye; the pupil contracted, adherent and irregular, dilating very little by the application of belladonna, and shewing a few black tags of uvea stretched between the pupillary margin of the iris and the anterior capsule of the lens. The cataract was of a pale bluish gray colour. With this eye he could see to find his way about, and could see large objects, but without recognizing them. His sight began to be impaired about a year before admission, for which he could assign no cause. His left eye had been useless for the last six years, the cornea being densely opaque and staphylomatous, but with it he could still tell light from darkness. Keratonyis. Prognosis not unfavourable.

George Wall, aged 30, was admitted October 23, 1850, into the Toronto Hospital.

November 1st, I punctured the cornea intending to break up the lens, but the needle's point getting entangled in the iris close to the pupil, I withdrew the instrument.

November 2nd, there was some slight redness of the sclerotic conjunctiva. Cold water dressing to be constantly applied.

November 4th, the redness had entirely disappeared.

November 9th, I performed Keratonyxis, lacerating freely the anterior capsule and breaking up the lens.

November 10th, there was but slight redness of the conjunctiva, and the operation he said had caused no pain, either at the time of its performance or since.

December 7th, (four weeks after operation) there being no appearance of absorption going on, I again performed keratonyxis, which was followed neither by pain nor inflammation.

January 13th, (nine weeks after the first operation) the cataract had become much thinned, and I repeated the operation, which again caused neither pain nor inflammation.

February 14th, (fourteen weeks after the first operation) I

again broke up the remainder of the cataract, by which a considerable aperture through it was left. This was the fourth time of performing keratonyxis on this eye, and like the former operations was productive of no inflammation.

February 23rd, (a week after the last operation) he was able to distinguish one person from another and to read large print.

March 17th, (rather more than four months after the first operation) he left the hospital, having very good vision, being able by the aid of glasses to read small print. The pupil I had enlarged by breaking, in some of the operations, part of the adhesions between the pupillary margin of the iris and the anterior capsule of the lens.

This patient was seen above twelve months afterwards by Dr. Clarke, the resident medical officer of the hospital; by whom I have been informed that the vision of this patient remained quite as good as on his discharge.

(To be continued.)

Art. XXI.—*On Post Partum Uterine Hæmmorrhage.* By Dr. Mewburn, Danby House, Stamford.

The very valuable and interesting communication of Dr. Makelcan, of Hamilton, in a former number, "on the treament of Uterine Hæmmorrhage after delivery" induces me to offer, through the same medium, some remarks and suggestions on this most important subject, the result of a long successful practice, during which period, *(upwards of forty years!)* only two cases of fatal termination in labour have occurred, and in both the patients were "*fast hastening away,*" on reaching the bed-sides, owing to a most unpardonable neglect on the part of the families in not sending in time for assistance!

The management adopted, and strongly recommended, it will be observed, is of a prophylactic character, commencing when parturition has actually begun, if called in time, and continued until the whole process is terminated, and all danger over.

On ascertaining "*that all is right*"—and the sooner the better—little interference is needed. It is not improbable there may be some Veterans of "old St. Thomas' and Guy's" in the Province who can call to remembrance old Doctor Haighton's caustic remark, with his satirical and quizzical look, and turned-up nose: "*Meddlesome Midwifery, Gentlemen, is bad!*" Care must be taken that the rectum and bladder be relieved and attended to; should it be a first case, or one likely to prove hard and unyielding, a very large dose of Castor Oil is admistered early, with the very beneficial results in saving both suffering and time! *The membranes re never ruptured until they have performed their office;* the La-

bour is not to be hurried; and when the head has passed through the outlet, further progress is prevented for one pain, by which the Uterus contracts uniformly over the contents, and this, aided by the careful pressure of the hand of a nurse over the Uterus, and when the child is expelled, as slowly and carefully as possible, shielding the internal portion of the Perineum from laceration by the feet. The hand of the Accoucheur is used to perfect the contraction of the Uterus, and ascertain that there is *not another fœtus left behind!* the funis tied and divided; a firm bandage of strong factory cotton, new, having been previously placed under the patient, is brought over the lower part of the body as tight as can be borne, and firmly pinned round the Abdomen; a drink of Whiskey, or Brandy Toddy—warm in winter, cold in summer—*of good strength*, is immediately given to "the poor sufferer," and repeated at short intervals. In fifteen or twenty minutes, if there is pain, the placenta is slowly extracted, *drawing the cord towards the Sacrum*; otherwise, it is pulling round a corner! A careful examination is made to ascertain that there is no inversion of of the Uterus, which should never be neglected. Immediately after, another bandage, with a strong compress of a coarse towel, folded, and placed over the Uterus—which should feel like a cricket bale—is applied over the former; a few more drinks of the Toddy, and a cupful of well spiced panada, administered; an unwearied attention, on the part of the Accoucheur himself, to the patient every five, ten, fifteen, and twenty minutes to ascertain that there is neither faintness or unusual flow—the better by the nurse for one hour at the very least, two or more, if such can be given, with plain and specific directions to the attendants not to be afraid of giving Brandy or Whiskey, undiluted, should any symptoms of this nature occur, before leaving the house, is the plan or management by which, in the writer's opinion, Post Partum Hæmmorrhage will be prevented.—In this he is supported by his old and much esteemed friend, Dr. Eddy, of Lewiston, U. S.; and his son, Dr. W. C. Mewburn, of Drummondville, where, and at Weston, near Toronto, in 1845 and '46, he has had ample opportunities of ascertaining the very superior merits of this mode of practice.

The modus operandi would appear to be, by the liberal use of the stimulant, the action of the heart and the circulation of the blood are kept up, which otherwise would sink from exhaustion, from the tremendous exertion of the whole body, brought into action, the excitment of the nervous system, the intense pains, fear, and dread, so natural to the "fairest and best of God's creation, suffering nature's throes, and agony indescribable, distressing and alarming to the patient herself and the bystanders to witness! the only wonder is that such should be so soon *forgot!* It is true, much of these are now lessened by the judicious use of chloroform

in such cases as require the "*oblivion exhibition.*" The bandages, "our sheet anchor," which, on no account whatever, should be neglected, give a firm support to the parieties of the Abdomen, and the large blood vessels, &c., within, when the weight and pressure of the fœtus, &c., are suddenly removed, as in the operation for Paracentesis Abdominis, if a firm pressure is not kept up with a folded sheet, by an assistant on each side, and stimulants given, as the fluid escapes, it is very probable the patient will have a poor chance for life, the vena cava, unable to keep up the current of blood to the heart, the latter ceases, after a few vain struggles, to contract, faintness supervenes, and death the consequence!

Dr. Burns, in his valuable work on Midwifery, recommends after delivery, *an hour or so*, a little tea! other celebrated writers tell of cold water, and much of this unfeeling and cold hearted mode of treating patients after passing through, which would kill half-a-dozen fellows, or make them remember all the days of their lives! is practised in this our day. Now, if any of the TT were compelled to work, broiling and sweating, in the harvest field "from morn to dewy eve," and were presented at the close with a cup of weak tea, or a glass of cold water, how would he feel?—rather peckish, we opine, as going decidedly "against the grain." The writer trusts his remarks will be taken in good part by his professional brethren; he has no intention of giving offence to those whose practice differs from his own; but he acknowledges entertaining a strong feeling in behalf of "man's better half" in "her hour of trouble." He remembers, in his early practice at home, the disarray experienced while attending a fisherman's wife, a stout, strapping woman, and seeing, after all was over, a goodly slice of toasted bread and cheese—*a real Welch rabbit*—with a tumbler of Jamaica rum punch, hot and strong, concocted and prepared—he tragically concluded for *his own self*—but, judge of his alarm on discovering it was for the "lady in the straw." "Why, you'll kill her—this is very improper and dangerous," was his exclamation to the nurse. Inflammation, congestion, fever, &c., flashed before his eyes in a moment. "Don't trouble yourself, doctor," replied the canny old woman; "it didn't kill her mother, nor her grandmother, nor any of us old folks when we took it; she'll be all the better, I warrant: and why should she not have some meat comfortable and nourishing after such a hard night and day's fight? If you had been in her place, and gone through what she has done, why, you would have had your share!" This was logic unanswerable, yet it was some time before the right impression was made, and if there is "reason in a plum-pudding," surely such may be found in a "Welch rabbit and hot Jamaica punch" after a hard day's work of this description.

At the close of the meeting of the committee for drafting the

clauses of the new Medical Bill, in Toronto, on the 1st of July last, this subject, *inter alia*, was discussed, and some jocular and pleasant remarks were made on the practice of giving the ladies at this particular moment such quantities of strong drink; but *experientia docet*, and the proofs, in the most favourable results, as, with one exception, where there were reason to believe some serious disease of the uterus existed, there has been no instance of hæmorrhage, inflammation, or other disorders incident to the puerperal state supervening. The writer feels himself justified in recommending this mode of preventing post partem hæmorrhage to the members of the Medical Profession, without fear or dread of the results.

ART. XXIII.—*On the White Globules of the Blood in Diseases.* By JAMES BOVELL, M.D., Toronto.

Continued from page 156, *No.* 6.

IN Messrs. Kirkes and Paget's valuable little work on Physiology it is stated that, "the development of the first set of blood corpuscles appears to be uniform in all the classes of vertebratæ, viz., in all from the embryo-cells of the vetelline membrane, or germinal area, into the nucleated red blood-cells: the principal visible changes being the disappearance of granules or fatty-looking substances, the greater prominence of the nucleus and the acquirement of colour—and in their most perfect state, the corpuscles of the first set are, in all the vertebrate classes, nucleated cells. In all the vertebratæ two sets of red corpuscles are developed at *different periods* of life; a first set which exist alone in the blood, till lymph and chyle begin to be formed; and a second set which are formed from the lymph and chyle corpuscles, and gradually supersede the first set." Is it not that these transitory cells give rise to the true blood corpuscle, and are not themselves transformed, being parent cells?

Now in Mr. Carpenter's second edition of "Principles of Human Physiology, it is stated that "the whole structure originates in a single cell: that *this* cell gives birth to others analagous to itself, and these again to many future generations: and that all the various tissues of the animal body are developed from these, although no difference can be in the first instance observed among them." This is not the only mode in which new cells are produced in the animal body; for they may originate in Fibrin from nuclei or cytoblasts which are formed by the aggregation of minute granules, just as do those of plants in the organizable gummy fluid of the ovule. *Both require* for their perfect performance, that the fluid should be in contact with a living tissue; and when this condition

is supplied, there seems to be no necessity for any further assistance. It is when Fibrin is effused on a cut surface or an inflamed membrane, that this process of organization most unequivocally displays itself. Soon after the coagulation, a number of granular bodies may be seen in the mass; and these soon present appearances which indicate that they serve as nuclei for the formation of cells. In this condition they are known as *exudation corpuscles.* These cells afterwards *give place* to the various forms of tissue that are to present themselves in the new fabric, by a series of changes. *If the general principle be correct,* that no cell can be produced *save from a germ* prepared by a pre-existing cell, it is obvious that such germs *must be contained* in the liquor sanguinis, and must escape from the blood-vessels which pour it forth. The formation of similar cells in the clot of blood drawn directly from the vessels, and even in that which has coagulated within them, seems to add weight to this idea. We have reason to believe that such granules are being continually set free by the rupture of the white corpuscles—and reasons hereafter will be given for the belief that they may be the germs of the epethelial cells to which the layers of exudation cells bear so strong a resemblance. It is well known that the character of organisms of a low grade is very much influenced by the circumstance under which they are developed: *hence* there is no *a priori* objection to the belief (which other circumstances seem to favour) that pus corpuscles and tubercular matter are abnormal forms of the same elements as those which would otherwise produce a well-formed layer of exudation cells."

Whether the cells alluded to by Messrs. Kirkes and Paget are to be considered as identical with the true blood corpuscles, is, as above stated, questionable; and it appears more in accordance with legitimate induction to look on them as performing a temporary office —as parents of the true blood corpuscle. In Mr. Paget's work on "Reproduction and Repair," he evidently assigns this office to these primary cells. "In embryos we may discern three several modes according to which blood-vessels are formed—a good example of the manifold ways by which in developement the same end may be reached. In the first and earliest method, they are constructed *around* the blood corpuscles, which being gradually developed *from some* of the embryo cells, are laid out in the plan of the earliest and simple circulation of the blood." We may gather from the observations thus made on the developement of the embryo, and from similar ones made on Pathological epigenesis, that there is scarcely any difference in the modes of formation; for as Mr. Paget writes, "the continuous action of the 'germ power' through life is manifested in this—that when in an adult animal a part is reproduced after injury or removal, it is made conformable, not to the condition which was proper to it when it

was first formed, or in its infantile life, but *to that which is proper, according* to the time of life in which it is reproduced—proper because like that which the same part had at the same time of life in members of former generations. Thus in the reproduction of the leg of the full grown Salamander after amputation, it is clear from the first that, whilst the process itself is of a similar nature to that concerned in its first developement, it is tending to produce, not to the leg of a larva, but that of the animal.

The power, therefore, by which this production is accomplished, would seem to be not the mere revival of one which, after perfecting the body, had lapsed into a dormant state, but the self-same power which, before the removal of the limb, was occupied in its maintainance by the continual mutation of its particles, and now *engages itself*, with more energy, in the reconstruction of the whole. These views receive important confirmation from observations made by Mr. Barry, and quoted by Mr. Carpenter, and renders the question extremely interesting; for, since we observe, as the result of injury or impaired nutrition—even inflammation—a free supply of white cell growth, so do we find in the earlier periods of embryonic life, when all the constructive energy of the system is required, a similar abundant presence of these very bodies. It has been noticed by Mr. Gulliver that, in the very young embryo of the mammalia, the white globules are *nearly as numerous* as the red particles: this he has frequently noticed in fœtal deer of about 1½ inches long. In a still smaller fœtus, the blood was pale from the preponderance of the white corpuscles. It is, therefore, adds Mr. Carpenter, a fact of much interest, that even in the mammiferous embryo, at the period when growth is most rapid, the circulating fluid has a strong analogy to the invertebrata: and let it be remembered that (as in the Salamander) the developing force is at its height. In states of impaired nutrition, in and about parts which are undergoing repair, and under certain conditions, as shown by Mr. Addison, there is an abundant supply of white blood corpuscles, material readily furnished, for the uses of the part or of the system at large. That the solids act an important part in assimilation, is admitted by the best Pathologists and Physiologists, and as we shall presently show, must be taken into account in all our considerations of growth and development, while at the same time the part which the blood plasma itself performs, is not to be forgotten. Thus Prof. Vogel remarks—"Two different causes may be supposed to effect the transition of the blastema in development; *firstly*, the cause may be grounded on *the nature of the blastema*, and the formation may be developed with the same necessity which, under favourable conditions, compels the separation of certain crystals from their mother-liquid; or, *secondly*, the trans-

tion in the developement may be dependent on external conditions, independent of the cytoblastema, as, for instance, on the influence of the surrounding parts of the body. We must distinguish between the capacity of the cytoblastema in the progress of developement (potentia) and the actual transition (actus). That the *capacity* for developement essentially pertains to the cytoblastima, no one will deny. If it depended merely on external influences, then would any substance placed in similar relations undergo the same process of development—an assumption entirely at variance with experience." In the formation of the animal organism from the egg, the share of the cyto-blastema is very predominating. There is contained within it not merely the capacity, but likewise the whole quality of the future formation: in fact, the whole quality of the future organism is included in the egg: external circumstances can hinder, but cannot essentially change it." As declared by Mr. Paget,—"The characteristic property of an impregnated germ is, that, when placed in favourable circumstances, all the materials of which it first consists, *and all that it appropriates*, are developed according to the same method as was observed in the development of its progenitors; in other words, in conformity with what we may regard as a law of specific character. However vast its power of multiplication and increase,—however various it metamorphoses,—however far in some of these changes it may deviate from the form in which its parents generated it,—however near in some it may approach the perfect character of another species,—or, which is stranger still, however much alike all germs may be in their primal structure and earliest development, yet, through all these things, each germ moves with unswerving progress, guided by the same power as created its parents, to the formation of a being in which the parental form and properties are reproduced. Now, the constancy of this result, and its little dependence on external circumstances, justify the expression that every impregnated germ has in itself, and *in the* properties with which its maker has endowed it, the power to develope itself into the perfection of an appropriate form."

Although the germ force is indeed alike the property of the whole organism, yet, as Mr. Paget shows, it is not alike bestowed on masses of matter, hence the propriety of recognising with Mr. Carpenter as a new manifestation of this force—"a force of assimilation"—by which all the parts are built up and restored according to a previous model; for even in the case of the red blood it is questionable whether its reproduction is not dependent on the Glandular and Lymphatic system

Mr. Hassall, in his valuable work on Microscopic Anatomy, has collected the opinions of many excellent Physiologists as to

the nature and office of the blood corpuscles, and states very clearly the various ideas entertained by each, and also argues the point of their connexion or relationship to the functions of secretion and nutrition; concluding by giving in his own adhesion to the doctrine which assigns to the white corpuscles an association with nutrition. Before quoting the opinion of Donné, Addison, and others, it may be desirable to revert to the views which have been alluded to for the purpose of pointing out the difficulties which surround the question "of the value and office of the white corpuscles" —views which certainly appear to show that these bodies have as little to do with secretion as they have with nutrition. It certainly seems somewhat singular that all Physiologists should assign to cells the performance of distinct and peculiar functions: and yet not include these bodies, and the opinion seems to be with Mr. C., who first stated the law, and illustrated it by example of "ciliated epithelium" being a non-secreting epithelium until it had lost its ciliæ: and the cells of muscular fibre being non-productive, their own force being that of motion, the myolema being alone the productive structure. If, then, we review the opinions that have been previously stated, we cannot help being struck at the anomalous functions which dissolve on the white corpuscles, which, if they be cells constructed according to the plan of other cells, and under the influence of similar laws, manifest a singular exception.

"If," says Mr. Carpenter, "the general principle be correct, that no cell can be produced save from a germ prepared by a pre-existing cell, it *is obvious that such germs* must be contained in the *liquor sanguinis*, and must escape from the blood-vessels which pour it forth." All that is requisite for their perfect performance is that the fluid should be in contact with the living tissues. All observers agree in the close similarity which exists between the chyle corpuscles and the white: and Messrs. Lane and Gulliver actually described them when circulating in increased numbers as pus corpuscles circulating in the blood; and Mr. Carpenter, tracing the origin of pus and tubercle corpuscles from the molecular base of the blood, declares "that there is no apriori objection to the belief that pus corpuscles and tubercular matter are abnormal forms of the same elements as those which would otherwise produce a well-formed layer of exudation cells."

From the researches of Ascherson it has been shown that, in obedience to a physical law, oil and albumen, when brought into contact, form themselves into minute globules of a granular structure; and Mr. Gulliver has proved that the white appearance of the chyle is due to a molecular base present in it after digestion of food, and which is not always all formed into chyle corpuscles, since sometimes it passes into the circulation, imparting a milky colour to the serum. The process of assimilation may thus be said

to be materially assisted by the operation of a physical law. From the moment that the chyle enters the cells at the termination of the villi, being in contact with a living tissue, its vitality commences, and it acquires new properties as it journeys on its way through the glands until its final arrival into the systemic circulation. In the embryo and very young animals where the developement and growth are in energetic activity, a large quantity of white corpuscles are present in the circulation; but when growth either proceeds more slowly, developement having become less energetic, or growth ceases, and assimilation only manifested, the amount of white corpuscles fall to their minimum quantity, and frequently elude detection. It certainly seems very strange, if these bodies are absolutely necessary parent cells—necessary to the preparation of fibrin—that we should not see them as abundantly present as the red corpuscle: and it is yet more singular that bodies so exactly like them should be formed outside the vessels, and formed, too, according to Mr. Carpenter, after the same plan as is the chyle corpuscle from a molecular base.

If the white corpuscle of the blood is an organism necessary for the preparation or elaboration of fibrin or nutritive blastema how is it that in perfect health there are so few of them compared to the mass of the blood? Why should the red corpuscle, whose office it is to convey death, be now more abundant than that which is to give life? Again, Mr. Simon has promulgated an opinion which, so far as I have yet been able to learn, has not been controverted, namely, that the blood-vessels are nourished by a supply from within by directly assimilating from the blood the blastema their requisite for their maintainance as the fluid washes past walls.

There is much evidence, says Mr Hassall, to show that wherever nutrition *is impeded, the colourless corpuscles accumulate in increased quantities in the vessels*; and it is by this accumulation also, that we are enabled to account for the critical abscesses and discharges which characterise some affections, and to recognise the importance which ought to be attached to their occurrence. That the colourless corpuscles are really present in increased numbers in the blood, *in disease*, is attested by the evidence of numerous observers. Thus Gulliver, Davy, Ancell, and Mr. Seddall, have observed them in unusual quantities in inflammatory affections. Last of all, we find Dr. Bennett recognising them as abnormally present in conditions of the body in which a particular series of organs are in a morbid state.

The fact that white cell-growth abounds in glands, being much overlooked, great confusion has arisen, although there can be no doubt whatever that the colourless corpuscles of the spleen intestinal glands, and glands of the mesentery, perform peculiar offi-

ces, both in health and disease, and differ from the white corpuscles of the blood. Mr. Carpenter, in speaking of the different appearances assumed by the corpuscles in various parts of the body, has remarked that in the splenic veins and in the mesenteric glands certain peculiarities are to be met with. But as Mr. Donné has given some very interesting observations on this point, we shall quote from him:—"About two hours after injection—with milk—rabbits, dogs, and birds, have been opened. I have collected the blood in the different organs—in the lungs, the liver, and the spleen. Everywhere I have found the blood in the state which I have described it above, containing a certain number of white globules in all stages of formation, and of red globules more or less perfect, invariably the *spleen* has presented to me special circumstances, so *established*, and so *constant*, that it behoves me to mention them; and especially since they may throw light, at length, upon the true functions of this organ. The blood contained in *the large vessels* of the spleen, offers nothing very remarkable; but, in expressing that which is enclosed, and, as it were, combined with the tissue of this organ, *one* finds it a composition well worthy of fixing the attention. In a word, the blood is so rich in white globules *that their* number approaches nearly to that of the perfect blood globules: but further, the white globules which are there, present, in as evident a manner, all the degrees of formation and development; and the examination of this blood does not appear to me to leave any doubt upon the transition which I have pointed out above of white globules to red corpuscles, and upon the successive phases through which the white globules pass to arrive at the perfect blood corpuscles. The observations of Mr. Simon on the thymus gland; and of Dr. Bennett on the spleen and other glands, show that these organs are furnished with an abundant amount of cell growth distinguishable from the white corpuscles of the blood, and with which they are not to be—as has been the case before—confounded. If, then, the white globules of the blood were essentially corpuscular elements of nutrition, how is it that, with numerous organs abounding with this form of growth, we do not find a free supply of them issue forth? and why is it that they are only found when nutrition is imperfect? It seems surprising that Mr Hassall should have passed over what would appear to be the real origin of the white corpuscle, and there importance to life, when he made the following remarks:—"It has been stated that, in addition to the white and red globules, numerous smaller particles, termed molecules, exist in the blood." The globules, in all probability, derive their origin *from these molecules*—a number of them going to constitute a single white globule. This aggregation of the molecules into masses, or globules, would appear to result from the operation of a general

law of the economy, under the influence of which the globules unite with each other, and become invested wtih a coating, or membrane, probably of an albuminous nature. Here, then, according to Hassall, we have the same process exactly taking place within the vessels as occurs when the plasma is effused without them. What, then, would seem to be the reasonable interpretation to be placed on phenomena which are so uniformly observed?

Reflecting on the various forces which are in operation, and the necessity that exists that the healthy constitution of the blood should be maintained, I have thought that we may look on the increase of the white globules in the blood as conservative. We know from experimental investigation how essential it is to the maintainance of the red corpuscles that they should float in liquor of a certain specific gravity and certain density. If under impaired states of nutrition a copious supply of unappropriated plasma was thrown into the vessels retaining its liquid or diffused state, would not its density be changed? But as there is "a tendency to aggregation of these molecules into masses, and to form for themselves a membrane," perhaps we may see in this a wise provision for economising and preserving from waste a supply of nutrient material—a transitory development of cell-life—thus preventing undue injury resulting to the whole mass of blood by any alteration of its specific gravity.—(*To be continued.*)

CORRESPONDENCE.

To the Editor of the Upper Canada Journal of Medicine.

Dear Sir,—The reports which have reached us from Quebec are sufficiently alarming to awaken us in Toronto to a sense of duty towards each other. Would it not be wise then in the authorities to take immediate steps to provide assistance for our sick poor—and permit me to suggest the propriety of departing from the old plan of establishing sheds and urge on the Corporation the better mode of dividing the City into districts, to be placed under the charge of medical officers, giving them power to visit all houses and to enforce the removal of all filth and accumulations of putrescent matter. In recommending the discontinuance of the shed system, I by no means wish to fly in the face of popular prejudice; but for the sake of those who are obliged to resort to them, it is respectfully urged that the dense accumulation of human beings in one apartment, and that too of the most imperfect kind, has always been found to increase the mortality to a fearful extent. If sheds are to be built let them be so constructed as to afford accommodation to not more than four persons in the same division, and at least eight feet square to each bed. Why not inquire of one of our Medical Boards for a good plan?

I am, sir, your's respectfully, A Layman.

MONTHLY METEOROLOGICAL REGISTER, 0f

Latitude, 43 *deg.* 39.4 *min. N. Longitude,* 79 *deg.* 21.5 *min. W*

Magt.	Day	Baron. at 32° & Sea Lev.				Temperature of the Air				Tension of Vapour.			
		6. A.M.	2. P.M.	10 P.M.	MEAN	6. A.M.	2. P.M.	10 P.M.	MEAN.	6. A.M.	2. P.M.	10 P.M.	MEAN.
						°	°	°	°				
b	1	0.071	0.119	0.011	0.067	2 8	13.6	1 .4	9.7	0 421	0 617	0.555	0.545
c	2	0.087	0.185	0.269	0.177	0 6	10 3	19 .	10 6	305	570	749	573
	3	0.138	0.053	0.018	0.027	6 3	9 7	1 5	3.6	415	384	352	385
c	4	0.150	0.197	0 221	0.189	3.0	1.1	3 0	0 7	304	462	286	356
c	5	0 .72	0.219	. .	....	7.2	5.1	. .	. .	274	474	....	
b-d	6	0 207	0 171	0.166	0 186	4.5	10.0	9.6	6.6	291	559	450	430
c	7	0.221	0.2 1	0 221	0 203	1.1	12.0	3 1	6 2	310	510	416	153
c	8	0.238	.273	0 241	0.247	0 5	8 5	2.6	5.1	375	545	375	453
c	9	0 176	0 115	0 021	0 0,0	5 1	1.2	12.6	8 0	115	641	9 0	578
	10	0.061	0.0 8	0.097	0 0 5	15 0	19.5	6 8	10.1	589	527	18	530
c	11	0 121	0.248	0.113	0.300	7.1	3.5	8.1	6.0	156	557	510	506
c	12	0.7 1	0.519	. ..		3.1	1 1	.	.	361	335	.	....
a	13	0.330	0.21 .	0.117	0 210	12 5	8 3	12 8	10.5	2 0	211	216	215
a	14	0.051	0 157	0.015	0 037	1 1	4.0	7.1	8.3	193	295	273	261
a	15	0.069	0 111	0 221	0.144	10.1	6 5	11.6	8.9	223	367	236	265
c	16	0.309	0 32 .	0.312	0 317	15.8	6.6	9.2	8.4	207	276	230	252
a-c	17	0.320	0 315	0 271	0.305	10.2	2.3	5.2	5 4	2 0	341	278	270
a-c	18	0.241	0.221	0.197	0.297	4.0	1.0	4 2	0.5	248	379	384	356
c	19	0 071	0 021	....	....	6.1	3.6	....	....	403	548	....	.
c	20	0.250	0.102	0.57	0.011	3.8	10.7	1.2	2.4	323	313	373	350
c	21	0.26	0.332	0.093	0 221	0 6	1.0	4.2	5 8	455	459	518	491
d	22	0.021	0.109	0.216	0.122	3.9	0 5	7 8	1.4	312	293	261	276
c	23	0 300	0.29 .	0.21 .	0.296	0.1	3.1	5 1	1 0	220	319	280	493
c	24	0.154	0.103	0.01	0 095	1.3	0.5	2 .	1.1	30	297	251	336
a-b	25	0.0 8	0.24 .	0.101	0.231	5 2	0.3	3.0	2 2	312	401	391	368
b	26	0.222	0.215	. ..	....	1 0	2 1	....	..	212	275	.	
a-b	27	0.331	0 001	0 0 9	0.022	5.1	9.6	0 1	5 6	225	243	255	256
a b	28	0.203	0.082	0.101	0.096	3.3	5 2	6 9	3 9	369	365	411	285
c	29	0 187	0.214	0 178	0 186	8.8	7 3	3.0	7 2	161	218	269	226
d	30	0 114	0.155	0.161	0.139	6 0	2 2	0 6	0.5	191	311	290	297
Means {	Normal..	29 661	29.646	29 683	29.6139	51.25	61.38	54 18	57.42				
	Observed	29.721	29.692	29 653	29 7015	49 01	64.69	54.11	5 3 92	0.312	0.405	0.36	0.396

* Above or below the mean pressure and temperature for the time of observation.

Highest Barometer .. ...39.006, at 8 a.m on 17th } Monthly range
Lowest Barometer..... 28.910, at 6 a.m. on 12th } 1.096 inch.

High'st obs'v'd te'perat re 81° 8, at 2 p.m. on 1st } Monthly range
Lowest registered " 35 .8 at a.m. on 14th } 46°.0

Mean highest observed temp. 61°.92 } Mean daily range:
Mean registered minimum 47 .16 } 17°.76

Greatest daily range, 25° 4, from 2 p.m. of 4th to a m. of 5th.

Warmest day, 2nd. Mean temperature, 71°.53 } Difference,
Coldest day, 29th Mean temperature, 44.07 } 27°.46

13th—at 5 a.m., the *first frost* observed this season.

The "Means" are derived from six observations daily, viz:—at 6 and 8, a.m.; and 2, 4, 10, and 12 p. m.

The column headed "Magnet" is an attempt to distinguish the character of each day as regards he frequency or extent of the fluctuations of the Magnetic declination, indicated by the self-registering instruments at Toronto. The classification is to some extent arbitrary, and may require future modification, but has been found tolerably definite as far as applied. It is as follows:—

(*a*) A marked absence of Magnetical disturbance.

(*b*) Unimportant movements,—not to be called disturbance.

(*c*) Marked disturbance,—whether shewn by frequency or amount of deviation from the normal curve,—but of no great importance.

(*d*) A greater degree of disturbance,—but not of long continuance.

(*e*) Considerable disturbance,—lasting more or less the whole day.

(*f*) A magnetical disturbance of the first class.

The day is reckoned from noon to noon. If two letters are placed, the first applies to the earlie, the latter to the later part of the trace. Although the declination is particularly referred to, it rarely happens that the same terms are not applicable to the changes of the horizontal force also.

Toronto, September, 1852.

H. M. Magnetical Observatory, Toronto, C. W.—SEPTEMBER, 1852.

Elevation above Lake Ontario, 108 feet.

Humidity of Air				Wind			Rain in inches	Weather
9 AM	2 PM	10 PM	Mn	6 A.M.	2 P.M.	10 P.M.		
.92	.69	.84	.75	Calm	SSW	Calm	..	Generally overcast with light clouds and haze
71	67	82	75	Calm	S by E	SW by S	0.060	Unclouded till 1 p.m.: sultry, lightg, thder, rain.
80	67	74	67	S W	WNW	NW by N	..	1st Cldy a.m; clear and fine. p m Aurora March.
86	64	69	73	Calm	E by S	NNE	.. ..	Uncl'ded, fine, faint auroral light from 10 p m.
88	62	..	..	SW by W	SE by S	Calm	....	Unclouded, hazy round horizon; very fine.
85	81	74	69	Calm	S	SSW	.....	Uncl'd hazy round horizon, fine, aurora fm 10pm.
91	53	82	71	W by S	S	E by N	....	Uncl'ded hazy round horizon very fine.
93	74	77	76	Calm	ESE	S by E	in app	Foggy 7 pm uncl'd, hazy fine, dr ops rain during nt.
79	88	97	88	NNE	S by E	E N E	0 040	Overcast am, slt rain fm 9 to 11 am., sultry pm.
90	60	87	78	NW by N	NW by N	NbW	..	Clouded am., a few light clouds pm
91	81	88	86	N by W	E by S	NE	1 070	Densely cl'ded, thder, lightng rain fm. 10 pm.
85	65	..	..	S by W	W	WNW	0 055	Ien'ly overcast, slight rain, slt aurora fm 10 pm
87	47	81	69	WSW	W by S	W by N	in app	Lt cl ds dispersed am fine, pm hard frost 6 am.
91	57	84	76	Calm	SSE	NNE	..	A few lt clouds am, dry fine pm hard frost.
87	65	87	79	NNW	SSW	Calm	..	Light clouds dispersed, mostly clear, fine.
95	60	82	79	N	S	NNE	..	Slt frost 6 am dry uncl'd fine aurora fm 8 pm.
85	61	83	73	N by E	NE by E	NE by E	.	slt frost 6 am, lt. clouds during day, aurora 9 pm.
94	65	83	80	NNE	E by S	Calm	0 015	Heavy dew 6 am cloudy, light rain during night.
93	87	..	..	Calm	E by S	NW	0 110	Cloudy occasional showers during the day.
82	91	95	89	N by E	NE by E	ENE	0 160	Densely overcast, constant rain from 9.50 a m.
96	77	70	78	ENE	SSW	W by S	in app.	Continued raining till 9 am., detached clouds pm.
82	54	93	72	WSW	NW by W	Calm	.	Uncl'ed fine day aur. arch & streamers fr. 7 30 pm
89	74	91	83	N by W	SSE	E	.....	Light hazy clouds dispersed light frost am.
90	79	84	8	NNE	E	NE by N	...	A few light clouds, very fine day.
87	71	98	85	N by E	ENE	NW by W	0 910	Frost, showers fm 11 am, thder rain 8 to 9 pm
90	66	..	..	S	W	NW	in app.	Uncl'ded, slight frost am. afternoon gloomy
89	67	75	76	NW by N	SSE	SE	0 69	Densely overcast dull day, showers during night
90	90	81	8	Calm	Calm	NW	0 025	Occasional showers am. clear 10 pm to midnight
77	68	90	80	N by E	NNE	N by W	..	Frost 6 am., day mostly clear auroral arch 7 pm.
93	68	88	92	NE.	SE by S	Calm	.. ...	Frost 6 am., unclouded, fine day.
.87	.67	.83	78	Miles: 2.78	Miles: 7.49	Miles: 3.630	3 630	

Sum of the Atmospheric Current in Miles, resolved into the four Cardinal Directions:

North	West.	South.	East.
1025.74	1216.44	997.03	846 20

Mean velocity of the wind—4.60 miles per hour.
Max velocity—16 8 miles per hour, from 11 a.m to noon 22nd.

Most windy day—12th: mean velocity—9 23 miles per hour.
Least windy day—30th: mean velocity—1 70 ditto.

Hour of greatest mean velocity—2 p.m., mean velocity—7 40 do
Hour of least " —1 a m.: do. —2 56 do
Mean diurnal variation—4 84 miles

COMPARATIVE TABLE FOR SEPTEMBER.

Year	Temperature				Rain		Wind.
	Mean	Max	Min	Range	Days	Inches	Mean velocity
1840	54 97	79.2	29 1	40 8	1	1 380	Miles.
1841	61.0	79.9	37 5	42 4	9	3 310	
1842	55.20	83 5	28 3	55 2	12	6.360	
1843	58.18	87.8	33.1	54.7	10	9 760	
1844	57.97	81 5	29 6	51.9	1	0 230	
1845	55.38	78 8	35 3	43.5	16	6 245	
1846	62 76	81.0	39.0	42.0	11	1 595	
1847	55.27	74.8	38 1	36 7	15	6.665	
1848	54.77	80 9	29 5	51 4	11	3.115	5 81
1849	57 50	80.6	31 5	47.1	9	1.180	4.23
1850	56.51	75.0	31.7	43 3	11	1.735	4.78
1851	60 00	86.3	33.4	52 9	9	2 695	5.45
1852	56 92	81.8	36.	45 7	10	1.610	4.60
Mean	57 30	80.47	33.42	47.05	10.1	3 923	4.97.