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## Original Articles

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### ON THE MONONUCLEAR CELLS OF THE BLOOD

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Enumeration of the white cells of the blood by recording the different varieties as they pass before the observer's eye in a microscopic preparation is a well-recognized procedure in clinical microscopy. The classification usually adopted is, in its main features, that originally put forward by Ehrlich in 1891, although Arneth's<sup>1</sup> work was published in 1904, in which an attempt was made to demonstrate the utility of subdividing the white cells into further groups than those referred to. That this new classification has been adopted in so few centres appears to be due to the increased attention which is needed in carrying out a given differential count. Experience has nevertheless demonstrated the utility of the system in deciding on the reactive powers of a patient's tissues to different infections. Just as the great majority of cases reported in the present-day literature, in which a differential blood count has been made, give the reader extremely little information about the polymorphonuclear cells, so it is a conspicuous fact that a distinction between "small lymphocytes," "large lymphocytes" and "hyaline" cells appears to be considered a satisfactory limit in the case of the mononuclear cells. It is the main object of the present paper to show that this limitation should not be accepted as final.

Some years ago the writer endeavored to divide up the lymphocyte forms into several varieties, according to morphological characters, with the object of ascertaining if any rules lay at the root of the distribution of the different cells in the blood stream, from

which diagnostic or prognostic indications could be formulated. During the earlier years the principle was carried out by the aid of certain arbitrary symbols which were employed to represent these various forms; subsequently, however, the general recognition of Pappenheim's nomenclature<sup>2</sup> rendered it more convenient to replace the symbols by names which had a meaning to the hematologist. A description of the various forms familiarly labelled "lymphocytes" may serve the useful purpose of rendering a search for finer distinctions more frequent among hospital laboratory workers, and an attempt will be made to demonstrate the practical value of greater care in this direction.

The panoptic method of staining introduced by the author named<sup>3</sup> has also proved of so great value that it may be said to be essential that blood films should be studied by its aid in all cases. The remarks which follow depend entirely upon the application of this method of staining.

It will be convenient to discuss these cells under three headings:

- (1) The source of the mononuclear cells of the blood.
- (2) The special morphological characters of each cell-form.
- (3) The application of these observations to routine clinical pathological work.

(1) *The different sources of the mononuclear cells of the blood stream.*

While the old problem as to whether these cells come from the lymphoid follicles or from the spleen, or from both, remains only partially solved, we find the following sources to be possible: The lymphoid follicles of the lymph nodes and of the mucous membranes; the Malpighian bodies of the spleen; the connective tissue spaces. Some of the cells may enter the blood directly; others may pass in via the thoracic duct. The wandering cells of the connective tissue spaces, whatever be their origin, may be supposed to be able to enter the blood stream eventually by passing along lymphatic channels. It is questionable whether such cells could be identified again in a blood smear. The cells of the pulp of the spleen, and those in the "pulpar" tissue of the lymph-nodes and the endothelial cells lining the blood-vascular channels are certainly able to make their way into the blood stream, either under normal or under catarrhal conditions. It may, therefore, be assumed that an attempt to identify such cells in the circulating blood might be instructive. According to Patella<sup>4</sup>, the endothelial cells are to be recognized under the form of the familiar "large mononuclear leucocyte," but such an interpretation is not generally placed upon this form of cell.

Even though it be not possible at present to identify the lymphocyte coming from a lymph-node, that from the spleen, that from the endothelium of the capillaries of any part of the circulation, it will be the aim of the clinical pathologist to rectify this defect of knowledge so that he can recognize other lymphoid cells, including those liberated into the blood stream during the metastatic cycle of tumors. Furthermore, the recognition of abnormal or degenerating cells may prove of profound value to the clinician.

(2) *The special morphological characters of each cell-form.*

The means of identification of a cell are: size of cell compared with red blood cells; the shape; the relative proportions existing between the cell-body and the nucleus; reaction of each to staining reagents; the structure of each; the presence of nucleoli and their characters. The characters which go to indicate the age of a cell have also to be borne in mind—degree of basicity of nucleus, increasing amount of cell-body as compared with the nucleus as age advances.

The lymphocyte forms under consideration all agree in having simple nuclei and in having a basophile cell-body without a granulation visible by the use of stains in vogue previous to the Romanowsky age. The cells have had the following synonymous terms applied to them: mononuclear leucocytes, agranulocytes, spongiocytes.

(a) Small lymphocytes: This is a small round cell with a dark reddish-violet nucleus enclosed in a concentric film of non-granular pale-blue cytoplasm. Within the nucleus is a nucleolus which is eccentric in position. There are sometimes a few azure granules visible, especially at one spot. The cell is of about the size of a red blood-cell, but never larger.

(b) Leucocytoid lymphocyte: This cell resembles the preceding save that the cell-body is decidedly more conspicuous, but the nucleus is eccentric. The nucleus is not as large as in the preceding case, but the cell as a whole is larger. This cell is an older form.

(c) Lymphocyte with reniform nucleus: This cell is exactly similar to the type (a), but the nucleus shows a slight dimple on one side, the cytoplasm against which is decidedly paler in staining power.

(d) Meso-lymphocyte: The characters are similar to those of (a), but the cell is distinctly larger, though smaller than type (e). The nuclear character of dense structure and deep staining power is present here also. The markings within the nucleus are characteristic—polygonal masses drawn out at their angles into filamentous structures which join with those of their fellows.

(e) Large mononuclear leucocytes (monocytes): The cell is 2-3 times as large as (a). The cytoplasm stains feebly and has a faint retiform structure. Azure granules of small size are scattered diffusely through the cell-body. The nucleus is relatively medium in size, oval in shape, with a slightly irregular contour (lobate or indent) and a delicate nuclear structure. There are no nucleoli within it.

(f) Leucocytoid monocyte: The cell is similar to (e) save for a relatively larger cell-body.

(g) Transitional cell of Ehrlich: This form is similar to (e), but the nucleus is deeply indented, similar to that in a metamyelocyte.

(h) Juvenile monocytes: Cells with a nucleus similar to the preceding, but with a narrow cytoplasmic zone. The latter may have a lilac tint from the presence of slight oxyphilia.

(i) Juvenile lymphocytes: These forms are similar to (a), but the nucleus is void of recognizable cell-body.

(j) Dwarf lymphocytes: These correspond in all characters with type (a), but are of much smaller size. These are classed as atypical immature forms.

(k) Lymphocytes with nuclei in a state of amitotic division. It is questionable where these should be placed in the genealogical tree.

(l) Myeloic monocytes, or leucoblasts: These are presumably bone-marrow cells, which only occur in the blood in pathological conditions. The distinctive feature is the structure of the nucleus, which stains less intensely than that of an ordinary large mononuclear leucocyte, and is marked by delicate shadowy lines running at right angles to the long axis of the nucleus. The cell-body is basophile and may contain azure granules of larger size than those of (e). There is no nucleolus.

(m) Myeloic monocyte without azure granules: This form is identical with (l) save for the absence of azure granules.

(n) Leucocytoid myeloic monocyte: This form is similar to (l), but the size of the cell-body relative to the nucleus is increased.

(o) Myeloic monocyte with indented nucleus: This form is comparable with (e).

(p) Lymphoblastic macrolymphocyte: This cell is of the same size as (d), but the nucleus is relatively larger than in that form of cell, and nucleoli may be noticed. The nuclear structure differs in that the markings are similar to those of (r) intermingled with coarse flakes of chromatin of the form described under (d). This cell is pathological and represents an earlier stage in genealogy.

(q) Leucocytoid lymphoblastic macrolymphocyte: This cell has similar characters to the preceding, but the cell-body is larger.

(r) Lymphoidocyte: This form is characterized by the peculiar structure of the nucleus. The cell itself is much larger than (d) and may be larger than (l). The nucleus appears to be made up of a very fine network, whose meshes are circular in shape. The staining power is relatively feeble. There may be two or three nucleoli present which are eccentric and relatively large. There is a slight increase in the density of the chromatin structure around them. The cell-body is rather strongly basophile.

(s) Microlymphoidocyte: This cell has similar characters to the preceding, but the cell is decidedly smaller, being equal to or less than (d).

(t) Leucocytoid lymphoidocyte: This is similar to (p), but with relatively larger cytoplasmic zone.

(u) Leucocytoid microlymphoidocyte: This cell is exactly analogous to the preceding.

(v) Rieder cell: This is a lymphoidocyte whose nucleus is indented at one or more places. Its appearance is quite characteristic and is definitely pathological.

(w) Dwarf lymphoidocytes: Cells similar in type, but still smaller. Their identification and significance must remain doubtful.

(x) Lymphoid erythroblast: This belongs to the hemoglobin-bearing series, and comes to appear like a lymphocyte form because of the absence of hemoglobin. The cell-body is rather strongly basophile and contains no granules of any kind. The nucleus is relatively large, and its structure is quite characteristic—the chromatin lies towards the periphery in the form of a wheel.

(y) Plasma cells or irritation cells: These may be divided up into almost as many groups as have been already mentioned according to the form of the nucleus and the relative proportions of the cell-body. The staining reaction of the latter is always intensely basophile, and a retiform structure is always well marked in it. Vacuolar spaces may be noted among the meshes. Azure granules are not to be expected, though forms do occur in which such granules can be made out scattered through the cell-body.

Simulating these forms are the following abnormal cells:

(i) The promyelocyte, which has a basophile cell-body, but may present a few neutrophile granules. Azure granules are scanty.

(ii) Myelocytes and metamyelocytes without granules. The oxyphile reaction of the cell-body enables the cells to be placed correctly. Polynuclear leucocytes may occur in similar guise.

(iii) Leucosarcoma cells of different forms (juvenile, senile, Rieder-like). These may simulate any of the preceding types as regards nuclear characters.

Finally, indications of degenerative changes in any of the above-named cells require to be noted. The presence of vacuoles in the cell-bodies, feebleness in staining of nucleus, ill-definition of outline of the cell (indicative of cytolysis), or the presence of foreign bodies within the cells, should all be noted. The "shadow" forms were first named after Klein and Gumprecht.

The evidence afforded by the study of blood-films and of films from the various hemotopoietic tissues fully bears out the justification for Pappenheim's terminology. The introduction of such a word as "lymphoidocyte" proves a great boon when we consider the confusion that has arisen from the use of such indefinite words as "large lymphocyte" or "large mononuclear leucocyte." The term "large lymphocyte," for instance, is frequently employed in modern clinical work to represent an inhabitant of normal blood, but in technical literature the term is found to be applied to a parent cell normally residing only in the bone-marrow or other blood-forming centres. The term "monocyte," again, as applied to a definite cell-entity, has found wide application since the researches of Pappenheim and Ferrata in 1910<sup>5</sup> and should be widely adopted as a decided advance on previous nomenclature.

As will be readily understood, the distinction between such cells as (a) and (s), (p) and (r), (f) and (h), (l) and (m), is difficult to make out, but is possible by making a rule of first noting the nucleus and then the cell-body. Intermediate forms between the different cell series are not distinguished with enough certainty to justify a separate nomenclature.

The habitual classification of the mononuclear elements into small and large lymphocytes and hyaline cells throws together the following cell forms: The small lymphocytes include (a), (b), (c), (d), (h), (i), (j), (k), (s), (w), (x) and (iii). The large lymphocytes include (e), (l), (m), (o), (p) and (v). The hyaline cells include (b), (g), (n), (q), (u) and (v), and possibly (e), (l), (m), (o), (p) and (y).

In spite of the fact that normal blood does not contain more than (a), (b), (c), (d), (e), (f), (g)—(a) and (e) representing by far the majority—the plea is that any of the serious diseases which come into a hospital ward may furnish examples in which the other forms occur in varying number. A search for an adequate explanation for the latter finding will afford a clue to the

meaning of lymphocyte forms in their relation to immunity and infection.

(3) The application of the above data to routine clinical pathological work:

The full value to be derived from a careful study of the lymphocyte group of cells cannot be defined until the precise significance of each variety is determined. Such questions as the following arise: Is the plasma form the result of changes taking place in the bloodstream, or is it an imported cell? Do any of the cells in an inflammatory focus appear in the circulating blood under any conditions? What is the duration of life of each main type within the bloodstream? etc. On the other hand, even in the absence of such knowledge, a study of numerous careful differential counts may be expected to bring information about the relation between the various cells in question and certain morbid states. It may be noted, for instance, that in some cases of tubercle, in lymphosarcomas, and in pernicious anemia, the juvenile outweigh the older forms of lymphocyte in number.

Diurnal changes in the blood-picture.—The collection of blood at a given time of day will avoid misinterpretations of changes in the blood-picture, which are really diurnal in nature. The writer has found that the relative proportions between young and old lymphocytes vary greatly during the day. The results of such observations are conveniently recorded in the form

$$\frac{\text{sum of small and medium forms per c. mm.}}{\text{sum of large forms}} = x$$

It is found that this a-lymphoid-cell index falls from 12.6 (mid-night) to 5 during the forenoon, and rises from 5 to 7.1 till 4 p.m., falling again to 3.5 at the time of the evening meal. Whether this phenomenon is constant in the same individual (or in a number of individuals) or not, it is the object of further study to decide. The observations of Frumkin<sup>6</sup> show that the proportions of the different cell-forms are different in healthy and diseased states. Using his figures to construct an index as suggested above, we find that in ten healthy young adults the index was not less than 3, and reaches 5 in 80 per cent. of cases. In nephritis, tuberculosis, cirrhosis of the liver, syphilis, and mediastinal sarcoma, on the other hand, the index varied from 1.3 to 1.6, while in chronic heart cases it ranged from 2 to 15. In a case of septic sore-throat with quinsy the index was 3 before operative interference and rose to 9 within five days.

A series of counts published by Houston<sup>7</sup> was used as a basis for calculations in this manner.\* The index was less than 3 or 4 in Hodgkins' disease, lymphosarcoma (not constant), and malaria. Similarly, from a number of counts on cases of Hodgkin's disease by Bunting<sup>8</sup> the index was almost constantly less than 2, and in one instance was as low as 0.4.

The presence of abnormal lymphoid cells in the blood-film.—The presence of lymphoidocytes of different types would indicate some participation of the bone-marrow in the morbid process. Under this heading the question of subleukemic states would be considered. Again, the preponderance of the monocytes characteristic of malaria would be of significance in the diagnosis of certain tropical fevers (Robertson)<sup>9</sup>. The investigations of Parnusoff<sup>10</sup> demonstrate them to be of a peculiar and characteristic form, different from that of the ordinary well-known large mononuclear leucocyte.

*Other Indices.*—Other indices can be constructed by calculating the relations between any of two or more lymphoid cell types than those named in the "a-lymphoid-cell index." Such additional indices may be given appropriate terms, though the most satisfactory nomenclature is difficult to decide upon.

Variations of the various indices are not characteristic of any given disease. It is essential to realize that variations in differential counts represent variations of reaction to morbid agents. The blood is a transport agent and not a factory. If the proportions of material transported vary at different times they will reflect changes in supply or demand in other regions of the body. It does not follow that these changes are peculiar to one or other disease to the exclusion of all others.

Should a certain agent act chiefly or entirely on the myeloid tissues, an absence of abnormal mononuclear types would be anticipated; on the other hand, the presence of such types would be indicative of changes in lymphadenoid tissues, regardless of evidence or not of associated leucoblastic reaction in the marrow. The careful weighing-up of the total figures presented by each type of cell, as well as of the relative figures between them and the granular cells, is bound to furnish valuable conclusions for the guidance of diagnosis, prognosis or treatment.

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\*There is some uncertainty as to the correct position of the lymphoid cell forms in these counts, because of lack of data for cytological diagnosis.

## REFERENCES.

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- (7) Houston, *Brit. Med. Journal*, 1904, Sept. 10.
- (8) Bunting, *Johns Hop. Hosp. Bull.*, Oct., 1911.
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**A MEDICAL SERMON—DE REBUS**

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Examiner Materia Medica, etc., College of Physicians and Surgeons, 1903-7.

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“Nothing extenuate nor set down aught in malice.”

It is said Tertullian's every word was a sentence and his every sentence was a sermon. In this it is the intention to name fifty or more interests more or less in unison which, separately, afford texts capable of much expansion, and all ethical; fully believing you, my brother, if learned and in love with our profession, will find herein much diversified delight; if you are, as many are, in possession of indolence that is warping your usefulness and very life, herein is a brief solace for you; but to the uninformed and indifferent, yet seekers of truth and ideals, much encouragement, cheer and a refuge, if you can be aroused.

It is well and warrantly becoming for us to believe that our lives are more influenced by ideals than by ideas, and that more to examples, and less to precepts, our movements to higher studies are directed. It, too, is a duty, and one very obligatory, that you and I follow the teachings of Bacon, who tells us: “I do hold every man a debtor to his profession from the which as men of course do seek to receive countenance and profit, as they of duty to endeavor themselves by way of amends, to be a help and ornament thereto,” and if you and I fully endorse these words, can we say: “These words do not refer to me or to us?” I leave this

simple query for you to solve or to answer in your quiet hours, for your own and true answer after careful retrospect of your doings in the profession, for you either honored it or disgraced it, or have been a neutral.

When I find that of my fellow-graduates in medicine—more than forty-three years since—more than one-half the number are dead; that but few continued in practice and relied on it through life; that several died through excessive stimulation that “stingeth like an adder,” and, too, that those engaged in politics were under the fatal delusion that medicine was not a jealous mistress, it appears no wonder that our temples contain no records—save the fact that *they lived*—and *they died*, for they said no word of cheer; they told nothing of their successes, or failures, and few of them experienced the fulness of the great and national movements, interests and prospects, and in the belief that this is the age of “reason in religion and reason in medicine,” and though our foundations are well established, yet the most pernicious cults, even encouraged by the church and upheld by the indifferents, the weaklings, the ignorant and unthinking among our legislators, are seeking recognition of their baseless cults in this, our province—the most enlightened in our Dominion—especially in this our native province—the burial place of our fathers and mothers for several generations.

This prologue will suffice, and as all sermons have a wide range and depart very much from the text, it, too, will serve as *apologia pro meo et verba aliorum*.

Mr. John S. Collins, 253 Broadway, New York, some few years since sent to me “Mrs. O’Malley’s Advice to Her Son Upon Receiving His Diploma.” When the doctor received his diploma he said his mother advised him always to look after the poor, saying in quaint Irish humor: “If health was a thing money could buy, the rich would all live and the poor would all die.” It may be said and very truthfully, that every God-fearing and intelligent mother has prayed her hopeful son should be either a minister of Christ or a doctor—but no prayer that he become a lawyer. No!

“So you are a doctor, with papers to show;  
 Of your great deeds in medicine the world will soon know.  
 All our pains and our aches now like magic will go,  
 From the top of our head to the tip of our toe.  
 Now, don’t be like Dinny, your brother, who has taken to law:  
 All the big words he used would break a man’s jaw.  
 He argues to-day that black must be white,

And to-morrow he swears it's as black as the night.  
 Sure the Divil himself couldn't argue with Dinny;  
 Only last night he told me the judge was a ninny,  
 And the jurors themselves hadn't brains for to see  
 That all their great talking was only for fee.  
 Now the ladies will call on you morning and night,  
 Whenever they get the least bit of fright,  
 Saying, 'If the doctor is in, I would see him, if you please,  
 For I'm after contracting a painful disease.'  
 Then you'll run to the cupboard and take out your pills  
 And say, 'My dear madam, they are good for all ills;  
 Take one in the morning and one in the night,  
 And in forty-eight hours you'll be feeling all right.'  
 With a smile on her face and your fee in your hand,  
 You'll take it by saying, 'I'm at your command.'  
 And be at her command, if she has only a smile,  
 For healing the sick is always worth while.  
 Don't bother too much about getting your fee,  
 For to-morrow the Lord only knows where you'll be,  
 For if health was a thing that money could buy,  
 Sure, the rich would all live and the poor would all die."

It is well that we console ourselves with the words of Horace, who in his *Carm.* IV. 4-33 tells us the effects of culture: "*Doctrina sed vim promovit insitam, relique cultus pectora roborant.*"

In the Canons of Ethics of the American Bar Association, George Sharswood writes: "There is certainly, without any exception, no profession in which so many temptations beset the path to swerve from the line of strict integrity, in which so many delicate and different questions of duty are continually arising. There are pitfalls and man-traps at every step, and mere youth at the very outset of his career needs often the prudence and self-denial as well as the moral courage which belong commonly to riper years. High moral principle is the only safe guide, the only torch to light his way amidst darkness and destruction." The high moral principle torch is very seldom lighted; if so, it is justly considered as a mask, for "nowadays a religious lawyer is regarded with wonder and suspicion." Yes, the same accusation in a few instances may be applied, justly or unjustly, yet rarely, to a few widely scattered ones in our ranks.

There are those—and many they are—in whom we trust, and are compelled by law to trust in legal interests, and it is often a query whether to term them *barristers* or *barrators*. Yes, there are

other than sea pirates, and under commission, who are in our midst, and of whom someone had in consideration when he thought of money sluggers and fee exacters. His soliloquy is:

“Full many rogues have honest faces,  
And lightly trip their Sunday paces;  
But yet these pious broadcloth types  
Full oft should wear a garb of stripes,  
And, heavy fettered, trip as well  
The lock-step to a prison cell.”

There are too many of whom it can be well said: “Gentler pirates never scuttled ships” or more stealthily threw the grappling irons around our money-bags, or flashed false lights to treacherous shoals, or sang more alluring songs than the sirens, daughters of the river-god Achelous.

‘Be not the first by whom the new is tried,  
Nor yet the last to lay the old aside,’

A few extracts from “Law and Medicine” by Mr. Justice William Renwick Riddell may be presented, which, although unchallenged and apparently accepted, save by Dr. Clark of Toronto, have statements which reflect no merit or advantage in experience and research: “But while our law is thus in a state of flux, it must not be forgotten that immensely the greater portion of it is in principle the same as it has been for centuries. While in medicine, in not one case out of twenty, can a physician gain any practical advantage by consulting an authority twenty years old, in law there is not one case in twenty in which authorities much more than twenty years will, or may not be—if not conclusive, at least of advantage. A physician who has been in practice twenty years will have twenty times as much to unlearn as his brother of the same age in the legal profession. The former must be, but with the latter ‘*novum et ad hanc diem non auditum*’ is anathema as Cicero, one of the greatest of his tribe; and his rule must be ‘what is new is seldom true, and what is true is seldom new.’

*Immer etwas Neues, selten etwas Gutes.*”

Cicero in *De Senectate* did say: “*Disce a experientia quoniam qui in viam errabant—qui eruditi sunt.*”

In some, and a few most worthy respects

“Outworn ideals are fading fast away,  
Beyond its buried past the world has ranged,  
And new influences shape its trend to-day.”

However, it is well for us, many of us, to comfort ourselves with the prophet's words: “Thus saith the Lord, Stand ye in the ways, and see, and ask for the old paths where is the good way, and walk therein, and ye shall find rest for your souls.”—Jer. vi., 16.

It may be justly mentioned that Justinian in his Pandicts and Institutes or Code, formulated decisions from the Roman law, and from his time as Emperor of Constantinople, one thousand and more years and B.C. the great Hippocrates—*Princeps Medicorum—Auxiliator Maximus Aegris*, who was born at Cos, was the disciple of Heraclites and Democritus, and his researches were the full principles of the Baconian philosophy. It may be said that his treatment of acute diseases may be instanced as being so complete that the experience of more than two thousand years has scarcely improved upon it. Celsus, a contemporary of Trajan, in his treatment of phthisis pulmonalis advised his patient to flee to highest mountains, there to live, and his nourishment to be the fruit of the cow. The query is, has medical science done other than adopt this treatment?

Plato's year but repeats itself in due season, and the thoughts we are thinking on life's serious problems our fathers have thought. Our literature without that of before the Saviour of men would be sterile, and what is extant has formed the basis of our modern classics and inspirations.

The present time is sufficient for our labors, however. Cicero tells us *tria esse omnino genera quae in disceptionem cadere possint; quid fiat, factum, futurumve sit,*” that is: the past, the present and the future of all considerations should, if worthy, occupy our studies. However, let us, with Hesiod, a contemporary with Homer, but study our future and keep in memory his wise instruction: “That man's with wisdom duly blest, who of himself can judge what's best, and scan with penetrating eye what's had in dark futurity.” The church, law, and medicine are the conservators, have been and ever will be of our civilization, and without a highly educated number it will cease and heavens will peal their last thunders to mark the end of time, and it is our hope that the old saying, “That a three-fold cord is seldom broken,” will apply until time shall cease and be no more, and the trinity ever exist.

Yet, why this dissertation?—for it is only imagination rears imperishable monuments; for the gods will ever return and forever

will remain—and the Divine cannot be razed in the Church, in Law or in Medicine, and if united, we stand, and if divided, we fall.

The pages of *Religio Medici* tell me, what time has forcibly told me, that “it is better to sit down in a modest ignorance and rest contented with the natural blessings of our own reasons than buy the uncertain knowledge of thy life with sweat and vexation which death gives every fool gratis, and is an accessory to our own glorification.”

In the words of Horace: “*Jam satis est, verbum non amplius addam,*” and with this belief:

“*Optimi consilarii mortui.*”

#### SOLLOQUIUM.

It may be advisable in medicine, as in religion—in these days of very bewildering and unsettled questions under that designation falsely termed “higher criticism”—to console ourselves, and very wisely too, with the thought that there is “more wisdom in doubt than in half the creeds,” which because they for centuries have been invariable, displace our reason with entanglements, and falsely claim divine origin; but for which selfish and ungodlike aims and ends too often are sought. If Bishop Whately did say of us: “*Ubi tres medici, ibi duo althei,*” yet the daily prayer of every M.D. is this, and which moves his soul:

“Live I, so live I,  
To my Lord heartily,  
To my prince faithfully,  
To my neighbor honestly;  
Die I, so die I,”

said Longfellow.

**METHOD OF THE STUDY OF DIRECT OR SPECIFIC DRUG ACTION**

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BY FINLEY ELLINGWOOD, M.D., CHICAGO, ILLINOIS.

Editor Ellingwood's *Therapist*.

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In a recent number of this journal, an article of mine was published in which I called the attention of the readers to the importance of the study of the *Materia Medica* and Therapeutics, and to some faults, in my opinion, in the present method of study, and I undertook to urge upon the readers the necessity of studying *each individual remedy*, with reference to *its most direct action* upon exact conditions of disease.

It is plain to any reader that if we prescribe the proprietary preparations, or the manufactured pharmaceutical compounds that are being put out more and more extensively every year, we can never know what the individual drugs will do, and the darkness and doubt that have settled down upon the knowledge of the exact action of drugs, will be intensified.

In the study of drug action each remedy must positively be studied alone, but in order that we know to what exact condition we may apply a remedy, we must begin our study with an analytical examination of each disease, in the patient under consideration, in order that we may determine the conditions that we have to contend with in that patient. By so doing we thus familiarize ourselves with these conditions, and we become enabled to recognize them whenever we find them, as we will find that they may occur in given diseases other than the one under consideration.

Determining then, in each case the exact conditions present, we apply to one or two of each of the leading conditions a single remedy which will meet each condition and correct the disorder. Many years' close observation has convinced us, that in each remedy there is an inherent and very definite medicinal influence, which produces a corrective effect upon some given condition of disease, and, influencing that condition at one time, we find that whenever so administered, and whatever the general disease in which the condition is found, it will exercise the same influence. This certainly is the study of the exact adaptation of each remedy to certain specific conditions of disease, and when we have these conditions and a remedy that can be relied upon for this specific action whenever that action is demanded, we define the remedy

as specific in that action—specific to that given condition. *This is the most direct action of a drug possible to obtain.*

There is no more fascinating study—nothing that offers greater attraction nor more beneficial results to the student than this study of the direct action of drugs on exact conditions, and as first stated it will be at once seen that no other method of study can be depended upon to be so absolutely accurate.

This study opens up an enormous field. It is not necessary that we study many hundred remedies, but by taking the conditions with one or two of the remedies that will directly influence them, when the field of the diseased conditions is covered, we can take these remedies and by a thorough, persistent and careful study of the facts concerning their action, we may equip ourselves with sufficient remedies to combat all diseases in a positive and most reliable manner.

To illustrate the exact conditions in which certain remedies act, or to which drugs must be applied, I would call attention to the fact that in acute disease we find in one patient with a high temperature that the tongue and mucous membranes of the mouth are red, or deep red, that the tongue is elongated and thin and covered with a dark coat, while with the same temperature in the same disease with another patient, the mucous membranes and tongue are pale, the tongue is coated with a pasty white coat, with a dirty grayish or yellow centre.

If we were to say hydrochloric acid was a good remedy for such a disease and would give that remedy in both cases, the latter condition would be most seriously increased and intensified, and the temperature would increase, and be very difficult to control, while in the former case the whole train of symptoms would yield in a most satisfactory manner to that one remedy.

The reason for this is that in the former named condition there is a deficiency of the acids in the system, there is an inefficient secretion of acids in the gastro-intestinal tract, and acids are positively demanded. In the latter case the acids are all in excess, and not alone must neutralization be effected, but it is necessary to administer alkaline remedies often to go back of the simple neutralization of the acids, and to create in the system a larger output of the alkaline elements.

This one illustration may be applied, as follows, whatever the acute febrile condition present, after determining the temperature we must determine whether the course of treatment should be alkaline in character or acid, and this condition must be kept in mind until corrected, administering other remedies as

indicated. Take for instance an extreme typhoid case with mucous membranes dark, mouth and tongue dry, perhaps sordes on the teeth. We will presume this patient to have delirium, low muttering, stupor increasing to coma. If we were to give an alkaline remedy in this case with sodium or potassium bromide, the stupor would increase; the deficiency in secretion would be intensified, and the entire group of symptoms would be rendered still more difficult of control. By administering to that patient a non-alkaline or neutral or acid laxative if needed, with hydrobromic acid in fifteen minim doses every two hours, with perhaps ten or twelve drops of ergot to relieve the cerebral congestion, the change that would take place for good would be so marked and rapid as to be at times almost astonishing, as the acids are needed positively. Yet these conditions are seldom considered.

We might go on from this and mention very many conditions that can be met with a single remedy, that usually have no attention whatever in the treatment of disease in general, and yet if the detail remedy was applied to the exact conditions, the symptoms would abate, the threatening factors would be removed, and the temperature would drop in febrile diseases, and the whole disease would take on a more favorable aspect.

For the further consideration of the readers, in this line at this time I will present only the *condition of pain*, with some of the exact conditions under which pain is found, and as relieved by that particular remedy which experience has proven us is specifically adapted to that exact condition of pain. In a future article in this journal I hope to bring out some specific remedies with the exact adaptations of these remedies in a way that will show the beauty of this method of drug study.

To be brief, but yet definite, supraorbital pain, unilateral or bilateral, acute and sharp, from acute cold, is controlled often by a single dose of fifteen grains of sodium salicylate. This pain is also controlled by five drops of specific gelsemium, one or two doses, an hour apart.

Muscular pains—general aching—pains in the muscles as if bruised—as if overworked—indicate macrotys. From one-half drop to five drops of a good fluid extract may be given every hour or two; the smaller doses in sensitive patients, the large doses in full plethoric cases. The action of macrotys is enhanced by sufficient doses of aconite if there be any elevation of the temperature.

The above condition is also relieved by twenty drops of arnica in a four ounce mixture, a teaspoonful every hour, especially if

the soreness, bruised condition or aching is due to actual muscular strain or overwork, as in labor.

For muscular pains as above, caused by exposure to cold, with local or general aching, give sodium salicylate, from five to fifteen grains every two hours.

For muscular pains in the deep muscles of the neck or back, acute, as in tic, or lumbago, give gelsemium, from two to five drops, combined with macrotys, every hour or two. Muscular soreness or pain in the deep muscles from cold is materially benefited by applications of dry heat, often effected by ironing the part over flannel with a hot flat iron, or the applications of a rubber water bag, hot. This assists the indicated medicines.

For pain in the face, neuralgic in character, with nervous irritation, give gelsemium, from one to five drops every hour or two; especially effective if the skin be warm, the eyes bright and pupils contracted.

Pain in the face, neck or shoulders; sharp, persistent, patient chilly, skin and extremities cool or cold—belladonna, one or two drops of the tincture every hour. This influence is materially enhanced by from two to five grains of ammonium chloride, or one-half grain of camphor with each dose of belladonna in persistent neuralgia of the head or upper extremities.

Shooting pain under the right shoulder blade, as from the liver, with dull ache in the shoulders and across the back—sticta, twenty drops in four ounces of water, a teaspoonful every hour.

Pain through the lungs, or in the pleura; acute, cutting; increased by motion or by deep breathing—bryonia, twenty drops; water, four ounces; a teaspoonful every hour with adults; in smaller proportion, half a teaspoonful every half hour with infants.

The pain of acute pleurisy, very severe, sometimes agonizing, should be at once relieved by a large, efficient hot mustard poultice, applied short of blistering, for from four to eight minutes. This relieves until the effect of bryonia is apparent, which requires a little time.

In acute pleuritic pains, asclepits, in from five to thirty drops every two hours, acts very similarly to bryonia, and, when exactly indicated, this remedy is as reliable.

For pain in the heart—angina pectoris—give a hypodermic of lobelia from twenty to forty drops. Relief is usually immediate from one dose. The same dose may be repeated, however, in one or two hours if relief is not complete.

Angina is relieved also by macrotys in from two to five drop doses every hour or two; also by gelsemium in from five to ten

drop doses where there is nervous excitability. The two latter remedies are indicated especially if there be a rheumatic diathesis.

For pain in the heart, persistently recurrent, not severe but distressing—give cactus, from one to two drops, five or six times a day. If muscular soreness be present in the chest, shoulders and left arm, combine with macrotys.

Pain in the stomach, acute from indigestion, give a mild but efficient emetic—a teaspoonful of mustard in a quart of warm water—to induce vomiting, or sufficient ipecac, with a large quantity of warm water, to induce vomiting. In many cases the warm water alone will be sufficient to wash out the stomach. Treat subacute pain then, if any, as then indicated.

Pain in the stomach after each meal from indigestion; give a digestive always while the food is taken. Pawpaw in some form covers most of these cases. Institute general treatment for the restoration of the normal action of the stomach.

Pain from indigestion, from deficient hydrochloric acid, give hydrochloric acid in water, with from five to ten drops of fluid hydrastis. Exercise extreme care as to food in these cases. In fact in the acute cases a period of fasting is essential.

Pain in the stomach, with extreme acidity—tongue broad, pale and thick, coated white; one-half of a teaspoonful of bicarbonate of soda in half of a glass of water will often at once control the pain, but continued treatment to neutralize excess of acidity and to change the habit of the system must be instituted. When this condition is present at the beginning of any acute disease, it must be overcome first, or the specific action of the other remedies will be interfered with.

Pain in the stomach, severe, agonizing, spasmodic—give twenty drops of dioscorea in half of a cupful of hot water, drunk at once.

Pain always after eating, with extreme gastric acidity, probably due to gastric ulcer—avoid solid food, neutralize acidity if indicated, give from ten to fifteen drops of geranium every two hours. Flush the colon, and in emaciated cases resort to rectal feeding for a few days. Milk of bismuth, or a solution of calcined magnesium in regular sufficient doses, will assist in the neutralization of the acidity.

Pain in the stomach walls, diffused tenderness on pressure, the pain acute or slightly cutting, not influenced by food;—tenderness, persistent and aggravating—give bryonia, twenty drops;

water, four ounces; a teaspoonful every hour or two. May apply a hot solution of magnesium sulphate externally.

Pain in the region of the liver, mildly acute, little shooting pains, no great disturbance, tenderness on pressure or by motion—give bryonia as above. Violent, agonizing pain in the liver, probably from gall stones, or the pain known as bilious colic, give half of a teaspoonful of dioscorea in a cupful of hot water, repeated in from twenty to forty minutes. If not from obstructive causes, this will control the pain. If the pain is not affected by the second dose, institute other measures as the administration of half of a dram of hypodermic lobelia.

Pain within the abdomen, diffused, with soreness on pressure; pains shifting, small, acute and cutting—apply heat and give bryonia persistently, as if peritonitis were present.

Pain in the abdomen, extreme, cause indeterminate, difficult to locate, griping in character, very severe—give hypodermic of lobelia. This should relieve promptly. If it recurs after a short period repeat the dose.

Pain in the abdomen radiating toward the umbilicus—nuxvomica, twenty drops; water, four ounces; a teaspoonful every half hour or hour.

Colic pains in infants, no apparent disturbance otherwise—lobelia, five drops; water, two ounces, a teaspoonful every ten minutes. Colic in infants, with mild diarrhea or greenish particles with the feces, colocynth tincture, five drops; water, two ounces; half of a teaspoonful every five to ten minutes. A few doses will usually relieve.

Colic in infants, with more protracted diarrhea, greenish discharges, discharges induced by taking food—tincture of chamomile, ten drops; water, two ounces; a teaspoonful every hour.

Colic in infants, with large, watery, bowel movements, exhausting in character; skin inclined to be cool, patient feeble—arsenite of copper, one or two one-one hundredth grain tablets in four ounces of water; a teaspoonful every ten minutes. The effect of this remedy is very reliable and prompt.

Pain in the liver of a very tense character, dull, persistent, dragging—chelidonium, one to two drams; water, four ounces; a teaspoonful every two hours. If accompanied with tenderness on pressure add bryonia. If there be shooting pains under the right shoulder blade also, add sticta. Chionanthus is especially indicated if jaundice be present, with or without pain.

Pain in the kidneys, dull, dragging, constant, with backache and soreness through the muscles of the lumbar region—gelsemium and macrotys, from two to five drops of each, every hour or two, with hot applications.

Persistent backache from the kidneys, the urine of high specific gravity, give these same remedies as above, with ten drops of hydrangea at each dose.

Kidney colic from the passage of stone—give a full hypodermic of lobelia, repeated if necessary, without fail, two or three times an hour apart.

For bearing down or dragging pains in the lower hypogastrium—give helionias, two to four drams; water, four ounces; a teaspoonful every two hours.

Painful menstruation, skin cold, patient chilly, extremities cold, pain at the beginning of the flow or just before—belladonna in full doses; patient in a hot bath (with much care as to length of time). To equalize the circulation is a desirable thing. If the pains are spasmodic, with cold skin, as above, give hypodermic injections of lobelia. The tendency to this should be overcome by proper intramenstrual medication.

For pain in the urethra on urinating, if following labor, give hydrangea, a dram in four ounces of water, a teaspoonful every hour. If accompanied with cystitis, in mild cases give gelsemium and macrotys, one or two drops of each every two hours. If with chronic cystitis in the aged, severe, give thuja, eight drops; chimaphila, ten drops; in a teaspoonful of water every two hours.

Pain with chronic cystitis in the aged, the urine very irritating, alkaline in reaction, giving off an ammoniacal odor—dissolve four grains of benzoic acid and six grains of borate of sodium in half an ounce of cinnamon water, and give this as a dose every two hours. The effect is almost immediate and highly satisfactory.

Pain from spasmodic contraction of the urethra, acute, severe—give five to ten drops of gelsemium; repeat in an hour, or inject a dram of specific lobelia deep in the urethra, allowing it to remain a short time.

Pain in general should be relieved by a hypodermic of morphine after injury or after severe burns when the pain is likely to induce shock.

Pain or any distress after surgical operations can often be relieved without inducing any discomfort or other unpleasant conditions, often controlling the post-anesthetic vomiting, by using the following simple combinations:

R/

Morphine . . . . . grain 1.  
 Sodium or strontium bromide . . . . . drams  $1\frac{1}{2}$  to 2.  
 Tr. hyoscyamus . . . . . drops 10 to 20.  
 Tr. capsicum . . . . . drops 5 to 10.  
 Syrup of tolu or simple elixir q.s. . . . . ounces 2.

M. Sig.—A teaspoonful every fifteen to twenty minutes to effect.

I think this combination acts very similarly to very small repeated doses of H.M.C. I used it twenty years before H.M.C. was suggested, and have recommended it in hundreds of cases, and its influence is highly satisfactory, as it is difficult to get too much of a morphine influence or any other unpleasant effect upon the stomach. Those who cannot otherwise take morphine can take it with only goodly results in this combination.

General pain or local pain, either of uncertain cause, is greatly benefited by hot applications, if the surfaces are cold and the temperature of the body is low. This should always be borne in mind. Intense and persisted heat will not only help restore normal conditions and relieve pain, but will prevent its recurrence.

#### ACUTE POLIOMYELITIS.

According to Dr. Schreiber (French correspondence, *Medical Press and Circular*) the prophylactic treatment consists in isolation of all contaminated patients; and in times of epidemic, every person in touch with the patient should be isolated. As the olfactive mucous membrane is loaded with the medullo virus, this region should be disinfected by the introduction into each naris of a pomade such as:—Solol,  $\frac{1}{2}$  dr.; menthol, 5 grs.; vaseline, 1 oz. Rest in bed, quinine for fever, aspirin or salicylate of soda for pain, calomel, and hot baths. In the meningitic form, lumbar puncture may be useful. When the case enters on the period of repression, vicious attitudes must be corrected, and massage—at first very light rubbing—as the muscles are often sensitive; later on heavier pressure, the muscles completely relaxed by flexion. Gymnastic movements are good against ankylosis and muscular atony. Later the galvanic current will often be found useful, the negative pole being moved over the different paralyzed muscles. General treatment salt baths, friction, and general tonics.

## CONGENITAL ABSENCE OF THE FEMUR: REPORT OF FIVE CASES

B. E. MCKENZIE, B.A., M.D., TORONTO.

Bone defect, or actual absence of an entire bone, or of bones, at birth, is not very uncommon. Because the condition greatly disables the patient in some instances it is one of great importance. The etiology is shrouded in mystery. Nothing satisfactory by way of explanation is known to the writer. Four causes have been assigned with more or less coloring of satisfaction.

1. Maternal impressions.
2. Intra-uterine constriction by uterine bands, or from the cord.
3. Local arterial disease; or
4. Some deficiency in the germ.

From the point of view of a practical or clinical paper these may be passed without comment. Of the various long bones the radius is most frequently absent. Next in order of frequency are the fibula, tibia, ulna, femur and humerus.

Hoffa, in his *Orthopadische Chirurgie*, published 1894, found of the radius, 53; of the fibula, 45; of the tibia, 38; of the ulna, 6, cases. He makes no mention of the congenital absence of the humerus or femur. Other writers on orthopedic surgery make but slight reference to the subject, the literature being found only in scattered articles in medical journals. In the *New York Medical Journal* of Feb. 20th, 1897, the writer published the reports of ten cases (with dissections) comprising absence of the following bones—radius, ulna, tibia, fibula, ribs and metacarpal bones. At that time he had not seen any cases of absence of the femur.

In such cases treatment naturally falls to the lot of the orthopedic surgeon. The fact, which is generally true, is manifest here, that very little relatively can be done to benefit the upper extremity by surgical intervention, but the lower is quite amenable to treatment.

When the defect in the upper extremity is such as to greatly disable a member it is possible in some instances for art to improve the condition, but seeing that the kind of action called for pertains to the finer and more delicate movements, artificial aids must be disappointing. In the lower extremity, however, a useful member in most cases can be secured by the aid of prosthetic appliances.

When the fibula is only defective and not entirely absent it is commonly the lower part which is lacking, the leg thus failing to have its outer guard—the external malleolus—to keep the foot upright in its place. This lack is readily supplied by a simple boot and brace.

When only the lower portion of the tibia is lacking the knee joint is likely to be normal or nearly so. In these cases the deformed foot may be brought to a normal position and a boot and brace made to supplement the defective limb. If the entire tibia be absent the disability is much greater. It will be recalled that of the tibia and fibula the former only takes part in the formation of the knee joint; hence, in its absence there is no knee joint proper. In such cases the femur has a poorly developed lower extremity, so that sometimes instead of the well expanded articular surface made up of the condyles it terminates in a pointed extremity. If the end of the femur presents a fairly expanded surface the upper end of the fibula may be removed from its position, and either the ends of the bones may be excised and by synostosis a continuous bone from hip to ankle be substituted or by implantation the fibula may be brought into line with the femur. If now by correction of the deformity of the foot and the fibula, a correct alignment can be secured, and whatever lack there is be supplied by a brace, it is surprising how greatly the parts will develop so as to assume a function approaching the normal.

When the tibia is entirely absent, however, the remaining parts are usually so defective as to render inefficient any effort to secure a weight-bearing extremity. In such a case it is better to remove by amputation the portion below the femur and permit art to supply the lack.

The femur may be altogether absent; commonly there is a vestige intervening between the acetabulum and the tibia. In such cases the gluteal and thigh muscles are bunched so as to present the appearance of a ball. If a portion of the femur be present it is directed nearly horizontally outward from the acetabulum and is not well under muscular control; there are two joints instead of one in the immediate vicinity of the pelvis and when the limb assumes the weight of the body there is a yielding similar to that seen in congenital dislocation of the hip. Owing to this fact a prosthetic appliance should be brought well under the ischium so as to carry the body weight more securely.

In one of the cases shown here, not only is the femur absent, but the fibula also. The radiograph shows a rudimental bone above the

end of the tibia, which is probably a vestige of the femur and after further development it will probably establish a more intimate relationship with the acetabulum. In this case, although the fibula is absent the foot is complete in all its parts, but is strongly abducted, so that if weight be borne upon it the inner border of the foot is brought into contact with the ground.

In such cases a prothetic appliance can readily be made so as to render walking quite comfortable, and such as to avoid any very noticeable limp. In the case of children where growth is pretty rapid and where it is necessary to avoid any considerable expense a Thomas knee brace can be employed to meet all the requirements. The boy whose condition and brace is mentioned here learned to walk very readily almost immediately after putting the appliance on. In the case of an adult where appearance is of greater importance and where growth does not render necessary so frequent a change of the appliance, an artificial limb can readily be adapted to the defective portion. The foot can be so directed as to bring its long axis into line with the tibia and the socket which is made in the artificial limb can be exactly adapted to the shape of the foot so that the heel in this position can bear a very considerable portion of the weight. If, in addition to this weight-bearing point, the ring of a Thomas brace comes into fairly close apposition with the tuberischii the weight of the body is very efficiently borne.

Two of the cases seen were in young infants and before the time when I could secure satisfactory radiographs. One is a boy of five years. A fourth was a boy about eight years of age whose condition was very similar to No. 3 and was treated in a similar manner. The fifth here referred to is that of a young man about twenty-five years of age, for whom an appliance was made which enables him to stand and walk without a limp which attracts much attention.

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#### PNEUMONIA:

James Mitchell (*Medical Record*) treats pneumonia as follows, rest, support, and calcium chloride. With equal parts of milk and lime water, he gives 10 grains of calcium chloride every three hours.

## THERAPEUTIC NOTES

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### PHOSPHATURIA.

Umber (*Therapie des Gegen.*) says that in the majority of patients suffering from phosphaturia, that hyperchlorhydria is present with general neurasthenia. Atropine has a pronounced action in increasing the acidity of the urine, and thus keeping the phosphates in solution. It reduces the elimination of the calcium. He orders foods as free from lime as possible. The dose is from 10 to 20 drops of a 1 per thousand aqueous solution of atropine sulphate after meals. This maximum dose he keeps up for two weeks, then gradually reducing it. The course of treatment extends over three or four weeks.

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### GASTRIC FLATULENCE.

Prof. A. Hirschler (Hungary correspondence *Medical Press and Circular*) recommends the following for severe gastric flatulence, the treatment consisting in antiseptics, absorbent powders and laxatives:—Peroxide of manganese, 6 grs. For one wafer; to be taken half an hour after meals. After the repast:—Prepared chalk, 15 grs.; carbonate of soda, 8 grs.; calcined magnesia, 8 grs. For one powder; to be taken in water or aniseed tea. In case of pain or burning in the stomach, opium and belladonna might be associated with the powders:—Prepared chalk of bismuth, 15 grs.; calcined magnesia, 12 grs.; powdered opium, 1-5 gr.; powdered belladonna,  $\frac{1}{2}$  gr.

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### TONSILLITIS.

A. E. Buchanan (Medical Council) has had good success in the treatment of tonsillitis with the following prescription:—Sodii salicylatis, grs. 10 to 15; tincture ferri chloridi, gtt., 10; glycerini, gtt., 15; aquæ, q. s., ad oz. 1, M. Sig. One such dose every two to four hours. To this he adds now one or two drachms of bicarbonate of potash, which gives a better color and enhances its medicinal value. Patients first drink half a tumbler of water, then the iron mixture, allowing the medicine to coat over the throat and remain there as a topical application, as well as an internal treatment. He also uses aspirin as a topical application, carefully applied on a swab.

## Reviews

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*Infant Feeding.* By CLIFFORD G. GRULEE, A.M., M.D., Assistant Professor of Pediatrics at Rush Medical College; Attending Pediatrician to Cook County Hospital. Octavo of 295 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.00 net. Sole Canadian Agents: The J. F. Hartz Co., Ltd., Toronto.

One can quite agree with the author of this book that in combating infant mortality by infant feeding the most simple laws are the best, that each child is a law unto itself, and that the education of mothers is essential. The problem of proper infant feeding is apparently a great one when it takes a book of 295 pages to set it forth, and the physician must realize what he has got to know in order to be able to boil it down for adaptation to each individual case. There are chapters relating to the anatomy and physiology of the gastro-intestinal tract, the metabolism of the infant, the bacteriological flora, breast feeding, artificial feeding in health and gastro-intestinal disturbances and nutrition in other than these disturbances. In the book the scientific and the practical are combined.

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*Laboratory Methods.* With Special Reference to the Needs of the General Practitioner. By B. G. R. WILLIAMS, M.D., assisted by E. G. C. WILLIAMS, M.D., with an introduction by VICTOR C. VAUGHAN, M.D. Illustrated with forty-three engravings. St. Louis: C. V. Mosby Co.

A book on laboratory methods for the general practitioner, dedicated to the general practitioner and stamped with the approval of Victor C. Vaughan scarcely needs commendation from the medical press.

AN examination of this book, however, leads us to recommend it highly to our readers. It is neither an elaborate encyclopedia nor a concise and limited compend. It strikes rather the happy medium of full practicability. Men in general work will find it just what they require for doing their work in a small, well-equipped home labora-

tory. There are excellent chapters on simple water analyses, everyday stool tests and laboratory prophylaxis, while that on private post-mortems is well worth the price of the book alone. It is a volume of 204 pages.

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*An Essay on Hashish.* Including Observations and Experiments. By VICTOR ROBINSON, Contributing Editor *Medical Review of Reviews*, etc., Price, 50 cents. New York: *Medical Review of Reviews*.

This little volume of 83 pages shows painstaking labor and research on the history, pharmacology and therapeutics of *cannabis indica*. Dr. Robinson's experiments and observations upon friends and himself are interestingly told. He does not tell us, however, why he gave thirty and forty minims to his friends, but only took twenty himself. Possibly he anticipated the more joyful delights of the smaller dose.

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*Sexual Impotence.* By VICTOR G. VECKI, M.D., Consulting Genito-Urinary Surgeon to the Mount Zion Hospital, San Francisco. Fourth Edition. Philadelphia and London: W. B. Saunders Co. Canadian Agents: The J. F. Hartz Company.

The ever-increasing interest manifested by the profession in the study of the normal functions and pathological conditions of the sexual organs necessitates the re-appearance at prompt intervals of the newest theories and ideas in regard thereto. Hence the present edition of this good book is timely. The book goes closely into the forms of impotence, diagnosis, prophylaxis and treatment.

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## COMMENT FROM MONTH TO MONTH.

**Osteopathy** was a subject dealt with in a comprehensive manner by Dr. Bruce, President of the Ontario Medical Association, in his address which we published in full in our July issue. It is quite true to assert that his remarks concerning osteopaths and osteopathy in Ontario will be endorsed by the medical fraternity.

Embodying the views of the medical profession as they do, they should command respect from the Legislature and should carry great weight with that body.

The representatives of the people put the Ontario Medical Act upon the statute books in the interests of the public, but failed to define the practice of medicine. This error will be sure to be remedied when the subject comes before the Legislature for final adjustment.

At the last session, Dr. Jamieson introduced a bill which apparently has been misunderstood by many members of the medical profession, and as it was being promoted by the Ontario Medical Council, that body came in for criticism, as it was believed they wished to license the osteopaths already practising irregularly and contrary to the law of the province.

How any member of the medical profession can believe that the representatives of that profession seek to do injury to the profession is beyond comprehension. The Medical Council is just as desirous as anybody else, yes, even as desirous as the university men, to conduct its affairs and the affairs of the profession to the best possible degree of perfection, and those who are continually and incessantly decrying its efforts do more than they may be aware of in bringing the Council and the profession into disrespect with the public.

So far as legalizing osteopathy, or any system of healing, there is only one simple, safe rule to follow, namely, the same standard of matriculation, study, examination, and license for all. When that is carried out to the letter, they can practice osteopathy, homeopathy, musculopathy, arteriopathy, venopathy, or confine themselves to diseases of the top of the head or the last joint of the big toe.

No man should be licensed to practice medicine simply because he has been for a few years established in illegitimate practice. There should be backbone enough in the man who gets his back to the wall and who is "honest enough to be bold and bold enough to be honest" to hand out the square deal to a profession which all its livelong day has fought the battles of the people against the designing charlatan whose sole aim is to make money.

From whence do all these cults come? Where is their great breeding ground? The neighboring republic. It is the birthplace of Christian Scientists, Divine Healers, Eclectics, Homeopaths, Vitopaths, Chiropractors, Physio-Meds. What not? Is it not surprising then that a stolid British-American would be led astray by one of such faddists?

If osteopaths are to be licensed by Act of Parliament under the Ontario Medical Act, why not the chiropractors *et al*? Why not the masseurs?

And then what about the other fads which are yet to come? Some one will discover that stagnation in the veins and the deposit of silt is the true cause of all disease: then the venopathist will appear in the land. This will prove to be another epoch-making discovery and will make for bleeding in a double sense. Fads will not cease to appear, for a fool and a faddist are born every minute.

The people, however, will hope that their legislators will remember the maxim: "One law for all."

It is just about time the medical profession stood by its representatives with unanimous voice.

**The third report on infant mortality**, prepared by Dr. Helen MacMurchy for the Ontario Government, is undoubtedly the best upon the subject extant. Its prime object is to lessen or wipe out infant mortality, in so far as that can be done.

This can best be brought about by the proper education of the mothers and a full realization of the fact that each child is a law unto itself.

It cannot too strongly be pointed out that the most simple laws and rules are the best, for the multiplication of rules and directions will only tend to confuse and discourage.

Dr. MacMurchy says in this report a great deal of good may be done by giving the mother a leaflet. It would be far better to have large cards printed in bold type, which could be framed and hung up in some convenient place. These should state the simplest rules of guidance, and, of course, must be in the language the mother can read or understand. Then they will be kept; leaflets are easily lost or misplaced.

As infant mortality occurs to a greater extent amongst the poorer and foreign classes, the necessity for printed rules in different languages is apparent.

It would be a wise proceeding on the part of the Provincial Health Department to send a copy of Dr. MacMurchy's report into at least every English-speaking family where a child is born.

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**The proper handling of bread**, advocated in these pages on several former occasions, has not so far as can be learned appealed to health officers.

Bread is a universal article of diet, but more attention seems to be paid towards enforcing the laws to protect fruits and other like food stuffs in shop windows from flies, dirt and dust. These are not the household articles that bread is, especially amongst the poorer classes.

It is a nice point of table etiquette that no one shall touch a slice of bread except for his own personal and immediate use. Bread comes to the table as an article of diet, unwashed, subjected to no cooking in the household, after passing through many hands.

Although contamination is abundant, public opinion has not yet demanded the sanitary delivery of the staff of life.

That bacterial contamination of bread has an element of danger there can now be no longer any doubt, for typhoid fever has been proven to have been carried by a bread-handler.

If one can be satisfied that the handlers of bread are non-tuberculous, that they are not in contact with any communicable disease, that they are always free from any venereal disease, cleanly, scrupulous in their private hygiene, all danger could be considered as reduced to the minimum and the sanitary handling of bread a mere bugbear. This, however, cannot be guaranteed. Therefore, it must be worth while when so much is being done for the prevention of disease through contaminated food stuffs that the most universal of all be properly protected.

Each loaf should be completely wrapped, bagged or boxed. Unwrapped bread carries countless bacteria; wrapped bread, few.

It is the plain duty of health officers to see that all bread is properly handled.

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**Brill's disease**, the new name for typhus fever, health officers and physicians should be on the look out for, as it has apparently been epidemic in many places of the United States, and the Chicago Health Department has recently issued a warning to physicians to be on their guard.

This disease, the old famine or ship fever, typhus, is said to be of a mild type, and because it has been investigated and reported upon by Dr. V. E. Brill, of New York, carries his name. He has observed 255 cases in his vicinity without a single death.

Being transmitted by the body louse, the disease necessarily appears amongst the poorer classes, unlike typhoid which is no respecter of the rich or the poor.

The typhus virus is extracellular and free in the circulating plasma; while the serum of virulent typhus blood is constantly infective.

The onset of the disease is sudden with chill or chilly sensations, body pains, increasing headache, the temperature reaching its maximum on the third day. Here it remains between 103 and 104, sometimes as high as 106, lasting for 12 to 14 days, falling mostly by crisis.

On the 5th or 6th day a maculo-papular rash appears, dull red in color, irregular in outline, usually ovoid, 2 to 4 m.m. in diameter. It is erythematous in character.

The rash appears on the extremities and trunk, rarely on the palms and soles. The eruption is permanent until the end of the disease.

With defervescence, the spots fade rapidly, leaving brownish-yellow stains often gone in 24 hours.

The age of most common occurrence is between 20 and 40 years, children being rarely affected. In the sexes it is about evenly divided.

Practitioners noticing the appearance of this disease should report immediately to the health authorities.

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## EDITORIAL NOTES

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### AMERICAN HOSPITAL ASSOCIATION.

At Hotel Ponchartrain, Detroit, Sept. 24-27, the American Hospital Association will hold its fourteenth annual meeting and present indications point to one of the most helpful and largely attended gatherings in the existence of the organization. The presidential address will be delivered by Dr. Henry M. Hurd, Secretary, board of trustees, Johns Hopkins Hospital, Baltimore.

Various reports will be presented by Dr. C. R. Holmes, Trustee, City Hospital, Cincinnati; Dr. Thos. Howell, Superintendent New York Hospital; Dr. Wayne Smith, Superintendent City Hospital, St. Louis; Mr. J. B. Draper, Superintendent University Hospital, Ann Arbor, Mich.; Dr. R. O. Beard, University of Minnesota, Minneapolis; Dr. S. S. Goldwater, Superintendent Mt. Sinai Hospital, New York City; Rev. G. F. Clover, Superintendent St. Luke's Hospital, New York City, and Dr. Frederick A. Washburn, Superintendent Massachusetts General Hospital, Boston.

The programme is unusually good. It will include these papers among others:

The Economic Features and Feeding of Hospital Employees and Patients. Dr. H. T. Summersgill, Supt. Post-Graduate Hospital, New York City.

Hospitals and their Duty in Relation to the Prevention of Disease. Dr. Chas. P. Emerson, Dean of the Medical Department, University of Indiana, Indianapolis.

The Hospital Laundry. Dr. Winford H. Smith, Supt. Johns Hopkins Hospital, Baltimore.

A Contribution to the Problem of Convalescence. Dr. Frederick Brush, Supt. Burke Relief Foundation, New York City.

The Use of Salvarsan (606) in Hospitals. Dr. R. R. Ross, Supt. General Hospital, Buffalo, N. Y.

The Cost of Infectious Diseases. Prof. Jas. W. Glover, University of Michigan, Ann Arbor.

The Relation of the General and Special Hospitals in the Care of the Insane. Dr. Chas. K. Clarke, Supt. General Hospital, Toronto, Canada.

Hospital Organization with Special Reference to that of the Detroit General. Dr. W. F. Metcalf, Detroit, Mich.

The Question Drawer. Dr. Alice Seabrook, Supt. Woman's Hospital, Philadelphia, Pa.

Round Table Conference for Workers in Smaller Hospitals. Miss Louise Brent, Supt. Hospital for Sick Children, Toronto, Canada, and Miss Amy Armour, Supt. New Rochelle Hospital, New Rochelle, N. Y.

The Grading of Nurses. Mrs. E. G. Fournier, Supt. Minnewaska Sanitarium, Gravenhurst, Ont., Canada.

Dr. J. N. E. Brown, Supt. of the Detroit General Hospital, is the General Secretary.

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#### AMERICAN ASSOCIATION OF CLINICAL RESEARCH.

The fourth annual meeting of the American Association of Clinical Research will be held in New York City, at the Academy of Medicine, on November 9, 1912.

The sessions will be held from 9 a.m. to 1 p.m., from 3 p.m. to 6 p.m., and from 8 p.m. to 10 p.m. The evening session will be open to the public.

Notable contributions on the Negri Bodies, on certain Fluids for Tubercle Bacilli in the Urine, on Adjustment and Function, on Psychoanalysis and Traumbedeutung, on a Pandemic of Malignant Encapsulated Throat Coccus, on the Single Remedy, on Indicanuria and Glycosuria, on Disease Conditions expressive of Correct Diagnosis, on Biochemic Problems, on the Two Most Far-Reaching Discoveries in Medicine, and others are to be given. Every member of the Association is cordially invited to contribute a paper. The title should be sent at once to the Permanent Secretary, so that the programme may be completed.

As soon as completed, the programme will be mailed to you. Please make an effort not only to contribute a paper, but to be present at the coming meeting, to bring your friends, and to assist in the most important movement of medicine as represented in the aim of our Association, the systematic, scientific investigation and advancement of medicine by conclusive clinical and clinically-allied methods.

Please invite your friends to become members. Your support and that of your friends will be cordially appreciated.

## News Items

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Sir William Osler will visit Toronto in September.

Dr. Herbert J. Hamilton, Toronto, has sailed for Europe.

Dr. Samuel Johnston, Toronto, has returned from New York.

Dr. Charles E. Secord, New York, is visiting in St. John, N.B.

Dr. Wm. Arrell, formerly of Dunnville, is practising in Hamilton.

Dr. Herbert W. Nancekivel, formerly of Ingersoll, has moved to Foxbury, Sask.

Dr. B. S. Elliott, Toronto '07, has moved from White Plains, N. J., to Vancouver.

Dr. Frank Duston, of the Springfield, Mass., Hospital, is visiting in St. Stephen, N.B.

Montreal is promoting a new hospital for sick babies under two years of age. It will have 200 beds.

Dr. E. E. King, Toronto, will spend his holidays in August at his summer home in Hastings Co.

Dr. C. F. Moore, Spadina Rd., Toronto, has moved to the house of his brother-in-law, Dr. Wm. Britton.

Dr. A. C. Hendrick and Dr. A. W. Maybury, Toronto, have returned from a trip to the Old Country.

*The Montreal Star* has conducted a fly campaign which resulted in the death of 25,000,000 of these pests.

Dr. Charles G. Sutherland, South Porcupine, has been appointed Medical Superintendent of Moose Jaw Hospital.

Professor James Playfair McMurrich, of the University of Toronto, has been made Doctor of Laws by the University of Michigan.

Drs. A. A. Weagant, Ottawa, H. R. Casgrain, Windsor, and T. E. Kaiser, Oshawa, have been appointed members of the Ontario Board of Health.

Dr. Sloan, Surgeon to the Central Prison, Toronto, has resigned after fifteen years' service. Dr. Jas. Algie, Toronto, has been appointed to the position.

Dr. A. T. Stanton, who has been doing research work on tropical diseases in the Malay Islands in the interests of the British Medical Association, is visiting at his home in Newcastle, Ontario.

We regret to announce that Dr. Wm. Britton, Toronto, a physician well-beloved by his confreres, has retired from practice owing to ill-health. He is spending the summer in Brantford and in the Autumn will tour the West.

The American Medicine Gold Medal for 1912 has been awarded Dr. Wm. C. Gorgas, Panama, whose public health work has been the most conspicuous of any work in the domain of medicine in that country during the past year.

The meeting of the Canadian Public Health Association will be held in Toronto, September 16th, 17th and 18th, and an interesting programme will be presented. At the same time the Annual Conference of Medical Officers of Ontario will be held.

Dr. John N. E. Brown, Secretary of the American Hospital Association and formerly Superintendent of the Toronto General Hospital, has been appointed Superintendent of the Detroit General Hospital. Congratulations to the D. G. H.

Canadian physicians visiting in London, England, are: Dr. B. E. McKenzie, Toronto; Dr. J. A. Tanner, Vancouver; Dr. T. Shaw Webster, Toronto; Dr. W. L. Hatman, Montreal; Dr. E. Jones, A. C. Hendrick, and F. W. Rolph, Toronto; Dr. Hanford McKee, Montreal; Dr. E. Pelletier, Montreal; Dr. J. George Adami, Montreal.

Dr. Wm. C. Barber, for twenty-three years in the Ontario Hospital for the Insane service, has established a new sanitarium at Barrie, Ont., to be known as "Simcoe Hall." This institution is beautifully situated close to Lake Simcoe, 175 feet above its level and about 800 feet above that of Lake Ontario. Simcoe Hall was formally opened on the 6th of July. We wish Dr. Barber the fullest success in this new enterprise.

The work of Dr. Alexis Carrell, of the Rockefeller Institute, New York, which Dr. Carrell recently presented before the Ontario Medical Association, has attracted great attention from medical scientists in France. Leading biologists say that if the results are authentic, they form the greatest scientific advances of the generation. It is proposed that a deputation of French biologists visit the institute in New York and determine that Dr. Carrell's claims are founded upon fact.