

Dominion Medical Monthly

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Number 6

The Vaccine Treatment of Whooping-Cough.

ADVANTAGES.

1. Course of the disease shortened.
2. Number and severity of the paroxysms decreased.
3. Vomiting prevented or rendered less frequent.
4. Sequelæ diminished.

PERTUSSIS VACCINE.

INDICATIONS.

In cases diagnosed as pertussis (whooping-cough), or in suspected cases when a definite diagnosis is lacking; also as a prophylactic.

HOW SUPPLIED.

- Bio. 203. In cases of four 1-mil (Cc.) bulbs without injecting attachment, 100,000,000 bacteria per mil (Cc.). Package of four, \$1.00.
- Bio. 204. In 1-mil (Cc.) glass syringes, 100,000,000 bacteria per mil (Cc.). Package of one, \$0.50.
- Bio. 205. In cases of four 1-mil (Cc.) glass syringes, 100,000,000 bacteria per mil (Cc.). Package of four, \$2.00.
- Bio. 207. In 5-mil (Cc.) rubber-capped vials, 100,000,000 bacteria per mil (Cc.). Package of one, \$1.00.
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INDICATIONS.

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HOW SUPPLIED.

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- Bio. 235. In 1-mil (Cc.) glass syringes, 120,000,000 bacteria per mil (Cc.). Package of one, \$0.50.
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- Bio. 238. In 5-mil (Cc.) rubber-capped vials, 120,000,000 bacteria per mil (Cc.). Package of one, \$1.00.
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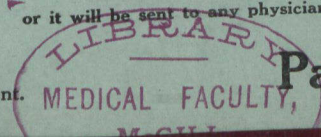
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Original Articles

ORGANIC OBSTRUCTION OF THE ILEUM AS A CAUSE OF GASTRIC DISTURBANCE *

BY GRAHAM CHAMBERS, B.A., M.B., TORONTO, CANADA.

During the last few years a great deal of attention has been devoted to the study of the disorder known as intestinal stasis. This, according to Sir Arbuthnot Lane, who was probably the first to call especial attention to the affection, is characterized by stagnation of the intestinal contents, resulting in the production of toxic material, which is absorbed in greater quantity than the human anatomy has the capacity to render inert or excrete. In consequence there result degenerative changes in various tissues of the body and diminished immunity to infectious diseases. To the direct or indirect action of these disease-producing agents have been ascribed a great number of affections, including various affections of the stomach, gall bladder, liver, pancreas, kidney, skin, nervous system and lungs. Indeed, according to Sir Arbuthnot Lane, intestinal stasis is a direct or indirect cause of disease in every organ of the body.

In the genesis of intestinal stasis, Sir Arbuthnot Lane thinks that caecal stasis is the primary condition, and that this tends to drag down the abdominal viscera with the production of stress on the attachments of the intestines which results in the formation of anatomical abnormalities such as those known as Jackson's membrane and Lane's kinks. He is of the opinion that these bands and kinks frequently lead to stagnation of intestinal contents in the ileum (ileo-stasis), and that it is in this part of the intestinal canal that the production and absorption of toxic substances generally occur.

*Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 29th, 1915.



The malady, intestinal stasis, can scarcely be called a new disease. The great majority of cases now called intestinal stasis were formerly placed under the heading of habitual constipation; only a small proportion being thought to be due to organic obstruction. Neither is the conception that intestinal stasis is a common cause of disease in other organs of the body new; for from time immemorial the beneficial effect of purgatives in the treatment of diseases of almost every organ of the body has been recognized. The extent of the use of patent medicines, the therapeutic value of which is generally due to a purgative constituent, also suggests the same inference.

Under organic obstruction of the ileum, in addition to intestinal stasis caused by adhesions and kinks, is included obstruction due to nodular tuberculosis, cancer, volvulus, and intussusception of the viscus. These latter morbid conditions, however, form clinical entities by themselves, and are not usually included as causative agents of ileo-stasis.

In this paper the subject of stagnation of food in the ileum (ileo-stasis), due to organic obstruction as a cause of gastric disturbance is considered; but, in order that presentation of the subject is made more explicit, I shall, before discussing the subject of organic obstruction, refer briefly to other causes of ileo-stasis and their relations to gastric symptoms. In my opinion the causes of ileo-stasis which should be especially recognized are:

- (1) Atony of the ileum.
- (2) Regurgitation of the ileo-cæcal valve.
- (3) Spasm of the ileo-cæcal valve.
- (4) Cæcal stasis.
- (5) Organic obstruction of the ileum.

Atony of the Ileum as a Cause of Ileo-stasis.—In the passage of food along the alimentary tract a very remarkable feature is the rapidity with which it passes through the small gut. If one gives a small meal, such as that used in radio-logical work, the food leaves the stomach in about three or four hours, and about three hours later passes into the colon.

The further progress of the intestinal contents is relatively slow. It probably takes longer for the intestinal contents to travel three feet of the colon than it does for twenty-two feet of the small gut. The inference which we should draw from this is that nature's intention is that the small intestine, like the stomach, is a digestive tube and not a receptacle for food residues, and that it is essential for health it should be free from food-stuffs at least

once in twenty-four hours, and probably before each meal, as in the case of the stomach. If there is a delay in the propulsion of the intestinal contents from the ileum into the cæcum, ileo-stasis is said to exist. This can only be determined with certainty in one way, namely, by examination with the X-rays. If a residue of barium remains in the small intestine more than seven hours after the meal is ingested, the motility of the intestine is below normal, and the longer the time it requires for the meal to pass into the cecum, the greater the degree of hypo-motility.

I should like in this connection to say a few words about the relations of motor function of the stomach and ileum. In the study of the motility of the ileum we should always keep in mind the fact that the neuro-muscular structures of the stomach and ileum are very much alike. In both, the vagus is the motor nerve and the sympathetic the inhibitory. In both, Auerbach's plexus is present. Both viscera exhibit rhythmical movements after being separated from their extrinsic nerve supply; but whether these movements are of myogenic or neurogenic origin has not been definitely determined. The presence of Auerbach's plexus in the walls of the stomach and intestine suggests a neurogenic origin, but we should not give too much weight to this argument, for a local plexus of nervous tissue is always to be found in the innervation of smooth muscular fibres. The very recent observations of Arthur Keith that nodal tissue, similar to that of the bundle of His in the heart, is to be found in the alimentary canal, is strong evidence in favor of the myogenic theory. One might mention other physiological, experimental and clinical facts illustrating the close relationship of the stomach and small gut; for instance, both viscera are similarly affected by drugs which influence the motility, such as eserine, pilocarpine and adrenalin. Again, both viscera seem to be influenced alike by depressive nervous factors. Cannon was probably the first to call special attention to this characteristic. In his experiments he found that in animals sick with distemper and other affections characterized by general asthenia, food would frequently lie in the stomach and intestine all day without the slightest sign of peristaltic wave. He also observed that when the stomach and intestines were disconnected from the central nervous system, an animal, though extremely asthenic from disease, would frequently exhibit normal activity of these viscera. This latter observation indicates that the loss of motility in the stomach and intestines in the asthenia of infectious diseases is due principally to inhibitory influence originating in the central nervous system. It also suggests, in determining the cause of ileo-stasis in any case,

that the condition of the nervous system should be carefully considered. Cannon also made some observations on the influence of the emotions on the motility of the stomach, which are worthy of note in this paper. He found that in all states of anxiety and worry the peristaltic movements of the stomach stopped, but as soon as an animal was relieved of all sources of irritation the normal movements of the stomach began again. With regard to the influence of emotions on the small intestine, there is some difference of opinion. From the fact that the extrinsic innervation of the stomach and small intestine are practically the same, one would think that the movements of the two viscera would be alike. Cannon found this to be true in some animals. On the other hand, Esselmont and Fubini found that fear excited peristalsis in dogs; and Darwin observed that in the same animal excitement may cause uncontrollable voiding of the gut. This observation is in keeping with the well-known fact that excitement in some individuals may result in uncontrollable evacuation of the bowels.

The explanation of this want of unanimity among observers on the influence of emotions on the intestine is that the small gut receives its motor supply from the bulb, whereas the large intestine is supplied partly from the bulb and partly from the sacral cord. The extrinsic innervation of the latter is similar to that of the bladder. Under emotional disturbances, therefore, it is possible that evacuation of the bowels may occur without excessive peristalsis of the small gut.

The close anatomical and physiological relationship between the stomach and the small intestine has an important bearing on the etiology of ileo-stasis, for one should expect that both viscera would be affected alike by nervous disturbances. We recognize that gastric atony is very common and due to a great variety of causes, of which worry and anxiety over business difficulties and asthenia following infectious diseases and other constitutional disorders, are the most important. It is probable, therefore, that similar agents produce atony of the small intestine. This is the view held by Lane and Jordan. That such is the case I should like to present the following clinical evidence:

1. In a considerable proportion of cases of ileo-stasis there is a history of marked improvement during periods when the patient has been on a vacation.

2. A large proportion of cases of ileo-stasis can be cured without surgical procedures.

3. That slight adhesions resulting from surgical operations and the disturbance of peristalsis brought about by lateral anastomosis do not often give rise to subjective symptoms.

4. That intestinal stasis is more common in persons who lead sedentary lives with much brain work than in those who live in the open air and take a great deal of physical exercise.

These data indicate that ileo-stasis due to atony alone or atony associated with organic obstruction, is common. This has an important bearing on the subject of my paper, because if organic obstruction of the ileum were present in a patient with an asthenic state of the neuro-muscular system, which is a very common disorder, the symptoms referred to the stomach caused by the organic obstruction would be associated with those caused by atony of the stomach and small intestine.

Regurgitation at the Ileo-cæcal Valve as a Cause of Ileo-stasis.
—From an anatomical and physiological standpoint the ileo-cæcal valve and mitral valves of the heart are somewhat similar. Both have the bicuspid structure. The mitral opening is closed by two cusps being forced together by the pressure of the blood in the left ventricle, and to a certain limit, the greater the pressure the more closely the valves are in apposition. The same is true of the ileo-cæcal valve, although contraction of the circular muscular fibres of the valve is a factor in the closing. I believe, however, that it is the intracæcal pressure which is the principal agent in closing the valve. In the normal individual, the contents of the ileum may pass into the cæcum, but the regurgitation of cæcal contents cannot occur. In persons who have suffered from appendicitis the condition is frequently different, for in such individuals more or less regurgitation at the valve is often present. One may be able to show this by radiographic examination after a barium enema. In the cadaver one can frequently demonstrate the condition by forcing the air out of the transverse and ascending colon into the cæcum; when in the normal, there will be no escape of gas into the ileum with moderate pressure, but in the presence of adhesions about the appendix or cæcum, the ileum in many cases becomes distended. In mitral regurgitation the heart may become competent again by hypertrophy of the left auricle and right ventricle. A similar change may result in ileo-cæcal regurgitation by hypertrophy of the small gut. The pressure in the small intestine itself may be a factor in preventing regurgitation. Later, if the muscles of the intestine become atonic either through psychic disturbance, general debility or enteritis, regur-

gitation again occurs, and the motor function of the intestine is incompetent.

There is a feature about the mechanism of the ileo-cæcal valve which requires careful investigation. From what has been said it is evident that the principal force in closing the valve is the intracæcal pressure due to the contraction of the cæcum, while the valve is probably opened by the force of the pressure in the ileum. Two explanations are suggested: (1) That the contraction of the ileum controls the mechanism of the valve, a peristaltic wave forcing the valve open, and as soon as the wave reaches the outlet, the valve closes. (2) That the contractions of the ileum and cæcum are co-ordinated as in the case of the auricle and ventricle. If the latter view should prove to be correct it is probable that the pacemaker of cæcal contraction is situated in the lower end of the ileum. This suggests that in cases of intestinal stasis characterized by regurgitation of the ileo-cæcal valve with compensation broken down, we may in future speak of fibrillation and flutter of the ileum just as we now speak of fibrillation and flutter of the auricle in some incompetent hearts.

I should like in this connection to mention a clinical observation which may have a bearing on the co-ordination of the motor function with that of the cæcum. It is that in marked cases of ileo-stasis of organic origin of the lower end of the ileum characterized by excessive peristalsis of the ileum and impaction of the barium in the ileum against the cæcum, the latter is frequently found empty, although there is frequently barium in the splenic flexure of the colon and rectum. It would appear from this that the excessive peristalsis in the ileum in some way brings about excessive peristalsis of the cæcum. A somewhat similar relationship exists between the stomach and intestine for, in duodenal obstruction due to peptic ulcer, there may be a residue of barium in the stomach after seven hours, and at the same time the small gut practically empty. In these cases there is generally excessive peristalsis of the stomach which in some way produces hypermotility of the small intestine, although the peristaltic wave of the former viscus stops short at the pylorus. In organic obstruction of the pylorus, in the early stage at least, the same phenomena are observed.

Let us now consider for a moment how ileo-cæcal regurgitation may cause gastric disturbance. This is germane to my paper, because ileo-cæcal regurgitation is a common complication of organic obstruction of the ileum. In discussing the subject I may be permitted again to call attention to the rapidity with which, in

health, the contents of the small intestine are propelled into the caecum, and also to the mechanism of the ileo-caecal valve which in the normal does not permit regurgitation. It is evident that nature intends that there shall be a sharp division between the small gut, which is a digestive tube, and the large bowel, which is essentially a receptacle for the by-products of digestion. The high vascularity of the small compared with that of the large intestine is in keeping with this view. The observation of Vaughan Harley, that after the removal of the colon in dogs there was an increase in quantity of faeces, but mainly due to unabsorbed water, the nitrogen and protein absorption being only slightly diminished, is additional evidence in favor of it. This observation also indicates that practically all the nutritive material, except water, for the maintenance of nutrition is absorbed from the small intestine.

The principal way in which ileo-caecal regurgitation may cause gastric symptoms, is by causing auto-intoxication. In the normal condition it is highly probable that bacterial growth, inimical to health, is unimportant in the small gut for reasons which have already been given, but in the large intestine the conditions for bacterial growth are much more favorable. Now, in case of regurgitation at the ileo-caecal valve, so far as germ growth is concerned, it is probable that the growth in the two bowels is more or less alike, especially if ileo-caecal regurgitation is accompanied by ileo-stasis. This would result in auto-intoxication, for the small intestine has not the same defensive action as the large bowel. The question then presents itself, how does auto-intoxication produce gastric symptoms? In answer to this, I should say, first by causing mental depression, which again would have a marked action on the stomach, for the gastric digestion is closely dependent on the mental condition; secondly, by the action of chemical substances which have a direct action on the functions of the stomach. Recently a good deal of attention has been devoted to the study of these bodies, and most interesting results obtained. In illustration, I may mention that tyramine, a derivative of tyrosin, has been isolated from intestinal contents and found to be chemically related to adrenalin; and like the latter, it has marked stimulating action on the ends of the sympathetic, and would, therefore, tend to produce both gastric and intestinal stasis; thirdly, by diminishing the immunity of the individual, resulting in infection of some form which is invariably characterized by gastric symptoms.

Caecal Stasis as a Cause of Ileo-stasis.—This is of special interest on account of the importance given to it by Sir Arbuthnot

Lane in the origin of the bands and kinks which take such an important part in the production of stasis in the intestine. I may say that this theory of the sequence of disturbances has not been confirmed, and we are still in the dark with regard to the origin of Jackson's membrane, and the various kinks which are sometimes observed in intestinal stasis.

Cæcal stasis is said to exist when there is considerable residue of barium in the cæcum seventeen hours after the ingestion of a barium meal. In the skiagrams of many cases of ileo-stasis a remarkable feature is that, although there is stasis in the small gut, the barium is propelled along the colon with normal or excessive rapidity. If, therefore, cæcal stasis is the common cause of ileo-stasis, the development of the obstruction in the small gut must cure the cæcal stasis. The only cases of ileo-stasis which are frequently associated with cæcal stasis are those which occur in patients with abdominal viscera markedly displaced downward or with an old-standing mucous colitis. Cæcal stasis unaccompanied by ileo-stasis is a common finding in spasm or organic obstruction of the rectum or of the colon distal to the cæcum. It is also not an uncommon finding in splanchnoptosis. Cæcal stasis probably always tends to produce ileo-stasis and to increase the severity of it due to other causes. It should, therefore, be looked upon as a contributory factor in the production of gastric symptoms of ileo-stasis. As a disorder by itself it may, by causing auto-infection or general infection, give rise to symptoms referred to the stomach.

Spasm of the Ileo-cæcal valve as a Cause of Ileo-stasis.—Spasm of the pylorus is quite different from that of the ileo-cæcal valve as the former is regulated by the reactions of the gastric and intestinal juices. An acid reaction in the duodenum closes the pylorus, whilst an acid reaction of the stomach and neutral reaction of the duodenum tends to open the outlet. The ileo-cæcal valve is closed principally by an increase of the intracæcal pressure and spasm of the valve may be said to exist when there is spasm of the cæcum. Now, in acute appendicitis, Mr. Fenner, of the Toronto General Hospital, informs me that radiographical examinations frequently show gastric hypertonus and barium in the stomach seven or eight hours after the meal is ingested, along with barium in the lower end of the ileum, but without any barium in the cæcum. This indicates that the causes of gastric stasis and ileo-stasis were spasm of the pylorus and ileo-cæcal valve respectively. The symptoms referred to the stomach in acute appendicitis are generally what one would expect to find in

spasm of the pylorus and body of the stomach. The patients complain of sensations of fullness and pressure in the epigastrium, belching, pain in the region of the stomach, nausea and vomiting. The gastric distress is generally aggravated by eating and frequently partially relieved by belching. Vomiting also generally gives partial relief.

With regard to subjective symptoms referred to the region of the appendix there may be no complaint during the early stage when the patient may suffer from gastric symptoms. This is an outstanding feature of acute appendicitis. At this time, however, there is usually tenderness on deep pressure in the region of McBurney's point. The question arises, Why should the patient suffer from distress in the region of the stomach without distress in the region of the appendix? The most acceptable explanation, in view of the X-ray findings already referred to, is that a spasm of the cæcum is present sufficient to close the ileo-cæcal valve, but not sufficient to cause pain in the region, and that secondary to closing of the ileo-cæcal valve ensues spasm of the pylorus, resulting in the gastric symptoms which characterize acute appendicitis. In chronic appendicitis, and especially in its exacerbations, symptoms referred to the stomach are very common. These are generally relieved by removal of the appendix alone, even in cases in which adhesions that might lead to organic obstruction or disturbance of the mechanism of the ileo-cæcal valve are absent. From this it would appear that in acute or chronic inflammation of the appendix the gastric symptoms may be secondary to spasm of the cæcum. This is supported, I think, by the experience of surgeons.

Organic Obstruction of the Ileum as a Cause of Ileo-stasis.— In studying the genesis of gastric disturbance in organic obstruction of the ileum, it is well to remember that obstruction of any part of the stomach or intestine tends to produce increased peristalsis tonus of the part proximal to the obstruction. This is a physiological principle to which there is no exception. In organic obstruction of the ileum one should expect to find, therefore, signs and symptoms of increased tonus and peristalsis of the stomach and small intestine proximal to the seat of the obstruction. This is generally true in all cases of uncomplicated organic obstruction of the ileum.

In a case of marked obstruction of the lower end of the ileum, such as that sometimes caused by Lane's kink, radiographic examination frequently shows hypertonus and excessive peristalsis of the stomach, with a residue of barium after six hours. The subjective symptoms in such a case are belching, eructations, sensa-

tion of fullness and pressure in the epigastrium, pain after eating, nausea and vomiting. These symptoms are very similar to the gastric symptoms in acute appendicitis, which were referred to under spasm of the ileo-caecal valve. Vomiting of blood may also occur, which feature suggests the presence of ulcer of the stomach. In many cases, however, it is probable that the hemorrhage was from an erosion which, for some unknown reason, is not uncommon in obstruction of the intestine.

The characteristics of the pain in the region of the stomach in ileo-stasis due to organic obstruction are very variable. This is probably dependent partly on the degree of stasis and partly on the nervous state of the patient. In some cases the time of appearing after eating and the intensity and nature resemble similar characters of the pain observed in gastric or duodenal ulcer. This feature often renders it difficult to determine whether the particular case is one of intestinal stasis alone or intestinal stasis associated with peptic ulcer. It has been said by some writers that localized tenderness is not present in the epigastric region in intestinal stasis. This I am satisfied is not correct, for I have frequently observed in patients suffering from the disease unassociated with any lesion in the stomach that they exhibited localized tenderness in the region of the pylorus.

From what has been said it is obvious the symptoms referred to the stomach in ileo-stasis do not form a very characteristic group. It is not surprising, therefore, that the recognition of the disease by the consideration of the symptoms and signs without the aid of radiographic examination is frequently impossible. Some cases simulate chronic dyspepsia due to a gastric neurosis; others peptic ulcer of the stomach or duodenum; others again pyloric obstruction. Indeed, it may be said to simulate the majority of diseases of the stomach, and even gastric cancer. In a case recently under my care the patient, who was a merchant forty-five years of age, had lost thirty pounds weight. An analysis of gastric contents gave a total acidity of 36.5, and free hydrochloric acid of 1.5. The sediment contained Boas-Oppler bacilli in small numbers; no occult blood in faeces or stomach contents. X-ray examination of the stomach showed gastric hypertonus. No X-ray examination of the intestines was made. On account of the presence of Boas-Oppler bacilli I gave an opinion that the case was probably malignant, and advised surgical treatment. An operation revealed a Lane's kink which was corrected; complete recovery followed.

Symptoms referred to the stomach in ileo-stasis of organic origin are determined to a considerable extent by the associated conditions or complications. Some of the latter are diseases of the stomach itself, such as duodenal ulcer and gallstones, which are prone to produce gastric symptoms; and others again are disturbances of the nervous system, such as neurasthenia and hysteria. Any one of these may be characterized by a group of gastric symptoms. It is obviously very difficult in any case to determine the part played by organic obstruction of the ileum in the genesis of the symptoms. This is the crux of the question of operative treatment of intestinal stasis at the present. I think that surgeons are wont to blame adhesions of the ileum for all the complaints of the patient and there is some reason for their doing so for, frequently after an operation for the removal of adhesions, etc., and the treatment associated with every surgical operation, there is a very marked improvement or a complete cure of the disease. The treatment of the patient, however, by the surgeon is not as a rule purely surgical. It might be said to consist of operative treatment plus a "cure" in which the habits of the patient are corrected, the diet improved, and instruction on hygienic lines generally given. For my part I am satisfied that in many cases the "cure" is more curative than the operative treatment, for equally successful results are obtained by medical treatment. Before the complaints of the patient are ascribed to anatomical changes we should make a thorough examination of all the organs of the body. We should remember that an asthenic state is very common, and that when present it frequently gives rise directly to gastric symptoms as well as ileo-stasis; also that suggestion is frequently responsible for the symptoms of the patient.

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WHAT IS THE PRACTICE OF MEDICINE?

BY J. S. SPRAGUE, M.D., BELLEVILLE, ONT.

Are the mushroom, fly-by-night, delusive cults (misbranded medical), properly better defined as fakerisms, to be allowed recognition and license in this our Province—in this enlightened age—when the regular profession with its glorious traditions and records and its present triumphs is winning many and imperishable honors and services for our flag? Who are the illegitimates and who are the quacks? Who are they, who, by short-cuts, correspondence schools, etc., want to be enrolled with M.D.'s as licentiates to practise and disgrace the title of *Doctor* and the title of *Phy-*

sician? Illegal practitioners of medicine, pseudo-physicians, unlicensed chiropractors, mechanotherapeutists, magnetopaths, hypnotists, clairvoyants, psychometrists, mental healers, faith healers, persons pretending to practise the religious tenets of real and fictitious churches, naturopaths, vitopaths, psycopaths, hydrotherapeutists, unlicensed and other osteopaths, pandiculatherapeutists, metaphysicians, therapeutic healers, counter prescriptionists, blue-glass healers, etc. So far as legalizing vitapathy, osteopathy, or any system of healing there is only one simple, safe and sure rule to follow, namely, the same high standard of matriculation, study, examination and license. When that is carried out to the letter, one can practise musculopathy, osteopathy, arteriopathy, venopathy, blue-glass pathy, morning-dew therapy, etc. What about the other crazes, fads and delusions? "Someone will discover that stagnation in the veins and the deposit of silt is the true cause of all disease, hence venopaths." Fads will not cease to appear, for faddists and fools are born every minute, and of late twin births are common. Dr. Shepherd's Presidential address before the Canadian Medical Association in 1902 has these words:

"I refer to such things (various quackeries) as Christian science, mental science, spiritualism, vitapathy, osteopathy, and such like, but perhaps they have their uses in this rapid and restless age. They are a vent for people who otherwise would be confined in asylums at a great expense to the public."

Such impositions or frauds as these and those listed are to be soon weighed and measured by a *Commission* named by our Province, and then the dear people will learn the decision if *quackery* is to be tolerated, and if *quackery* is *practice of medicine*, and if it is necessary to close our regular medical colleges, or if it is honorable to name quacks as *doctors and physicians*.

No syncretists however brilliant can mix the incongruous tenets or doctrines of fakers and quacks with the labors of the two doctors described herein by "The Country Doctor" and the eulogy of Lister R. Alwood, Detroit, or any provincial M.D. of our College of Physicians and Surgeons:—

THE COUNTRY DOCTOR

(With apologies to Rudyard Kipling)

As I was agoing 'ome to bed, through a muddy, country lane,
I seen a man in a oilskin cape, atrudging through the rain.
'E 'adn't a match, an's pipe was out, an' I ses to 'im, "'Oo are you?"
An' 'he ses, "I'm a doctor, a country doctor, surgeon and midwife, too."
Now 'e never gets paid for 'arf 'e does, an' he does the work of two;
An' 'e isn't one of the gentlefolks, an' 'e ain't like me nor you.
'E's a sort of blooming chameleon-type; surgeon and midwife, too.

An' I seen 'im again, all over the shop, aplayin' all sorts of rags,
 Like settin' a fractured collar bone, with a couple of touch-line flags.
 An' the parsons owe 'im money, for their wives give 'im work to do,
 Though 'es only the doctor, the country doctor, surgeon and midwife, too.
 An' the poor law board, they sits on 'im, an' tries to dock 'is screw,
 Though 'e 'as 'is bread and cheese to get, the same as me or you.
 They think 'es a 'aughty philautocrat; surgeon an' midwife, too.

An' I seen 'im again with a knife an' things, an' the sweat was on 'is brow,
 'E was tryin' to mend the guts of a bloke as 'ad spiked hisself in a row,
 'Twas late at night, an' 'e 'adn't no light to see what 'e 'ad to do;
 An' 'is pal was a doctor, a country doctor, surgeon an' midwife, too.
 'E 'adn't got far with 'is little job, 'e wasn't 'arf way through,
 When the bloke sits up an' asks for a drink, the same as it might be you.
 Ho! they ain't no special anesthetutes; surgeon an' midwife, too.

But there wasn't a call to do as you done, w'en you 'ad the gout in your
 toe;
 An' you fetched 'im out in the dead of night, an' 'e 'ad six miles to go;
 For you've 'ad it before an' you'll 'ave it again, an' you know just what
 to do.
 You don't want the poor old country doctor—dispenser and staff nurse,
 too.
 You pays 'im, what? Yes, tuppence a week, an' you're earnin' thirty-two.
 An' 'e 'as to subscribe to your football club, which you're too mean to do,
 Because 'es the doctor, the country doctor, surgeon an' midwife, too.

Now I never believes in them specialist thieves, what stammer an' grunt
 an' blow,
 As'll watch yer die, with a winkin' eye, for a 'undred pound or so.
 An' when its "checks," and' "Oo's turn next?" which I 'opes it won't be
 you,
 Let's stick to the doctor, the country doctor, surgeon and midwife, too.
 An' when you come to the Bar of Gawd, an' 'E says "Oo passed you thru?"
 (For 'E 'ates peculiar people, an' the Christian Science crew).
 Just mention the doctor, the country doctor, surgeon an' midwife, too.

—E.G.B.A., in *St. Bartholomew's Hospital Journal*.

An illustration of the worth of our profession to the community is most charmingly given us by Mr. Lister R. Alwood, Detroit, Michigan, and the references are to the noble and altruistic labors of his venerable father:—

He wears no man's elegiac gold,
 He bears no crown with titled crest,
 No hero-hood's insignia bold
 Shine valiantly upon his breast.
 His face is calm as one who sees
 Far out across the waves of Time,
 God's life-ships pierce Earth's mysteries,
 And hears its cheerful-sounded chime.

The souls of children round his sleep
 Are clustered angel-wise each night,
 And those who pain's dim vigil keep
 To Heaven commend him in their plight!
 No flower that blows when most are gone,
 A rare, sweet flame by some gray wall,
 Can match his smile that falls upon
 The sorrowings of one and all.

Darkness and Doubt, twin shapes of grief,
 Keeping their stand beside yon bed,
 Mark when his coming brings relief,
 How suddenly they've turned and fled.
 Tho' lamp be low and window wan
 With wraith of moon or falling star,
 He brings the bright resurgent dawn
 And Love's great sun across the bar!

The traveler reeling home at two;
 The orphan, pinched and pallid-faced;
 The cripple with his retinue
 Of ancient woes, by want debased;
 The mother driven to Hope's last stand
 Upon her battlefield of life;
 Each tortured heart, each faltering hand
 That knows the hundred wounds of strife.

These are the clay wherein he moulds
 The imperial beauty of his art!
 No form that veined marble holds,
 No song conceived in poet's heart,
 No canvas picturing peak or plain,
 Environing deep or sunset height,
 Can rival that which brings from pain
 Some plenitude of lost delight!

And if no man's elegiac gold
 Adorn his unpretentious coat,
 And crown with gem and symbol scrolled
 Never his nobleness denote:
 'Tis by ten thousand deeds of good,
 His toilings and his task of love,
 The Doctor finds his hero-hood,
 And God's sure sanction from above!

This eulogy and "The Country Doctor" herein given, illustrate fully the worth and honor of medical gentlemen—M.D.'s—which the cults are trying to dishonor and drag down to their commercial levels and fakerism.

From the life work of such men—these two doctors—and there are countless examples in our Dominion, our worth as doctors and our nobility as a profession among men have their origin and that exalted citizenship of the world "that makes them loved at home, revered abroad. Wealth and pomp are but the

caprice of things, but men like these do the noblest work of God." Read "The Bonnie Brier Bush" and you will find we have in our midst many men like Dr. MacLure, who honor our profession as it honors them, and the greater its progress and distinction the more the pseudo-cults multiply and want to be *Doctors* and *Physicians*—a disgrace to M.D.'s and to our universities and intelligence. Save us from medical Huns, who want legislation, recognition and license! "Confound their knavish tricks!"—*Medicus*.

DIPHThERIA AND THE SO-CALLED SCHICK REACTION

(*Therapeutic Gazette.*)

It has been known to active clinicians and laboratory workers for quite a long period of time, that certain persons who receive the micro-organisms of diphtheria speedily develop that malady in varying forms of virulence. On the other hand a by no means small number of persons are able not only to receive but to carry about in the pharynx, in the tonsils, or in the post-nasal spaces, a multitude of these specific micro-organisms without at any time suffering from the slightest degree of discomfort and illness, being at all times unconscious of their infection. These individuals are, however, quite as capable of spreading the disease as are those who have definite clinical manifestations with a false membrane present. These so-called immune persons are doubtless responsible for the development of diphtheria in cases in which all of the ordinary methods of infection seem to have been excluded. Such facts have, at first sight, little bearing upon the problems which confront the active practitioner, who naturally is not called upon to see the diphtheria carrier who has no symptoms and so has no opportunity of attacking the disease in its primary focus. The only way in which he can actively control the spread of diphtheria by such carriers is to insist upon all persons who have been exposed to this disease receiving antitoxin or being locally treated in such a way that the focus of infection is removed. In other words, when an individual has been in charge of or is nursing a case of diphtheria, yet presents no evidences of the disease, the proper thing to do is to investigate the case to find if the nurse's throat is negative as to infection, and if not to see that it is made negative.

Another reason why certain patients develop diphtheria while others equally exposed escape, lies in the fact that one individual contains in his body a considerable amount of antitoxin, whereas

another individual, seemingly equally healthy, has a minimum amount of this valuable protective substance. In other words, it is perfectly possible for two people apparently in perfect health and equal strength to be exposed to diphtheria, one being stricken, the other escaping. The interesting point for the clinician is to determine which one will be stricken and which one will escape. This is of particular interest to him when the somewhat remote danger of anaphylaxis is considered, and still more so when he is called upon to determine as to the wisdom of administering diphtheria antitoxin to a large number of individuals in a family, the members of which have been exposed; or to the still larger number of individuals in an institution where the malady threatens to run riot.

For many months past evidence has constantly been accruing to the effect that it is possible for us to determine which patient needs antitoxin and which patient does not need antitoxin, and this is done by a test closely allied in its nature to the so-called von Pirquet reaction, or test, introduced by that clinician. The test consists in introducing into the skin itself, not subcutaneously, by means of a sharp-pointed fine needle a minute amount of standard diphtheria toxin, not antitoxin, which is diluted, and which contains 0.5 per cent. carbolic acid to preserve it. This standard solution or mixture of diphtheria toxin when about to be used is diluted still further by normal salt solution so that 0.2 Cc. contains $1/50$ of the minimum lethal dose for a guinea-pig of 250 grammes. The injection is usually given upon the flexor portion of the arm or forearm. The reaction which it induces varies considerably in different individuals. If the part so treated develops a definite, well-marked hyperemia, or redness, this indicates that the patient possesses very little if any diphtheria antitoxin; a fainter reaction shows that there is more diphtheria antitoxin present; and if there is no reaction the patient can be considered immune for at least a time. Schick, who brought forward this test, claims that about $1/30$ of a unit of antitoxin is present in each cubic centimeter of the patient's blood to render this test negative; or, in other words, to indicate that the patient is so immune that after exposure to the disease an injection of antitoxin is not required. Naturally such a test in orphan asylums when properly applied possesses not only a humane but a pecuniary value which is most important.

It is interesting to note that not only do certain individuals vary greatly in their reaction to the Schick test, but that groups of persons forming families vary as groups. Park states that where there are a number of children in a family and the youngest child gives a negative reaction, or in other words, is not suscep-

tible to the disease, a test of the older children usually shows that the same immunity has been conferred upon them; whereas if the older children give positive tests the younger ones are very apt to do likewise.

Two other points are of interest in this connection: One is that a positive reaction when it develops usually comes on in twenty-four hours, and the part is not only red, or hyperemic, but slightly indurated. This condition increases in these characteristics for twenty-four hours more, continues for a week or ten days, and undergoes a gradual involution and leaves behind a brownish discoloration of the skin with some scaliness which may not disappear for twenty-one days from the time of the infection. Occasionally patients present a so-called pseudoreaction, the condition apparently being due to hypersensitiveness of the skin rather than to any susceptibility to diphtheria.

Lastly, this test has proved of interest in that it has thrown some light upon the period of life at which human beings are most susceptible to diphtheria. Various statistics seems to indicate that this period is between the first and sixth year. Some years ago the writer of this editorial published a chart based on 3,360 cases collected from various sources which showed that the greatest incidence of diphtheria was between two and five years, and the Schick test applied to many hundred children indicates also that this is the period when a positive reaction most commonly develops.

The Physician's Visiting List for 1916. Price \$1.25. Philadelphia: P. Blakiston's Son & Co.

This is the 65th year of publication. It is arranged for 25 patients a day or week, with pencil and pocket. Other styles are for 50 patients, 75, or 100.

Reviews

Diseases of the Skin and the Eruptive Fevers. By JAY FRANK SCHAMBERG, M.D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine. Third edition, revised. Octavo of 585 pages, 248 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$3.00 net. Sole Canadian agents, the J. F. Hartz Co., Ltd., Toronto.

This is an excellent book on diseases of the skin for the general practitioner. It is not overburdened with too much upon treatment, but what it does say appears to have been adopted by the author after careful usage over a considerable period of time. There is an especially good article upon "Grain Itch" not particularly noticed in other works of this character. It gives all the newer and up-to-date methods of treatment, such as actinotherapy, X-ray, radium, carbon dioxide snow, etc. Each subject is nicely and carefully arranged, and there is a very appreciable absence of padding. It can be heartily recommended.

What to Eat and Why. By G. CARROLL SMITH, M.D., Boston, Mass. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. Canadian agents, J. F. Hartz Co., Toronto.

In this new edition there is a new chapter added on Exercise, as well as a new chapter on Rheumatism, which is in accord with present-day teaching on that subject. The book is a very readable one, and presents its various subjects in a very clear and happy style. We are satisfied that medical men can secure no more practical book upon dietetics than this one.

The Clinics of John B. Murphy, M.D., of Mercy Hospital, Chicago. October, 1915. Philadelphia: W. B. Saunders Company. Canadian agents, J. F. Hartz Co., Toronto.

Numerous cases are set forth in this volume. Histories of each case are given, and then follow Dr. Murphy's comments. Details of operations are also recorded; occasionally some post-operative comments, and recapitulations of some cases. Many illustrations depict the conditions.

Dominion Medical Monthly

And Ontario Medical Journal

EDITED BY

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Anesthetics: Samuel Johnston.

GEORGE ELLIOTT, MANAGING EDITOR.

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No. 6

COMMENT FROM MONTH TO MONTH

The Royal Army Medical Service, it has been repeatedly stated, was prepared for war. The British Navy was in a similar condition. These are the two outstanding features, so far, as regards Britain's preparedness. They have both been very effective.

When Sir John French was in Canada a few years ago he lauded the Canadian Army Medical Corps as equal to that of the home land. Both have abundantly proven their fitness. It is significant that five Canadian hospital units are in the Mediterranean, but yet no Canadian troops there. Equally significant is it that of over eight thousand wounded and sick soldiers passing through one Canadian Base Hospital in France, only about five hundred of them were Canadians.

And for what did they volunteer? Fame! Experience! Gain! No—for none of these. They volunteered for King and country, for humanity, freedom, liberty, civilization. If they could not get on a hospital unit, or with a regiment, medical men have gone over the water at their own expense to enlist in the R.A.M.C. Yes, some even joined the ranks as full privates.

So far there has been a very distinct triumph for preventive medicine. All will hope it may be continued. As regards the

prevention of typhoid fever, the wonderful discovery of Sir Almoth Wright must ever bulk large. In a big measure, the Sanitary Service Companies—a new feature in this war—can lay claim to just credit for a maximum amount of the good health prevailing amongst the British forces on the western battle front. Early in the war it was discerned the sanitary officers of the divisions could not commence to cope with the conditions presented. This fact resulted in the organization of the Sanitary Service Companies for each division. These Companies consist of a commissioned officer, four non-commissioned officers, and twenty-five privates. There are doctors, sanitary engineers, druggists, clerks, and trained and experienced health inspectors. They keep the camps clean and sanitary as a medical officer of health and his corps of medical inspectors keep a city clean and free from disease—chlorinate the drinking water, improvise campaigns against vermin, flies and filth; disinfect, and burn refuse and garbage.

Reports also point to a triumph for surgery, particularly in brain surgery and abdominal surgery. The surgeons have had to meet conditions never seen in civil practice, never reported in medical journals, never even mentioned in text-books. They have met their difficulties with astounding acumen, boldness and skill. Men have been shot through the brain and have in some instances walked into the hospitals, and have been returned to the trenches in three months' time. They have been sniped through the nasion, have had rigid paralysis of all four extremities, and have fully recovered. Some even are reported as recovering with the bullets still in the cranial cavity.

In the South African war when soldiers were brought in and a positive diagnosis was made of a perforating bullet wound of the small intestine, they all died. In this great war it is highly satisfactory to report that the surgeons are saving the lives of forty-five per cent. of those cases.

Even the cavities of the heart stay not the hand of the dauntless surgeon. One French surgeon has removed a bullet from the right ventricular cavity which had lain there five months. Another English surgeon reports the removal of a bullet from a similar position under local anesthesia. The soldier lived four and one-half days after, but a post-mortem revealed perfect closure of the incision in the chest wall as well as in the cardiac muscle. Too bad that brave soldier died!

When the medical history of the war comes to be written, it will be found that the internists have been equally fortunate and

skilful in their treatment of disease; for has not Mr. Asquith at least twice announced in the House of Commons that over sixty per cent. of the wounded and the sick have been returned to duty in the trenches. Mr. Tennant, the Under-Secretary of State for War, has said that nothing like the way the health of the troops has been preserved ever occurred before in history.

Many people believe the medical profession have often proven themselves worthy in epidemics, scientific investigations, as likewise in various ways in civil practice; but if the "slackers" in belief desire tangible evidence let them cast their eyes and their common sense abroad over European battlefields and discern the great truths for themselves.

Appointments to the Ontario Hospital at Orpington are said to be causing no little anxiety to some medical men as well as to some military medical men. Irrespective of party politics, it is to be hoped the very best men in the province will be selected for positions on the staff of this hospital. Naturally a medical man who has seen service in the Canadian militia, or active service abroad, should be appointed officer commanding; likewise the second in command. The Ontario Government should call for volunteers from the medical profession of the province before it makes any appointments. The chief medical men in the employ of the Government should have a good knowledge of the capable men of the province fit to man this hospital. If they are capable of advising the Government on other medical matters in the province, then they should be in a position to advise as to the personnel of the staff, the equipment, and the administration thereof.

Editorial Notes

THERAPEUTICS OF GARLIC

To the Editor of The Medical Press and Circular.

SIR,—The following quotation from Fuller's "Worthies of England" on the medicinal virtues of garlic may interest some of your readers. The worthy doctor has been describing ambergris, and opens his account of garlic thus: "Here is a great and sudden fall, indeed, from the sweetest of gums to the most stinking of roots. Yet is not the distance so great if the worth of garlic be such as some have avouched it. Not to speak of the murmuring Israelites, who prized it before manna itself, some avow it sovereign for man and beasts in most maladies. Indeed, the scent thereof is somewhat valient and offensive; but wise men will be contented to hold their noses, on condition that they may thereby hold or recover their health. Indeed, a large book is written *de usu alii*, which, if it hold proportion with truth, one would wonder any man should be sick and die who hath garlic growing in his garden. Sure I am our palate people are much pleased therewith, as giving a delicious *haut-gout* to most meats they eat, as tasted and smelt in their sauce, though not seen therein. The best garlic is about Stratton in this county (Cornwall)."

Fuller formed his opinion on the virtues of the plant principally from the elaborate account of its medicinal value by Gerarde, who described it as the "husbandman's treacle" which cutteth all tough tumours, openeth all obstructions, is an enemy to all cold poisons and to the bitings of venomous beasts. And he quotes Galen as writing: "Garlic taketh away the roughness of the throat, helpeth an old cough, provoketh urine, breaketh wind, and is a remedy for the dropsey. It killeth and expelleth worms, helpeth a cold stomach, and is a preservative against contagious and pestilent airs." And yet the list given is incomplete, for all the diseases then known are included in it. Woodville (1793) gives a case of a boy, six or seven years old, who for a considerable time suffered from a urinary calculus, which, under treatment by a decoction of garlic, quite recovered. It was remarked that whilst taking the decoction "his urine become extremely turbid, and constantly deposited a copious claylike sediment for several weeks, when it resumed its natural appearance." Sydenham applied garlic poultices to the soles of the feet, as a revulsant, in cases of confluent smallpox.

The great obstacle to the more general use of the plant is, and ever has been, its smell. Thanks to Dr. Sedan, of Marseilles, this has been overcome. He combined trimethanal with the active medicinal principle of the plant, forming a chemical product, Aniodal. Its bactericide properties are vouched for by M. Merieux, director of the Pasteur Institute of Lyons, who in 1902 found it possessed marked bactericide properties in a 1/5600 solution. The salt is odorless, colorless, of a stable composition, and of very slight toxic power. For the past ten years I have had very satisfactory results from its use.

I am Sir, yours very truly,

GEORGE FOY.

Dublin, October 30th, 1915.

GARLIC JUICE IN THE TREATMENT OF SUPPURATING WOUNDS

To the Editor of The Medical Press and Circular.

SIR,—I am pleased to see the letter in your issue of October 20th from the pen of Dr. A. D. Serrell Cooke calling attention to some of the virtues of oleum allii, which cannot be too widely known, as, in my opinion, this drug, from a practical point of view, is the most valuable of all the antiseptics which have heretofore been introduced. It has been my custom for the past fifteen years to endeavor to ascertain the value of this drug in all conditions of diseases caused by the invasions of different bacilli into the human body; and I have found it quite astonishing to note what a large number of diseases are safely and surely cured by its use; and, also, the number of poisons and stings of insects, such as wasps, etc., which are neutralized by it, whilst the rapidity of its action is always remarkable. I have brought many references to it before the profession since 1902, chiefly in connection with tuberculosis. So far as I am aware, with regard to this disease no large experiments have been made in hospitals with it, with the sole exception of the Metropolitan Hospital, New York. At this hospital, under the supervision of Dr. Marshall Wm. McDuffie, fifty-six different modern treatments were put to a trial as to their merits as specifics in tuberculous disease. One thousand and eighty-two cases of various forms of tuberculosis were treated by means of these treatments. Garlic gave the best

results and very considerably lowered the death rate there. For a detailed list of the treatments and particulars, see the paper by Dr. M. W. McDuffie in the tuberculosis number of the *Interstate Medical Journal*, St. Louis, March, 1914, and also the report of the Hospital Committee. As the lung is an organ composed of so numerous and small air spaces and tubes, etc., when it is infected by different varieties of microbes simultaneously, it will for long, I fear, be a subject of much discussion in our profession regarding the influence exerted by each variety. My observations lead me to think that in a given case of pulmonary tuberculosis which is complicated by the presence of other infective germs, if these latter germs disappear under the action of garlic (which destroys many germs), and the patient improves, we must not assume that this patient's improved condition is due solely to his losing these, but also to the destruction of the accessible tubercle bacilli which had existed there also. If some of the tubercle bacilli are inaccessible, the disease will again slowly progress, notwithstanding the initial improvement. It is quite usual to find tubercle bacilli disappear from the sputum under the influence of garlic in suitable cases, and in this I have the corroboration of others. Regarding its specific action upon the tubercle bacillus as it exists in the human body, let us take a simple case, such as very frequently comes before me, of a localized tuberculous lesion—say, for example, a collection of infected tuberculous cervical glands, which has failed to heal under all treatments such as are applied by specialists, and which has gone beyond the limits of surgery and has been discharging for years, and continues to discharge. If it be found, as generally happens, that under local applications of garlic this collection of infected glands heals rapidly and soundly, what may we infer? I think it fair to infer that the garlic has killed the tubercle bacilli, notwithstanding the fact that other germs may have existed there too. Although my book, "The Treatment and Cure of Tuberculosis and Lupus by Oleum Allii," 2nd edition (Bailliere, Tindall and Cox, 1915) does not properly deal with other diseases than tuberculosis, perhaps, I have incidentally mentioned enough of the virtues of oleum allii to cause some of my reviewers to consider that I was introducing a "cure-all," and I cannot object to this, as the more I use this drug the more astonished I become to find the great number of bacilli to which it is fatal within the human body. Only last week, in *The Lancet* (October 16th), I recommended its use as being "the most valuable intestinal antiseptic I know of," and I find in your last issue a few days later (October 20th) some

corroboration by Dr. Cooke, who found it useful in infantile diarrhea. I have long since advised its use in enteric fever. It is also an excellent anthelmintic. Its most gratifying results will, however, be found in diphtheria, and its use in this disease I cannot too strongly advise. Ozena and otorrhea, tuberculous and otherwise, often yield to it like a charm, and the accompanying deafness of the latter is frequently cured. In my book will be found mention of other diseases in which I have found it curative. What I looked upon as one of the first triumphs which this drug brought before me in my solitary researches was its effect upon sores and suppurating and gangrenous tissues in times long before our soldiers suffered so severely from suppurating wounds. Going back to these days in the early part of my book (page 15), I incidentally mention the fact in the following words: "I have shown what directed my attention first to it, and I was impressed by its deodorizing effects on the expectoration from the time I commenced to use it; also on the corresponding effect on discharges from ulcers and sinuses. The other physical property which seemed to me most striking was the penetrating power of the garlic preparations. I know of no substance which will penetrate the tissues of the body so rapidly, however administered, whether applied locally to ulcerated integument, or internally through the gastro-intestinal mucous membrane by swallowing, the characteristic effects never failed to manifest themselves rapidly." I would, indeed, be much surprised if its antiseptic value is found to be low, as I believe that it destroys more infective bacilli within the human body than all the other known antiseptics taken collectively, and whilst doing so its administration is perfectly safe to our patients if it is properly applied.

I am, Sir, yours truly,

WM. C. MINCHIN, M.D.

Herstmonceux, Sussex, October 29th, 1915.

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