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Original Articles

PHARMACOLOGY AND THERAPEUTICS OF SALICYLIC ACID AND ITS PREPARATIONS.*

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Salicylic acid (ortho-oxy-benzoic acid $C_6H_4(OH)COOH$) is an organic acid which exists naturally in the flowers of meadow sweet (*spiraea ulmaria*), and as methyl-salicylate in the volatile oils of the leaves of wintergreen (*gaultheria procumbens*), and the bark of sweet birch (*betula lenta*). It is also a derivative, probably, by double oxidation of salicin, a glucoside, obtained from several species of *salix*, the willow, and *populus*, the poplar, trees of the natural order *salicaceae*.

Natural salicylic acid may be obtained, therefore, from natural salicylates, the oils of wintergreen and sweet birch (each representing about 81 per cent. of the pure acid), and from salicin, by heating with caustic potash and treating the product with hydrochloric acid. Synthetic salicylic acid and salicylates were first evolved by Kolbe, in 1874, from carbolic acid, caustic soda, and carbonic acid gas, with subsequent treatment as in the case of salicin. The artificial product constitutes very largely the therapeutic article in use at the present day, and, though chemically identical with the genuine, is yet, as would appear from the experiments of Stokvis, distinctly more toxic—

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a circumstance which that observer ascribes to a difference in power of osmosis and consequent greater delay in elimination of the synthetic article. Charteris' noted in experiments upon rabbits that the artificial acid, administered in much smaller doses than the natural product, was badly borne, and continued for any considerable time produced death in the animals. Undoubtedly, the untoward effects which have been frequently observed after the administration of the salicylates, are due in many cases to toxic substances such as hydrochloric acid, and—of more importance and frequency—carbolic acid derivatives (paracresotic and orthocresotic acids), which have not been fully eliminated in the evolution of the drug. There should under no circumstance be any suggestion of the odor of phenol, nor should any residue remain when the therapeutic article is heated on platinum foil.

Solubility.—Salicylic acid is soluble in 2.4 parts of alcohol; in 450 parts of water at 59 deg. F. Its solubility in water is greatly increased by the addition of the phosphates (10 per cent.), citrates and acetates of the alkalis, or 8 per cent. of borax. It may also be dissolved in 2 parts olive oil (hot), or in 30 parts sweet spirits of nitre.

PHYSIOLOGICAL ACTION.

Local Action.—Salicylic acid has practically the same effects as the salicylates and salicin when administered to animals, except that it is much more irritant to the skin and mucous membranes. Not infrequently it causes irritation of the mouth and throat when taken internally as a powder, and congestion and erosion of the gastric mucosa have been noted in rare cases. In dilute solution, it is largely free from these injurious qualities; although anorexia, indigestion and nausea are not infrequent attendants upon its use, in either way of exhibition. These effects have been ascribed to the direct interference of the drug with the action of the digestive ferments upon food. It has produced albumen in the urine and hematuria by irritation. Insufflated, salicylic acid is decidedly irritant to the respiratory passages, exciting coughing and sneezing. Applied locally to the skin, swelling of the epidermis occurs, followed, if the contact is prolonged, by desquamation, exfoliation, and eventually, by edema and necrosis. It is also anhidrotic, checking local perspiration when locally applied.

Absorption and Elimination.—Local absorption of salicylic acid when applied as an aqueous solution, an ointment, or as

the oils of gaultheria, or birch, to the unbroken skin, takes place somewhat readily. Drasche² noted its appearance in the urine in a very short time after an application of its alcoholic solution to the skin. The acid and its salts are rapidly absorbed from the stomach and intestines, and are eliminated in very much the larger part by the kidneys. Salicylic acid and its compounds are taken up by the blood as salicylate of sodium (Salkowski). The theory of Binz that the acid is liberated in the blood by the carbonic acid formed in the tissues, has been disproved by the experiments of Feser and Friedeberger. Kohler has shown that



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only in the blood of asphyxia does such a liberation occur. It is probable that even the insoluble salicylates of strontium, bismuth, etc., are decomposed in the intestines and yield their acid to the blood as the sodium salt. Kumagawa's experiment showed that salicylic acid was absorbed from the intestines so rapidly that it failed to act as an antiseptic upon the bowel contents, and thus diminish the indican of the urine. Elimination is correspondingly rapid. Soullier detected the drug in the urine ten to twenty minutes after its exhibition by the stomach in 15

grain doses. When double this dose was taken, the urine responded to the test in five minutes.

Blanchier and Rochefontaine found that salicylate acid injected into the veins of a dog appeared in the urine in eight to ten minutes; in the saliva, in four to five minutes; and in the bile and pancreatic juice, in fifteen to twenty minutes. It is excreted in the urine chiefly in the form of salicyluric acid (a combination of the acid with glycochol), but also as salicylic acid and salicylate. Under one or other of these forms, Masso recovered virtually the whole amount of the ingested drug. Ryanon found traces of salicylic acid in the urine eight days after administration of the last dose. Weill, however, regards this period of elimination as not extending beyond thirty-three to fifty-six hours.

Whether the secretion of urine is increased by the salicylates or not, has not been absolutely determined. That there is considerable increase (30 to 100 per cent., according to various authorities) in the elimination of uric acid and urea is generally accepted, in view of the experiments of Haig, Kumagawa, and others; and the influence of these salts may account for slight neurosis. It has not been shown whether the hypersecretion of uric acid and urea represents changes in metabolism with increased formation of these salts, or is simply due to an acceleration in the eliminative process. In the treatment of acute rheumatism by salicylates, this elimination markedly increased during the first few days, usually declines thereafter, oftentimes, to a point below the normal output. Prof. Sée noted particularly the increased uric acid excretion in gouty cases, following administration of the salicylates. The sulphur compounds, as well as nitrogen, are also augmented, and there is some degree of leucocytosis (Cushing), all of which indicates some modification of metabolism, but whether accompanied by an increased oxidation is yet unknown.

It is to be remembered that urines containing salicylic salts reduce Fehling's solution, as well as a pseudo-reaction to Trommer's test, to some degree, and may thus mislead. A purple color is struck with perchloride of iron solution, which thus affords a simple test for the detection of the drug. The green-colored urine observed after free exhibition of the salicylates, as well as occasionally in susceptible individuals, appears to be due to indican and pyrocatechin.

The salicylates very probably enter all the fluids of the body; they have been detected in the bile, the flow of which they

slightly augment. Pfoff noted increased concentration—the bile solids being in greater relative proportion than the fluid constituents. Traces of the drug are said to have been found in the bronchial secretions, saliva, milk, pancreatic juice, cerebro-spinal fluid, and in the serosity of blisters.

Action on Circulation.—Small doses of the salicylates have little or no appreciable effect upon the heart (Ewald, Priess, Goldammer). Some observers have, however, noted slight acceleration and have imputed it to direct action on the cardiac muscle.



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Oltremare and Danewsky found that moderate doses accelerated the pulse and increased arterial pressure; and the latter observer demonstrated that the rise in pressure was due to stimulation of the vaso-constrictor centres in the medulla. Larger doses, on the other hand, depress the heart directly and slow and weaken its action, the while the arterial pressure falls steadily. Buss and Moehli ascribe with apparent reason the slowing of the heart and fall of blood-pressure partly to the effects of perspiration and fall of temperature. There can be no doubt, however, that the tendency of the salicylates, even in medicinal doses, is to depress and weaken cardiac action.

Action on Respiration.—On respiration the salicylates have very similar effects to those on circulation. Therapeutic doses have no perceptible effect; with larger dosage, there is a primary acceleration of breathing, to be followed later by progressive slowing and more or less dyspnea; after poisonous doses, these symptoms become more and more urgent, until death eventuates from cardiac failure and asphyxia.

The respiratory centre is primarily stimulated conjointly, perhaps, with irritation of the pulmonary vagi, and later depressed or paralyzed. According to Livan, CO₂ is excreted during the period of respiratory acceleration, proportionate to the amount of salicylates ingested.

Action on Nervous System.—The nervous system is comparatively little affected by salicylic acid in ordinary doses, except, perhaps, in cases of marked susceptibility. There is usually tinnitus aurium, but this symptom is more probably due, as in quinine, to tympanic congestion rather than to any direct effect upon the auditory nerve. We have seen that under the effects of large doses the respiratory and vasomotor centres are directly affected by the drug, and the cerebral cortex is often profoundly affected as shown by the delirium, convulsions and local paralyses.

Diaphoresis.—The perspiration which follows the ingestion of the salicylates has been ascribed in part to the dilatation of the cutaneous vessels which Maragliano showed the salicylates effected in common with the antipyretics, most probably, by exciting the vasodilator centres in the medulla and, partly, by a direct influence on the sweat centres themselves (Cushing). The sweating is at times very profuse and exhausting (Ewald).

Influence on Temperature.—The temperature in health is not lowered by administration of the salicylic compounds, unless much more than therapeutic doses are taken (Sée, Ringer Furbringer). It may have some control over heat formation, however, since North observed that the ingestion of the acid inhibited the normal rise of temperature following physical exertion; North does not appear, however, to take into account the effects of exercise in producing cutaneous vascular dilatation and diaphoresis. In fever, its antipyretic action is usually very marked; it was in this rôle that the drug made its début as a therapeutic agent. It is certain, however, that its power to lower temperature varies greatly in different forms of fever (Bartels, Senator, etc.). It has a specific action in the fever of rheumatism, although, at times, it is ineffectual in controlling

the hyperpyrexia of this disease, just as quinine fails in exceptional cases to control malaria. Wolfberg and Zimmerman are nevertheless not inclined to concede any decided antipyretic effect to the salicylic acid group. Justi holds that the fall of temperature induced does not reach its maximum for five or six hours after administration. Hare, from personal studies, surmises that salicylic acid lowers fever by diminishing heat production and by increasing heat dissipation. If it be conceded, however, that the acid plays its chief rôle as an antipyretic in the fever of acute rheumatism, why may its action not be ex-



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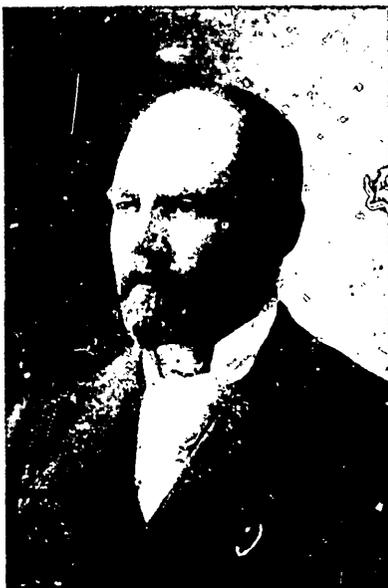
plained on the theory that it antidotes the toxin, or *materies morbi*, which in the first place is the exciting cause of the fever?

Salicylism.—In addition to the various untoward symptoms noted under the physiological effects of salicylic acid, there may be added: extreme gastric irritability and vomiting, headache, amblyopia, dilated pupils, feeble, shallow breathing, dyspnea, albuminuria and hematuria, decubitis, visceral congestions, and local necroses. Its prolonged use, even in therapeutic doses, is apt to cause marked anemia, and larger dosage may cause destruction of the corpuscles. Binz is of opinion that it is an abor-

tifacient in those women who have some tendency thereto. Certainly, menorrhagia and metrorrhagia have been ascribed to its use. Discretion should be exercised in prescribing any of the salicylates in albuminuria, renal irritation, middle ear disease, meningeal inflammations, and in diseases with marked cardiac weakness, from its well known physiological effects upon the particular structures involved in these diseases. It should be given with caution to alcoholics. The salicylates have seldom, if ever, directly caused death. Eccles¹⁵ failed to find a single fatality from its use recorded in the leading works on toxicology.

Antiseptic Action.—The movements of protozoa, leucocytes, and plant protoplasm are arrested by salicylic acid, which is also a very potent destroyer of organized or living ferments. It retards the digestion of proteids by the gastric and pancreatic juices, and the decomposition of glucosides by the unorganized ferments, pepsin, ptyalin, trypsin, etc. The decomposition of proteid solutions, of urine, and of alcoholic and acetic acid fermentations is more or less completely retarded and prevented by comparatively small quantities of salicylic acid. Prof. Dunham³ found that 1:960 salicylic acid solution was sufficient to kill staphylococcus pyogenes aureus, streptococcus pyogenes, and bacillus coli communis, in two minutes. Miller found that 1 per cent. of salicylic acid checked the action of ptyalin upon starch; to produce the same effect required 10 per cent. of carbolic acid. Vallin, on the other hand, asserts that both the ferments and bacteria rapidly acquired a tolerance for the antiseptic, and the latter transmitted this quality so markedly that succeeding generations of bacteria resisted doses fatal to their ancestors. The use of the salicylates as preservatives of foods, fruits, wines, beer, etc., has occupied very considerable attention of late years, and has called into existence regulative legislation in various countries. The continued use of salicylic acid, in very considerable amounts, cannot be without injurious results, even in conditions of health; how much the more so in cases where its use is contraindicated and yet, where its presence may not even be suspected. Neubauer and Bechamp found that in poor wines and cider even so much as 1.5 grammes salicylic acid per litre did not prevent fermentation occurring comparatively early. The Kansas University experiment determined that one part salicylic acid to the thousand (1:1000) is necessary to preserve cider. As much as 4 to 8 grains per pint have been discovered in perishable goods. In 1901 the English De-

partmental Committee recommended to Parliament that salicylic acid should not be used as a preservative in greater proportion than one grain to the pint or pound.* MacAllister and Bradshaw⁵ in England, and Eccles, of Brooklyn, have striven to show the comparative harmlessness of the small quantities of the salicylates ingested in wines and beers particularly, but it is exceedingly questionable if greater amounts are not used than they assert, in view of the results of experiments above given.



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The germicidal effect of the salicylates is well illustrated in the disease of bees termed foul brood, due to schizophytes, which is readily cured by administration of the acid in syrup.

PREPARATIONS.

Acidum Salicylicum (Salicylic Acid).—Dose, 5 to 30 grains, in pill, capsule, or powder, taken with abundance of milk or

*The French government interdicted the salicylates as preservatives of wine and beer in 1881 on the ground that even small amounts were injurious.—*Bulletin de l'Académie*, xvi., 1886.

water. Taste well covered by syr. aurantii, syr. zingiber, or tr. lavandulæ co.

Sodii Salicylas (Salicylate of Soda).—Dose 5 to 60 grains, soluble in $\frac{3}{4}$ water, 6 alcohol, or in glycerine, taste covered as above.

Ammonii Salicylas (Salicylate of Ammonium).—Soluble in water or alcohol; dose 2 to 10 grains, in wafers or capsules; antirheumatic (non-depressant), antipyretic, expectorant.

Methyl Salicylas (Artificial or Synthetic Ol. Gaultheriæ).—Dose, 1 to 10 minims.

Oleum Gaultheriæ (Natural Oil of Wintergreen).—Soluble in alcohol; contains 90 per cent. methyl salicylate, 81 per cent. salicylic acid; dose, 5 to 15 minims, in emulsion, milk, or capsules.

Oleum Betulæ Volatile (Oil of Sweet Birch, Betulol).—Dose same as Ol. gaultheriæ; very effective when used as inunction (Fotheringham⁶).

Salicinum (Salicin).—Dose 8 to 30 to 120 grains, in powder, capsules, or solution (which, however, is very bitter).

Phenyl Salicylas (Salol).—Contains 40 per cent. carbolic, 60 per cent. salicylic. Dose 5 to 30 grains in pill, powder, or capsule.

Salophen.—Contains 51 per cent. salicylic acid. Insoluble in water; soluble in alcohol; dose 5 to 15 grains (1 to 1½ drams) in 24 hours; antirheumatic, antineuralgic, anti-fermentative in intestinal indigestion, flatulence, gastrectasis, etc.

Aspirin (Acetyl-Salicylic Acid).—Soluble in intestines like salol; does not affect stomach or cause sweating, tinnitus, etc.; non-depressant, antirheumatic, antipyretic, analgesic; very soluble in acid media, and in alcoholic solutions; entitled to first rank as an antirheumatic in the opinion of many. Dose, 10 to 15 grains in cachets, powders (equal parts white sugar), or in alcoholic solution.

Bismuth Salicylate (Acid Salt).—Intestinal antiseptic and astringent; exceedingly valuable in intestinal indigestion and fermentation, diarrhea, cholera, etc. Dose, 5 to 10 grains.

Lithii Salicylas (Salicylate Lithium).—Credited with special solvent action on uric acid in rheumatic affections. Dose, 5 to 30 grains.

Hydrargyri Salicylas (Mercuric Salicylate).—Antisymphilitic. 50 per cent. hydrag. (insoluble salt); used chiefly by hypodermic method.

R. Hydrarg. salicyl gr. xxiv.
Benzoinol ʒi.

Sig.: 20 to 30 gtt. every 5 to 10 days, injected hypodermically into gluteal muscles.

Note.—Hydrarg. should be washed in alcohol, and the benzoïnol sterilized by heat.—*Fordyce*.

Sodio-theobromine Salicylas (Diuretin).—Diuretic, indicated in cardiac and renal dropsy, and in various edematous conditions (should be kept from action of air and from contact with acids); dose, 10 to 15 grains, in powder or water.

Thiersch's Solution.—Salicylic acid, 1; boric acid, 6; hot water, 500. Bland, harmless, antiseptic fluid.

Physostigminae Salicylate (Eserine Salicyl.).—Grain 2 to



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ounce solution water, for instillation; indicated in glaucoma, keratitis, neuralgia of eye-ball, etc.

Innumerable other preparations of the salicylates have so little *raison d'être* that they may be safely omitted.

THERAPEUTICS.

Salicylic acid and its preparations have been used remedially for their antipyretic, antiseptic, and antifermentative, anti-rheumatic, antipruritic, and antihidrotic properties.

Antipyretic Uses.—Salicylic acid was originally introduced by Buss, in 1874, as an antipyretic in typhoid fever. This use of the drug has been almost entirely superseded by rational hydrotherapy, next to which in effectiveness is the antipyrine series. Bartholow believes the weight of authority still inclines to the view that the salicylates are of real value in reducing temperature in typhoid as well as in pyemic septicemia, puerperal fever, and diphtheria.

Antiseptic and Antifermentative Uses.—Kalbe observed in 1875 that salicylic acid has an inhibitory influence in preventing the fermentation of milk. It is used very largely at the present day also as a preservative of meat, fruit, beers, and wines, as has been already noted. This use is far from safe. The quantity used should in every case appear on the label as a requirement of law. Salicylic acid is occasionally employed in the treatment of wounds and as a dressing. As salol, it is sometimes used as an injection in gonorrhoea, but far more frequently as a supposed intestinal germicide and disinfectant. Salol is decomposed in the upper intestinal tract into 36 per cent. phenol and 64 per cent. salicylic acid (Wood). It has been given with apparent benefit in typhoid fever, intestinal indigestion, diarrhoea, cholera, etc., although its value must seem largely conjectural, in view of the fact that Kumagawa found that putrefaction in the bowel, if correctly measured by the amount of indican in the urine, was not at all diminished by free administration, and that enormous numbers of bacteria appeared in the feces afterwards. Hare still maintains the efficiency of the drug in intestinal fermentation and diarrhoeas arising therefrom. It has also some value as a genito-urinary disinfectant, in cases of pyelitis, cystitis, and urethritis; but it is less used now than a few years ago. It is not without danger to the kidneys (particularly so if diseased), even in small doses (Hesselbach). The dark, dusky green, smoky, or even black urine characteristic of carbolic acid, is liable to follow free exhibition of salol. A soluble sulphate (e.g., Glauber's salts) is said to largely prevent injury from the carbolic ingredient, if taken continuously with the salol.

Antirheumatic Use.—It is for their unparallel effects in acute articular rheumatism that the salicylic acid preparations are chiefly prized. From their first use by Maclagan,⁷ of Scotland, and Stricker, of Berlin (1876), to the present day, they have constituted the almost exclusive remedy for this affection. Therapeutists are divided in their opinion of the salicylates as specifics.

One side, while admitting the unexcelled effects upon pain, joint swelling, and frequently upon temperature, maintains that upon the underlying cause, the tendency to relapse and to cardiac complication, they have no effect whatever. Some maintain the duration of the trouble is in nowise shortened, and that a very marked anemia and weakness follow. The other side, while admitting the danger of relapse and of cardiac involvement, maintain an exact parallelism between the effects of salicylates in acute rheumatism and of quinine in malaria, and everyone considers quinine a specific. The crux of the disagreement lies



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in the liability of acute rheumatism to relapse and to cardiac complication, under any form of treatment.

The following authorities regard the salicylates as specifics in rheumatic fever: Bouchard, Traube, Beaumetz, Strumpel, Sée, Pûbam, Lévion. Yeo, Maclagan., Charteris, Stevens, Shoemaker, Cushny, Wood. On the other hand, the following, while admitting its effects upon pain, swelling, and possibly temperature, deny that it is a genuine specific: Ewart, Jaccoud, Gubler, Broadbent, Carafy, Boggs, Spencer, Greenhow,¹³ Syers, Butler, Stengel, Hare, Bartholow.

Comparison of results under the preceding alkaline, and later salicylic treatment, so far as cardiac complications are concerned, favors the former.

St. George's Hospital reports, as collated by Dickinson,⁸ show the proportion of cardiac cases occurring under the old alkaline treatment as 1 in 54, and under salicylates alone, 1 in 12. Fuller places the proportion under the old treatment as 1 in 48. Menzer⁹ thinks cardiac complications occur under alkaline treatment in 30 per cent. of cases, under salicylates in 44.75 per cent.

THEORIES OF ACTION.

Notwithstanding prolonged investigation and fairly complete knowledge of pharmacological action of the salicylates, their mode of action in rheumatism is very imperfectly understood (Hale White¹⁴):

There are three well recognized theories of their action in acute rheumatic fever (Ewart¹⁰).

1. As *Sedative Remedies*.—That of a nerve check suppressing the pyrexia through influence on the nerve centres, and by allaying local inflammation through influence on peripheral vasomotor mechanism—active while treatment is continued; powerless, however, to modify the course of the disease.

2. As *Antiseptic Remedies or Bactericides*.—This presumes the bacterial origin of acute rheumatism from its close resemblance to acute infectious diseases. The theory is coming into general acceptance; but until the specific organism is identified this view is a mere postulate. Dr. Menzer, a strong advocate of the infectious origin of rheumatism, believes, nevertheless, that salicylic acid is not a direct bactericide, nor has it power to increase the bactericidal influence of the blood. By studying elimination through the urine, Gifford¹¹ reaches the conclusion that the amount of salicylic acid in the blood is never greater than 1:52529, while a strength of 1:1000 to 1:500 is necessary to be considered germicidal.

3. *Metabolic or Antitoxic Remedy*.—The salicylates, according to this theory, correct some fault in the blood or lymph (lactic acid and its combinations—Prout and Latham), by neutralizing an infectious toxin, or by dealing with the products of unhealthy and disturbed metabolism. It is objected to this theory that we do not have conclusive evidence of excess of lactic or uric acids in the blood, although it might afford some explanation of the characteristic hyperacidity and of the presence of salicylic acid, etc., as decomposition products in the urine.

The greatest danger in acute rheumatism is the pronounced tendency to heart involvement, and every case should be regarded, not as an arthropathy, but first and before everything else, as a case of impending peril to the heart, endangering the whole after-life of the patient. The combined use of the salicylate and full alkaline treatment gives the best results. The case should be treated vigorously. A cholagogue purge, first of all; then sodium salicylate in 15 grain doses every 2 to 3 hours, so that from 2 to 3 drams are taken in the first 24 hours, unless



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tinnitus is marked, when the dose should be diminished; or *ol. gaultheriæ* (natural), gtt. 10 to 15, in capsules or emulsion every 2 hours; or salicin in 20 grain doses; or strontium salicylate in like doses—given in every case until a constitutional impression is made, as evinced by tinnitus. Parallel with the salicylates, the alkaline treatment should be pushed. The alkali may be given in combination, or better by itself. Dickinson gives potass. carb., 1 grain, every 3 hours, until the urine is distinctly alkaline, then at longer intervals. Others give sodium bicarb., potass. cit., or potass. bicarb. The urine should never become acid during the whole course of treatment. Conjointly with

the interval treatment, ol. gaultheriæ and ol. olivæ aã, should be applied on lint to the affected joints, and surrounded with oiled silk or other impermeable covering. Another good local application is ol. gaultheriæ, ½ ounce, and ungt. ichthyol (10 per cent.), 2 ounces, covered, and the limb bandaged. Where the stomach is intolerant of the salicylates, salophen in 10 or 15 grain doses, or aspirin, can be used. The latter preparation is very highly commended for the relief of pain and pyrexia, and it does not cause such copious sweating as the salicylates (Mackay). Or, again, the salicylates may be given by enema, the bowels having first been washed out with warm water, 20 to 40 grains every 4 to 6 hours may be so administered with excellent results. The patient should be clothed in flannel, head to foot; kept perfectly quiet in bed, with simple diet and abundance of water, and the salicylates should be continued for a week or more after disappearance of every symptom. To counteract the anemia, Peabody gives pyrophosphate of iron along with salicylic acid:

℞. Acidi salicylici.....	ʒii.
Ferri pyrophosphates.....	ʒi.
Sodii phos.....	gr. xii.
Syr. aurantii.....	ʒiii.
Aquæ q.s.....	ʒvi.

M. Sig.: One-half ounce every two hours.

Gonorrhœal Rheumatism.—Salicylates of very little value; much better is syr. ferri iodid, 1 dram t.i.d.; for the pain, *analgesique baume* (methyl salicyl) affords great relief.

Muscular and Chronic Rheumatism are often benefited by the salicylates. Bartholow recommends in the latter:

℞. Acidi salicylici.....	ʒiii.
Elix. cascariæ sagradæ	ʒvi.

M. Sig.: One-half ounce two or three times daily.

In *Gout*, Haig and Sée find them beneficial, while Duckworth, Luff, and others do not regard them of much value.

In *Tonsillitis*, some claim the drug is specific.

In *Pleurisy with serious effusion*, 1 to 2 drams daily of the salicylates is often very effective. Stengél thinks them of great value.

In *Graves' Disease*, which W. H. Thomson¹² thinks is largely due to gastro-intestinal toxemia, he regards the salicylates of great value in acute form, when onset of symptoms is rapid and severe; should be given as freely as in rheumatism.

Sciatica is frequently benefited by the salicylates.

In *Glaucoma*, Gifford¹¹ found the drug of great value, giving one grain for every pound of body weight in the 24 hours, also in non-specific inflammation of the iris.

Antipruritic Use.—In *Urticaria Chronica*, 20 grain doses of sodium salicylate is often of very great service. It is also used as a dusting powder with starch and zinc. It is extensively used in eczema, particularly in the subacute and chronic stages. For ordinary ringworm, the following, painted over the area twice daily is rapidly specific:

R. Acidi salicylici..... gr. x.
Collodii..... ʒss.
M.

Antihidrotic Use.—For *Hyperidrosis* of the feet, equal parts salicylic acid and starch, or talc, will remove the fetor and arrest the trouble, and the same may be used for sweating of the axillæ.

For *Corns*, the following applied every night is generally very effective: Acid salicyl. parts 10; ol. terebinth, parts 5; acetic acid glacialis, parts 2; cocain hydrochlor., parts 2; collodii, parts 100.

In *Diabetes Mellitus*, sugar sometimes disappears from the urine on administration of the salicylates, although it recurs on discontinuance of the drug (Müller).

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| Hare : | " | 1902. |
| Shoemaker : | " | 1901. |
| Stevens : | " | 1903. |
| Lauder Brunton : | " | — |
| Yeo : | " | — |
| O'ser : | "Medicinè" | |
| Strumpell : | " | |
| Sajous' Annual and Anal. Cyclopedia, etc. | | |

SMALLPOX.*

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Owing to the great ravages of this disease from very early times the words in Ben Johnson's epigram very strikingly apply to the universal results which followed its course, not only in Europe, but in Asia, and also later in America, and indeed it was not until the nineteenth century, when the beneficial effects of vaccination were noticeable, and that it could not be said of it, "Envious and foul disease, could there not be one beauty in an age, and free from thee?"

The earliest records in regard to the disease are to be found in the writings of Hindostanese, many centuries before the beginning of the Christian era; and next to these come those of the Chinese, which date from the twelfth century B.C.; then follow several Arabians, the earliest being Ahron, a physician of Alexandria, who flourished 610-641 A.D. To Rhazes, a physician of the Bagdad hospital about 600 A.D., we are chiefly indebted for a treatise on the disease. From the fact that none of these writers state the disease is of recent origin, it is surmised to have prevailed before their time.

As to its prevailing in early Greece and Rome there is some doubt, but it is probable the disease was carried along the usual channels of trade and commerce by merchants returning from the East. Certainly the spread of smallpox in Europe during the sixth century was traceable to the returning Abyssinian soldiers after the siege of Mecca, and the Arabian soldiers while engaged in the conquest of Northern Africa, carried it into the countries on the southern shore of the Mediterranean, and from there it spread during the seventh and eighth centuries into Southern Europe.

A most interesting account of the disease is given by Gregory of Tours in the sixth century. He says: "Last year the State of Tours was desolated by a severe pestilential sickness. Such was the nature of the infirmity that a person after being seized with a violent fever, was covered all over with vesicles and small pustules. The vesicles were, while hard and unyielding, very

*Read before the Huron Medical Society, Clinton, Ont., May 10th, 1904. A series of forty lantern-slides accompanied the paper.

painful. If the patient survived to their maturation, they broke out and began to discharge, when the pain was greatly increased by the adhesion of the clothes to the body." In describing the disease as it affected one of the court ladies, he states: "She was so covered with the vesicles that neither her hands or feet nor any part of her body remained exempt, for even her eyes were wholly closed by them." This distinguished lady, wife of Count Eborin, was, when nearly at the point of death, miraculously cured by drinking some water which was said to have been used for washing the tomb of a saint.



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It was a contemporary of Gregory's, Marius, Bishop of Avenche, who first used the word "variola." His words are: "This year (569-70) a violent fever with flux of bowels and variola afflicted both Italy and France." But little is known of the progress of smallpox in Europe during the Middle Ages; that it prevailed from time to time is evident from monastic writings which chiefly record miraculous cures that happened.

Manuscripts in the British Museum, written in England during the tenth or eleventh century, contain prayers or exorcisms which were used for defence or deliverance from "the

lathan poccas," and the writings of the two English physicians, Gilbert Anglicus and John of Gaddesden, who flourished respectively in the thirteenth and fourteenth centuries, both wrote of smallpox, and the latter, who was court physician, states that he treated the King's son, by what is now known as the red light cure, although this form of treatment was not original, as it was practised in the tenth century by Rhazes in Arabia, and Balq in England.

The terms *variola*, *vayrola*, *veyrola*, *vayrola*, *variolas*, and *mubus varicus*, are mentioned in the "Acta Sanctorum" as being used in England between the years 800 and 1400, and an interesting work in the British Museum entitled "Sickness and Health," written by Bullein and published in 1562, both smallpox and syphilis are referred to, the latter being spoken of as the "French pockes," and Shakespeare refers to Smallpox in "Love's Labour's Lost," when he makes Rosalind exclaim, "O that your face were not so full of O's!" to which the Princess replies, "A pox for that jest!"

We have thus far considered the existence of smallpox from the earliest times, but Ben Johnson's "Epigram to Smallpox," written in the seventeenth century, indicates how general the disease must have been, and although exact statistics are wanting, yet the following extracts from earlier writers and historians clearly indicate how prevalent and severe was the disease.

In the sixth century Gregory of Tours records: "The State of Tours was desolated by it." Later in the ninth century, Isaac the Jew states that smallpox "happens to all persons," and Rhazes writing later in the same century says that "hardly any one escapes it."

Then there follows a lapse of time coincident with the "Dark Ages," during which little is known regarding it. However, in 1550, Vidius says, "All persons are attacked by it in the course of their lives," and Mercurialis held that "almost every person must have it once." Helvetius, in 1723, speaks of "the unavoidable necessity of undergoing it at one time or another." Hillary (1735) says, "There is no distemper more difficult to guard against than they are, and always have been, ever since they appeared in the world." Lettsom (1801) wrote, in reflecting upon its ravages, "The mind revolts in horror." George Bell, Edinborough, writing in 1802, says, "The smallpox is one of the most severe and dangerous diseases to which mankind is subject. Ever since its introduction into Europe, more than a thousand years ago, it has descended with undiminished violence

from generation to generation, and every effort hitherto made to extirpate it has failed."

Turning to the New World, where our knowledge of it begins in 1507, when whole tribes were exterminated by it, the records of Mexico are equally appalling, for in that country it suddenly smote down 3,500,000 persons, "leaving none," says the historian, "to bury them," and Catlin mentions that of twelve million American Indians, six million fell victims to smallpox.

As an indication of the extent and fatality of this disease, Bernouilli, the mathematician, calculated that no fewer than fifteen million of human beings died every twenty-five years during



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the eighteenth century, and Süssmelch, of the time of Frederick the First, estimated that nearly everyone had smallpox, and it carried off a twelfth part of mankind.

In view of the fact that the type of the disease which has been epidemic in this country and the United States for the past four or five years has been of an unusually mild character, it may not be out of place to consider a little more closely the fatality and the mortality of the disease as gleaned from records of a more or less exact character.

In Iceland, in 1707, 36 per cent. of the population perished. In Mexico, in 1520, "50 per cent. of those infected died of the distemper." And in England, during the eighteenth century, it is stated that from 16 to 18 per cent. succumbed to it.

Dr. Jurin, Secretary of the Royal Society, who published reports from 1723-1729, states that the risk of death from smallpox "increases after the birth as the child advances in years," and he was of the opinion that out of every 1,000 children that are born 386 died without having the smallpox, these 386 being not above two years of age. In making his calculations, however, it would appear he did not set down any deaths below two years as due to smallpox, classifying them under overlaid chrysums, infant's convulsions, etc. This admission on his part makes one very much question his percentages, knowing as we well do that the disease is very fatal to children under two years of age, as, for instance, in summing up the smallpox statistics published regarding Geneva, The Hague, Kilmarnock, Edinburgh, Manchester, Warrington and Chester for former centuries, we find that of 36,755 smallpox deaths no less than 17,252 were under two years of age.

The report of the hospital at King's Cross, which was opened in 1746, for the years 1746-1763, shows that 1,634 deaths occurred amongst 6,456 cases, or a fatality rate of 25.3 per cent., while for the last twenty-five years of the century it rose to 32.5 per cent., and later in the hospitals of the Metropolitan Asylum Board, opened in 1871, the rate varied from 18.7 per cent. to 14.2 per cent.

The following table gives some indication of the mortality among both the vaccinated and the unvaccinated in outbreaks of

PLACF.	TIME.	Total Number of Cases.	Death rate per 100 Cases*	
			Unvaccinated	Vaccinated
France.....	1816-41	16,397	16.1	1.0
Quebec.....	1819-20	Not stated	27.0	1.7
Philadelphia.....	1825	140	60.0	...
Canton Vaud.....	1825-29	5,838	24.0	2.2
Verona.....	1828-39	909	46.6	5.6
Milan.....	1830-51	10,240	38.5	7.6
Breslau.....	1831-35	220	53.8	2.1
Wurtemberg.....	1834-35	1,442	27.3	7.1
Lower Austria.....	1835	2,287	25.8	11.5
Bohemia.....	1835-55	15,640	29.8	5.2
Galicia.....	1836	1,059	23.5	5.1
Dalmatia.....	1836	723	19.6	8.2
London (Hospital).....	1836-56	9,000	35.0	7.0
Vienna (Hospital).....	1834	360	51.2	12.5
Vienna (Hospital).....	1837-56	6,123	30.0	5.0

the disease happening in Europe and America during the first half of the nineteenth century. Many others might be given,

but this one will suffice to indicate what is a well-known fact, that the type of smallpox in the past has been severe.

To further emphasize the fact that the disease has heretofore been of a severe type, I would quote the words of Dr. Moore, the historian, of smallpox. He says:

"The confession that must be made is mortifying to a professional man, for, according to such records as we possess, it appears that, in spite of all medical exertion, the mortality of smallpox had progressively augmented. It has been made evident by calculations from the bills of mortality of the City of London, renowned for medical science, that at the beginning of the eighteenth century about one-fourteenth of the inhabitants died of smallpox, and during the last thirty years of that century, when the practice in smallpox was highly improved, the mortality by this disease had augmented to one-tenth.

"But this immense and increasing consumption of human lives was not the sole evil produced by this distemper, for a considerable proportion of the survivors were pitted and disfigured; some lost one of their eyes, a few became totally blind, and others had their constitution impaired, and predisposed to a variety of complaints, which were productive of future distress, and sometimes of death. These additional calamities cannot be reduced to calculations, but as the mortality from smallpox was continually on the increase, these concomitant evils must have been so likewise."

Coming to recent dates we find the type of the disease in the City of Montreal, in 1885-6, and of which Osler in his "System of Medicine" writes, was of a like similar character to what preceded it. There were 3,164 deaths, and of the 1,332 treated in the hospital, 418 died, a fatality of 31.3 per cent. In Ontario, during the years 1884-99, the following is the record of cases and deaths:

Year.	Place.	Cases.	Deaths.	Per cent.
1884	Hungerford Township	202	67	33.0
1885	Province (Generally).....	146	16	10.9
1889	Elgin County.....	49	13	28.9
1899	Russell County.....	30	9	30.0
		429	105	24.45

Or an average mortality of 24.45 per cent.

In view of these facts, which clearly indicate smallpox was virulent in type and has prevailed for centuries, it is not to be wondered that medical writers generally have not described the disease of the type which has characterized the present epidemic. These writers naturally describe types of the disease as seen by themselves; thus it is that Osler, in his excellent text-book, describes not particular cases as seen by him during the Montreal epidemic of 1885, but gives the characteristic symptoms as seen in several hundred cases. It is the type he describes, not the severe or mild cases. So with the present epidemic. One can merely give a short description of the disease as seen in the majority of cases, ever bearing in mind the fact that there are always to be found the atypical cases no matter what standard is set forth.

The history of the disease which has prevailed for some years in this Province is briefly as follows: In the fall of 1896, cases of a mild type appeared in the Southern States, chiefly amongst the colored population, whose employment was principally that of cotton picking. These people were as a rule able to resume their occupation after the appearance of the rash, and it is supposed that in picking the cotton the scabs fell off, and in this manner the disease was spread to distant parts. It is supposed to have been transmitted to the South by returning soldiers from Cuba. From the States it spread to this Province.

The first outbreak of the disease was that which occurred in Essex County in the fall of 1899, when 272 cases were reported, with one death, a mortality of 0.39 per cent. Then in the following years the disease became more widespread, the infection in many instances being traceable to the United States. Although it became so general in this Province, yet the type did not on the whole become more severe, as shown by the mortality, although there were individual instances where the character of the symptoms approached more nearly to the text-book type.

In the winter of 1900-1 it appeared in the lumber shanties of New Ontario, having been brought there by shantymen from Michigan, one man, to my personal knowledge, being the cause of its breaking out in at least four different points, scores of miles apart. In these distant parts the disease made rapid progress before its presence became known, the hardy shantymen becoming a ready nidus for the disease from the fact that nearly all were unvaccinated, and living as they do huddled together in the shanties, one case soon spread it to the rest of the camp, and, as a matter of fact, camp after camp was attacked without one case

being ill enough to call in the services of a physician. These men had suffered from "la grippe" when it was epidemic, and here was a disease in most instances not so severe; true, a few "pimples" appeared afterward, but on the whole they felt better and work was resumed—the pimples were of no account. And it was not until February, 1891, that a case reached the notice of physician, who recognized the true character of it, that the provincial authorities were apprised of the fact.

From New Ontario the disease spread to the older portions of the Province, and has remained with us ever since, although it was virtually wiped out in the place where it first began, for the few cases occurring during the past two years have been directly traceable to an outside origin. The work done in New Ontario by the Provincial Board of Health is an example to all municipalities, for nothing was done except in conformity with the Act and Regulations; none of these was exceeded in any one particular. To their strict enforcement alone is due the results just stated, and I feel satisfied if the local authorities will but enforce the various provisions of the Act and Regulations, similar results are bound to follow when an outbreak is threatened.

The returns for the several years are as follows:

	Cases.	Deaths.
1900.....	300	11
1901.....	1,838	7
1902.....	2,797	12
1903.....	830	21
	<u>5,765</u>	<u>51</u>

which is a record of 5,765 cases, with 51 deaths, and a case mortality of 0.88 per cent.

That this is a fair indication of the type of the disease which prevailed over the continent generally, the following returns will clearly indicate:

Place.	Year.	Cases.	Deaths.
Minnesota	1899	257	11
"	1900	1,371	22
"	1901	8,485	43

A mortality of 0.75 per cent.

When it is remembered that for many years the opportunities for studying smallpox clinically have been very rare, it is not sur-

prising that the extreme mildness of the present epidemic has led to errors in diagnosis; indeed, the many peculiar anomalies which are ever presenting themselves are most puzzling to one who is constantly studying the disease.

Speaking generally, the period of incubation has been 13 days, but many cases have exceeded this by 2, 3 or 5 days.

The unvaccinated are the chief sufferers, although it will be found that now and again one who has either not been re-vaccinated for some years and who presents evidence of the primary vaccination having been more or less imperfect, is attacked, or what is in my opinion a reflection upon some of the glycerinated vaccine which has been supplied to us. Those who have said to have been vaccinated recently have been attacked with varioloid. I have never seen the unvaccinated prove immune where, for instance, in a family the disease runs an unchecked course, except in one instance, that in Essex County, where a child of seven or eight was the only one immune out of a household of eleven.

No age is exempt from it, although it will be found that in one community the disease will run through the school children before showing itself in the adults of the community, and on the other hand, adults will be the first to be attacked. The spread from one class to another depends upon the degree of intercommunicability.

The initial symptoms as a rule may be described as resembling an attack of la grippe, lasting from a few hours to three days, disappearing by crisis concurrent to the appearance of the rash. Many persons have stated that beyond a little malaise such as headache, nausea, or slight pain in the chest, stomach, or back, that there was nothing to note in their condition until the rash appeared. And again, where the symptoms have been mistaken for an attack of la grippe, the usual antipyretics have aborted the same. This fact has often led patients to blame the physician for making an error in diagnosis, they being thrown off their guard by a subsidence of the symptoms, and hence their attendance was discontinued.

When the temperature has been taken it has been found to vary from 100 deg. to 103 deg. F., and this has been noticed to drop to normal or subnormal with the appearance of the rash, except in cases where there is an accompanying congestion of the lungs or slight bronchitis.

We next come to consider the most difficult symptom of the disease—the rash. In most cases the patient is about and has often resumed his occupation before it is noticed. Frequently

the first cases will escape observation altogether. Where closely observed it will be found the rash begins as macular, though usually one is told the first thing observed is the papuli, and these are two or three days in all "coming out." In the majority of cases the rash is discrete in character and scattered. I have seen it run all the way from one to many hundreds. Occasionally a case will be found which presents the lesions more closely set and becoming semi-confluent or coherent; this occurs usually in the face, sometimes in the extremities.

The papules vary in size, and often they will develop more or less aborted matter. Sometimes papules will be noticed to abort altogether and inspissate, being subsequently shed as small scales. The lesions apparently develop between the epidermis and the layer of cells, immediately covering the papillæ, the true skin not being involved at this stage.

The papules are, as a rule, distinctly raised above the surface. In most cases they change to vesicles earlier than is usual in the disease, and often vesicles may be seen on the second or third day, and umbilication, so generally considered as a diagnostic feature, will be found only in some of these lesions.

Another change noticed as occurring at this stage is the development of solid conical elevations capped with small vesicles, which later contain either sero-purulent or sero-sanguino-purulent fluid, the latter, when dessication is complete, present a dark appearance, and when the crusts have dropped off there remains an excrescence or tubercle. This condition is mostly met with in the face; it finally passes away without disfigurement.

In some cases there will be noticed an aborting of the vesicles, which become inspissated and begin drying up about the fifth or seventh day. This is noticed chiefly on the face.

Again the vesicles may begin to assume the pustular condition as early as the fifth day, and this pustular stage will be rapidly followed by that of dessication. This, too, is noticed chiefly on the face.

While this briefly describes many of the typical cases up to this stage as seen during the progress of the disease, yet many have developed a virulence and been accompanied with symptoms quite in accord with those described in the text-books.

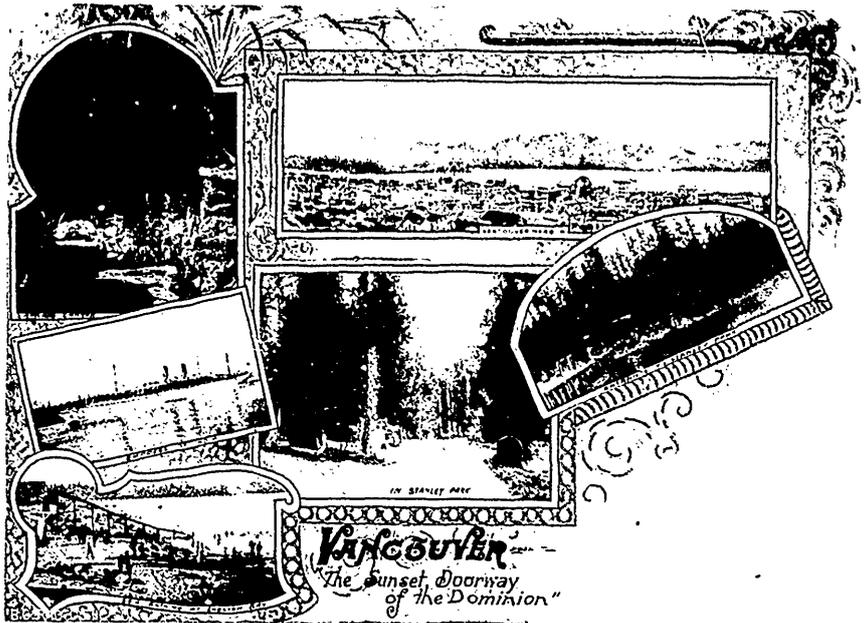
The pustular stage runs a much shorter course than stated by medical authorities, and is accompanied with much less tumefaction, and this as a rule subsides speedily, the formation of scales and shedding of the same being accomplished in from two to three weeks. There is little or no pitting, but there is left a

pigmented spot at the site of each pustule which gradually fades away.

To those familiar with variola and varioloid, it will be found that the disease resembles the latter more than the former, although there is no apparent cause for the modification, the history of either vaccination or a previous attack of smallpox, either in the patients themselves or their immediate ancestors, will be absent.

The question has been frequently asked, Why is the disease mild, and what has brought about this great departure from the classical type? These and many similar questions have been asked, and in the endeavor to explain many theories have been advanced, among these the effect of vaccination in our ancestors, giving an hereditary degree of immunity; the disease having originated in the tropical region, it has been supposed by others that the virulence has been lessened. So far as I am aware, no theory has been advanced that is tenable, and I believe this remains yet to be discovered. I certainly do not agree with those who advance the hereditary effects of vaccination as the cause, for if this were the case, how much more would it be expected that previous smallpox in successive generations of ancestors would be likely to still more modify, if not prevent, attacks of this mild smallpox. On the contrary, I have found that such is not the case, for amongst our French-Canadian citizens, whose parents and grandparents on both sides have suffered from variola of a severe form, the disease is no different than when it occurs in unvaccinated persons whose parents have never been vaccinated.

The theories that the disease is a "hybrid" or one to which a name should be given, owing to the fact that medical writers have not heretofore described it, are both in my opinion fallacious, from the fact that experience has demonstrated that the specific infection of variola is present even in the mildest cases. Further, I consider it confusing to apply the term "varioloid" to these mild cases of variola, and would reserve the term for those cases of smallpox occurring in vaccinated cases only.

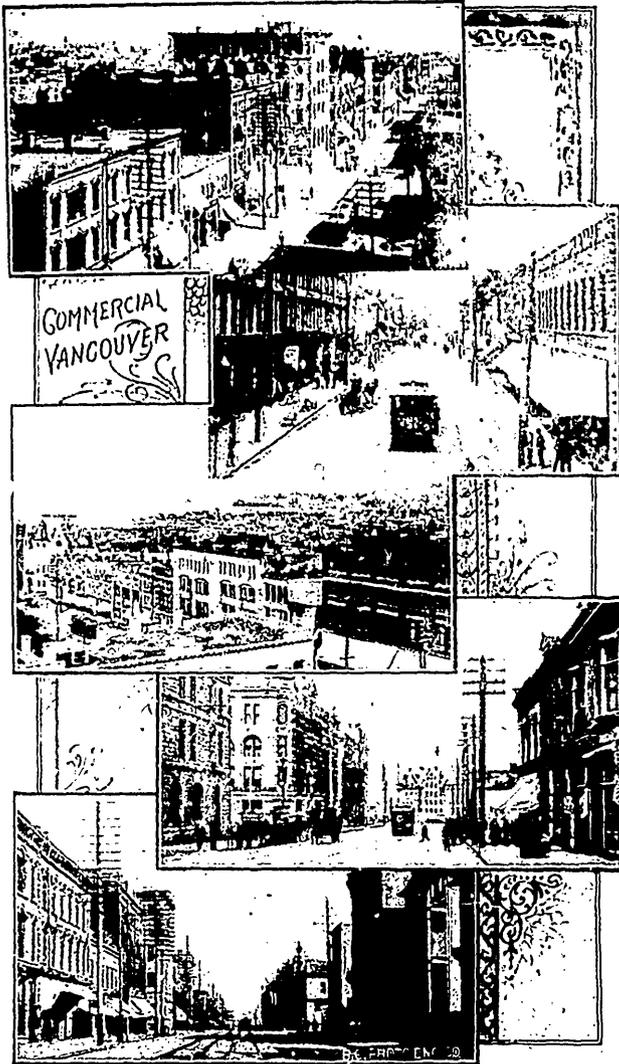


VANCOUVER.

BY A. J. BAXTER, ESQ.,
Secretary Vancouver Tourist Association.

The entrances to Vancouver are all marked by that extravagance of scenic beauty which is the pride and glory of the West. Whether one comes from the south, through timbered undulations 'mid which rippling rivers run to the sea, or across the great Rockies where peaks, snow-capped perennially, are rigid in their last mighty effort to pierce the far-off heavens; or by the sea, from which voyage is made through numberless islands and picturesque channels—all routes are similar, in that they prepare one for what is to be seen from this modern city on the shores of the western sea. Vancouver, reached by trans-continental railways and trans-Pacific and coast-line steamers, offers rare inducements to him who would commune with nature. A visit here is well worth many times the cost, and the experience a dream to be cherished in the memory, a pleasing and delightful recollection for ever after.

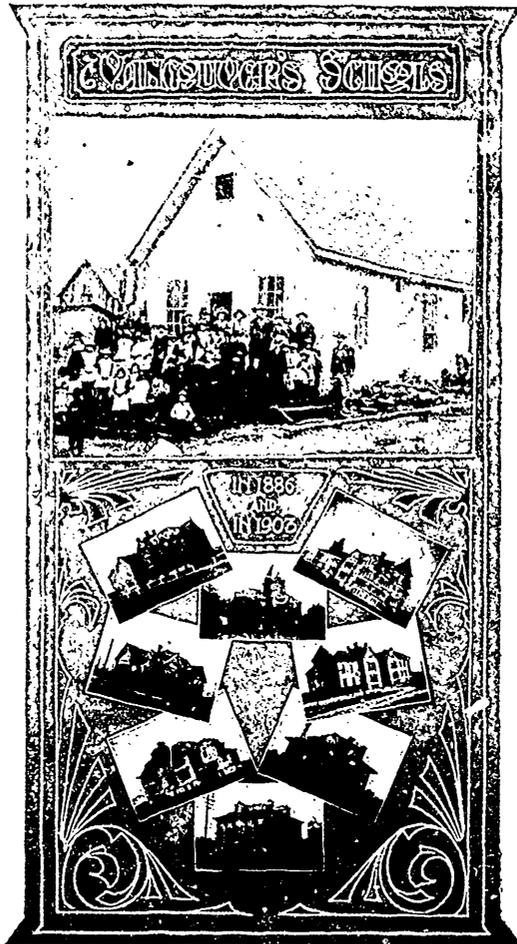
One hundred and ten years ago the site of the city was first seen by that intrepid voyager after whom Vancouver is known. It marks the place where he anticipated his greatest discovery,



that of the north-west passage to England through Burrard Inlet. To-day it is the most northerly city on the Pacific coast, from where departure is made to the icy Yukon, the land of gold, great green glaciers and mysterious mirages.

ATTRACTIONS FOR VARIED TASTES.

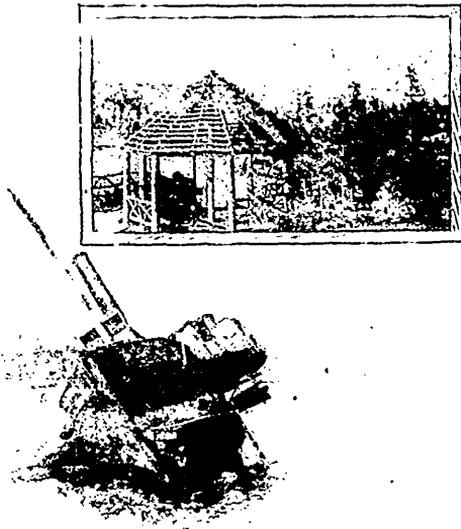
The interior of British Columbia, where agile mountain goats inhabit the lonely ozone heights, and other of the big game animals abound, is reached from here. To him who seeks the quiet



haunts of inland streams, and lures the gamey trout from the laughing waters, there are abundance of creeks and rivers to tempt him away. The mild mannered shooter, who uses the gentle kodak, can obtain magnificent perspectives and entrancing views of woodland and water at any distance from the city. To

the stout climber of heaven-kissing hills opportunities are offered within a day's journey. And to him who seeks rest and prefers cool retreats away from glaring thoroughfares there is Stanley Park, the 1,000 aced reserve, with its winding pathways, secluded arbors and inviting shades. Located adjacent to all street car lines, it is a favorite resort to the young, who may romp unrestrained, and to the old, who love peaceful seclusion.

From the road which skirts the sea, on the western limit of the park, can be seen on an evening in July the multitude of sails



Wreck of *S.S. Beaver*, Prospect Point, Vancouver, B.C.

of the salmon fishing fleet as they lie on the smooth surface keeping guard over their nets. This is a sight rarely equalled. At the hour when daylight dies, this archipelago of canvas is stretched from shore to shore, and extends far into the vanishing distance. Their number is doubled by the mirroring waters, and as the twilight deepens, light after light glimmers into the increasing darkness, and in the night brightly burn as beacons for the guidance of the passing steamers. This flotilla is only a small portion of the fleet which reaches all along the Gulf of Georgia, and may be seen on any evening from June to near September.

AN UNRIVALLED PICTURE.

Steveston is the home port of the fishermen. At the docks of that town, which is a respectable city during the fishing season, and in the vicinity, some 4,000 boats tie up. The departure of these on a Sunday evening, when all cast off together and lie away to the salmon grounds like a huge bird spreading its wings and sailing away, the retreating king of day beckoning it into the west, as it were, is beyond description, and almost surpasses the limits of the imagination. Numbers of people leave Vancouver by the special service provided by the Canadian Pacific Railway and view this unequalled sight.

While there are no others so uniquely picturesque, there are many places in the vicinity of the city quite as interesting. Just across the inlet of the sea, which forms a harbor equalling the



famous haven of Sydney, Australia, lies the quaint Indian mission. Its white painted houses are prettily situated on the margin of the water. Here the Coast Indian can be viewed to better advantage than at any other place. Order is maintained in the settlement by Chief Harry himself, who has jurisdiction within his own little kingdom. This is also the residence of the heroine, Mellis Hennius, whose record of bravery was transmitted to Rome. There are many links here between the present and the past, and none more interesting than the graveyard, where the registers of existence are inscribed with a single name, probably bestowed by some French priest in the days gone by. The mission is a suburb of the city, with three miles of sea intervening.

Beyond, the nearest of the mountains rise from the shore,

with their heavily wooded sides, and scars where slides once tore away the covering to the foundation rock. Here the snow lingers till the latter end of the summer, and the clouds, fresh from the sea, rest ere they journey inland. On Crown Mountain, which can be reached after a six hours' climb, is the crater of an extinct volcano. Adjacent are the peaks known as the Sleeping Beauty—so-called from its fancied resemblance to the heroine of the fairy tale—and Grouse Mountain, which receives its designation from the numerous flocks of the fowl of that name which inhabit its slopes.

CITY'S WATER FROM MELTING SNOWS.

In the valley below is the wonderful canyon of the Capilano, where the precipice is sheer for 250 feet, cut by the cleaver of a



Lakes o summit of Mt. Crown.

gigantic convulsion. Here one may see the giant Douglas Fir clinging to the rocks at the base, and stretching upward with its 150 feet of length, in a faint endeavor to attain the top. Farther up the valley, and reached by bicycle or horses, over a winding roadway, is the source of the water supply of Vancouver, obtained from the melting of the unsullied snows. Over the range is another valley, and the small river which rushes and tumbles through the rocky rifts finds its beginning in a glacier, which is a comparatively short distance from the city.

On the shore, a wide margin has been left by the mountains as they retreated to their rocky fastnesses. Here is the nucleus

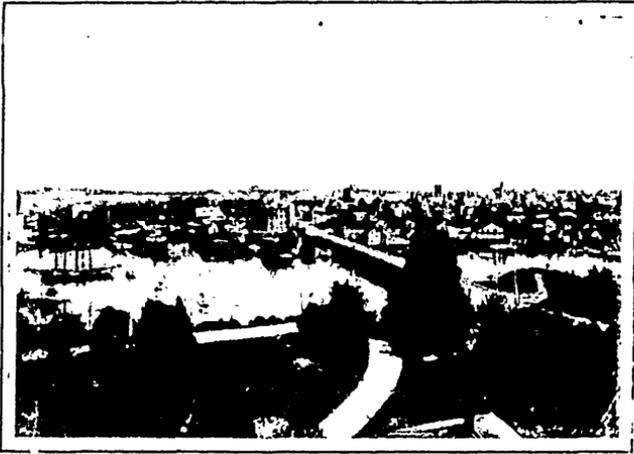
of another city, which is now the resort of campers and other summer residents. This is but one of the many places offered to those who wish to spend an outing. Near to the city are the sea beaches, and along the coast, varying in distance from three miles to one hundred, is place after place, each with accommodation for the holiday seeker, and every advantage for outside enjoyment. Fishing, boating and hunting in season can be obtained almost at the doors of the convenient hotels located on both islands and mainland.

Inland from Vancouver are the small towns on the banks of the turbid Fraser—the remnants of the mushroom villages which sprang up with the exciting rush to the unknown golden Cariboo in the early sixties. The earliest city of the province, New Westminster, is reached by a three-quarters of an hour ride on the electric railway from Vancouver. Here forty years ago was a city of 5,000 inhabitants, and to-day the starting-point of the rushing gold seekers is a prosperous city, quietly resting after its youthful excitements. Here, too, is to be the bridge to span this mighty river, a construction which will rank among the greatest of the continent.

A PANORAMA OF BEAUTY.

The whole western country is a panorama of beauty and a scene of bustle. Bordered by mountains and ocean, its salubrious atmosphere singing with the purling of short-lived streamlets, and echoing with the roar of mighty rivers, its slopes wooded with fir and cedar, it offers a delightful paradise which conjures the eye with its rough and rugged beauty and charms the soul with its bold and heroic sublimity, interspersed with wild and limitless glories.

Great in its possession of unlimited resources, with its wealth of products of mine and sea and forest, it is the centre of the future commercial activity of the world. And Vancouver, midway between the hemispheres, the point of egress from the new and the entrance from the old, stands amid its unsurpassed surroundings, the coming metropolis of the northern Pacific Ocean.



VICTORIA, B.C.—AN OUTPOST OF EMPIRE.

BY HERBERT CUTHBERT, ESQ.,
Secretary Victoria Tourist Association.

The people of Eastern Canada until quite recently seemed to be of the opinion that Canada consisted of Ontario, Quebec, and the Lower Provinces. They almost ignored the Greater Canada, that vast empire which lies to the west of Lake Superior and to the east of the Rocky Mountains, in which there is room to place every man, woman and child in the United States and give them each an acre of the best agricultural land, and then have as many as three acres each of good cattle land to spare. As for British Columbia, it was never taken seriously; in the Eastern mind it was almost an unknown region. They used to say of British Columbia that it was nothing but a sea of mountains, broken by forests and rivers. Well, what they said in derision in days gone by we are proud to acknowledge to-day, for the banks of those rivers have been literally lined with virgin gold, and from their depths there has been derived a product that has yielded millions of dollars annually to the people of the province. Those magnificent forests have contributed and will continue to yield immense wealth when generation after generation has passed away, and the forests of other and older countries have ceased to exist, and those mountains—those glorious, sublime mountains—are

God's treasure-houses, in which he has stored a wealth of minerals, of coal, of iron, of copper, of silver, and of gold that will take centuries of toil to extract, and will provide employment for countless thousands now unborn. And lying at the foot of these mountains, nestling between these forests and the mighty rivers, are many beautiful valleys, from whose virgin soil will spring the means of sustenance for the future inhabitants. And this combination of mountain, forest and stream has been so laid out by the Almighty Architect that the whole 400,000 square miles



A Charming Drive past the warships, Victoria, B.C.

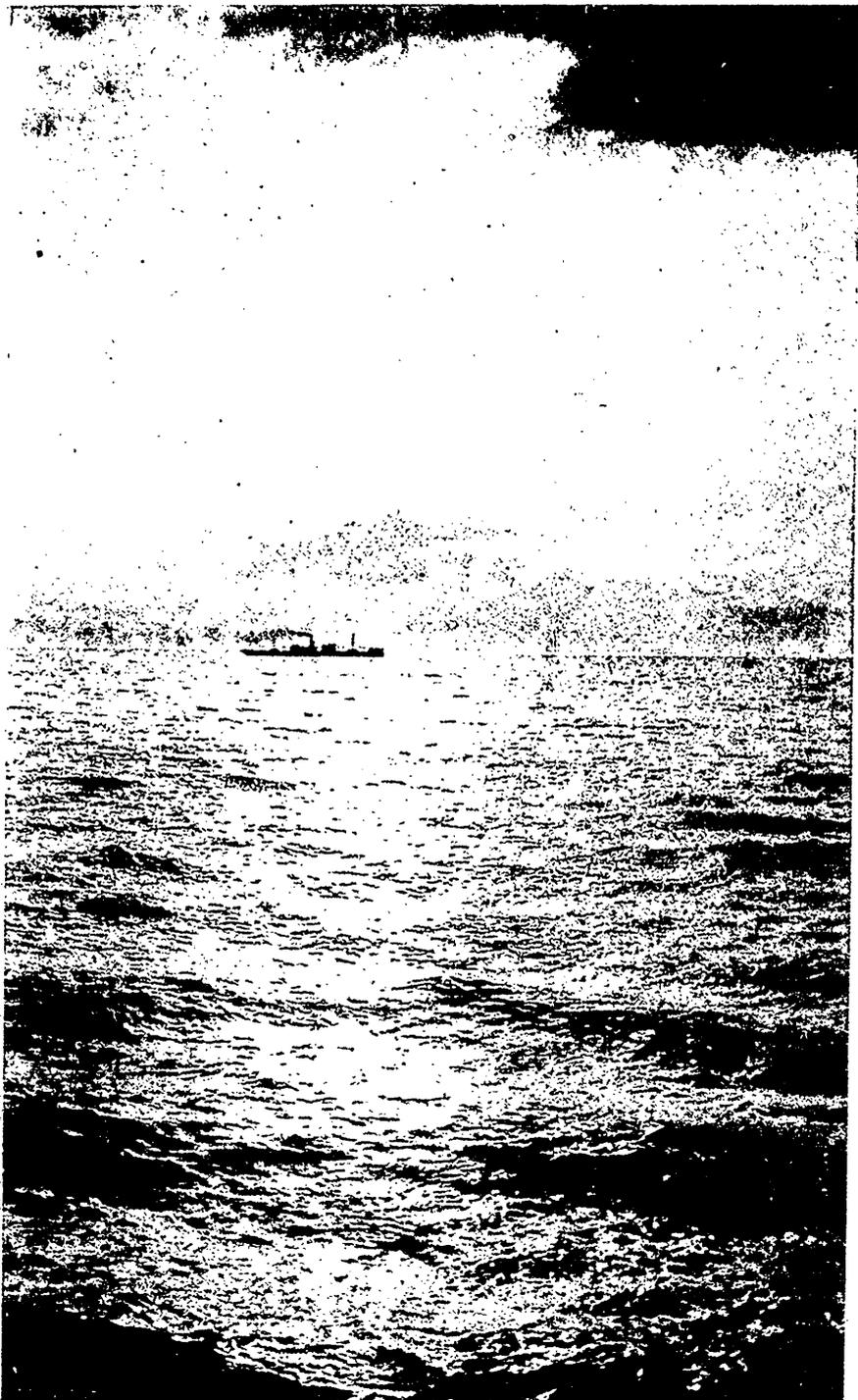
is one vast amphitheatre of scenic grandeur that is the wonder of the world.

However, the past three years have seen a great change in the attitude of the East to the West, and in the conception which the best-informed citizens have of the value of this truly great West to the Dominion as a whole. It is in the West that they realize they have a market for their manufactures, and that in the development of the West lies the future prosperity of Canada. True, this feeling is confined chiefly to the middle West, British Columbia still being very badly neglected by the Easterners.

The trip of the Canadian Manufacturers last year, however, did a great deal to remove many erroneous impressions and to create an interest in British Columbia that will do a great deal of good, and which will, without doubt, help to create a more adequate idea of the enormous national importance of Canada's western seaboard. And it is about time that British Columbia did receive a little recognition from the East, that Canadians did realize that this province is, on the Pacific, what the whole of the Maritime Provinces of the East are on the Atlantic, to the Dominion. How it has been possible to ignore it so completely in the past is a marvel, comprising, as it does, 480,000 square miles, possessing a climate unequalled in the rest of the Dominion, rich in minerals, timber and fish, and other natural resources, abounding in large and small game of all kinds and in game fish, the scenic wonderland of this vast continent, the outlet to the Orient for all the trade and commerce not only of the Dominion but of the Empire (the future of the shipping possibilities it is impossible to estimate), it is difficult to understand how it is that the manufacturers, the capitalists, and the politicians of the East should have failed for so long to realize its paramount importance and value and its ultimate destiny.

The most important factor in dispelling this antipathy is in getting the Eastern people West, so they may see for themselves what the country really is, and therefore we hail with satisfaction the prospective tour of the members of the Canadian Medical Association.

The most western city which these delegates will visit is Victoria, the capital of British Columbia, the Ever-Green City of Canada, and, without doubt, the most beautiful and interesting city on the Pacific coast. For many years the history of Victoria was the history of British Columbia and Western Canada, and many historical scenes and events of grave importance to the Empire have been enacted there. The terms of confederation with Canada were made by her representative citizens, and Victoria has every reason to be proud of the public men who in years past guided her destinies and those of the province of which she forms a part. Victoria has grown steadily until she is now a city of nearly 30,000 people, with splendid public buildings, paved streets and sidewalks, beautiful parks and recreation grounds, electric lighting and street railway systems, costly and efficient sewerage, and possessing more hotel accommodation for strangers and visitors than any city in Canada west of Toronto. It is here that the only British Naval Station on the Pacific is situated and



which gives her the name now almost universally applied, "An Outpost of Empire." Should any trouble with Great Britain arise out of the present unfortunate war in the East, Victoria will be the centre of stirring events and of almost universal interest. This naval station is at Esquimault, a suburb three and a half

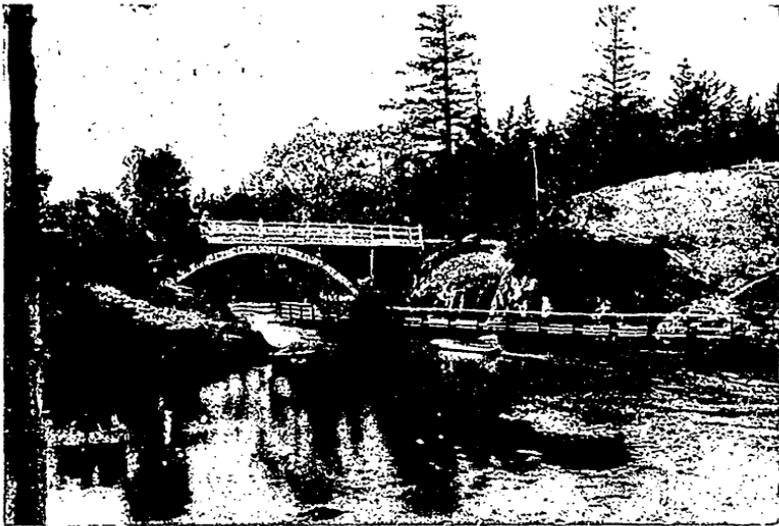


miles from the centre of the city, and is naturally of great interest to visitors. There is a large dock yard, containing engineering and repairing works, ammunition magazines, warehouses and ship stores; while immediately adjoining is the immense dry dock, with the large coal bunkers and vast stores of coal always up to war strength. The harbor is sheltered by the point upon

which the dock-yard is situated, and is, very picturesque, and there are always some of the war-ships in port. The harbor and dry dock are protected by strongly fortified forts which are scattered over several miles of the surrounding country.

Of course the development of the natural resources of British Columbia, and particularly of Vancouver Island, will add very materially to the prosperity of Victoria. It is, however, as a residential and tourist, as well as a commercial city, that she is now getting a world-wide reputation, and whatever time a visitor to the province spends in other cities, he always desires to spend double in Victoria.

It is impossible to describe the natural scenic attractions of



Victoria, many globe-trotters having declared that it is the most beautifully-situated city in the world. But perhaps it is better to take the description of these features of this "Outpost of Empire," from a stranger rather than one from a resident. The Rev. P. M. MacDonald, of Toronto, publishes in his little book, "Letters from the Canadian West," the following:

"In this old city you can see the frequent Englishman. The military air is around you. The soldiers of the King and the sailors, too, walk the streets. The bugle call sounds on the evening wind. The measured step and easy pace of John Bull are noticeable.

"Victoria is the City of the Rose. White and red varieties in unimaginable profusion grow here on the Coast. The first

season (in June) is just passing, and the lawns are carpeted with pink and white petals. The second season comes when our autumn winds are wailing about the winter's approach. Here they pluck the new-blown rose on Christmas Day from the vines that clamber up the side of the house and peep into the living rooms through the open window. This is Canada that Kipling miscalled 'Our Lady of the Snows.'

"The view of the Straits of San Juan de Fuca, with the Olympian range and majestic Mount Baker eternally capped with white, in the distance, is one never to be forgotten. The tourist has found out this clean, quiet city and his tribe is on the rapid increase.

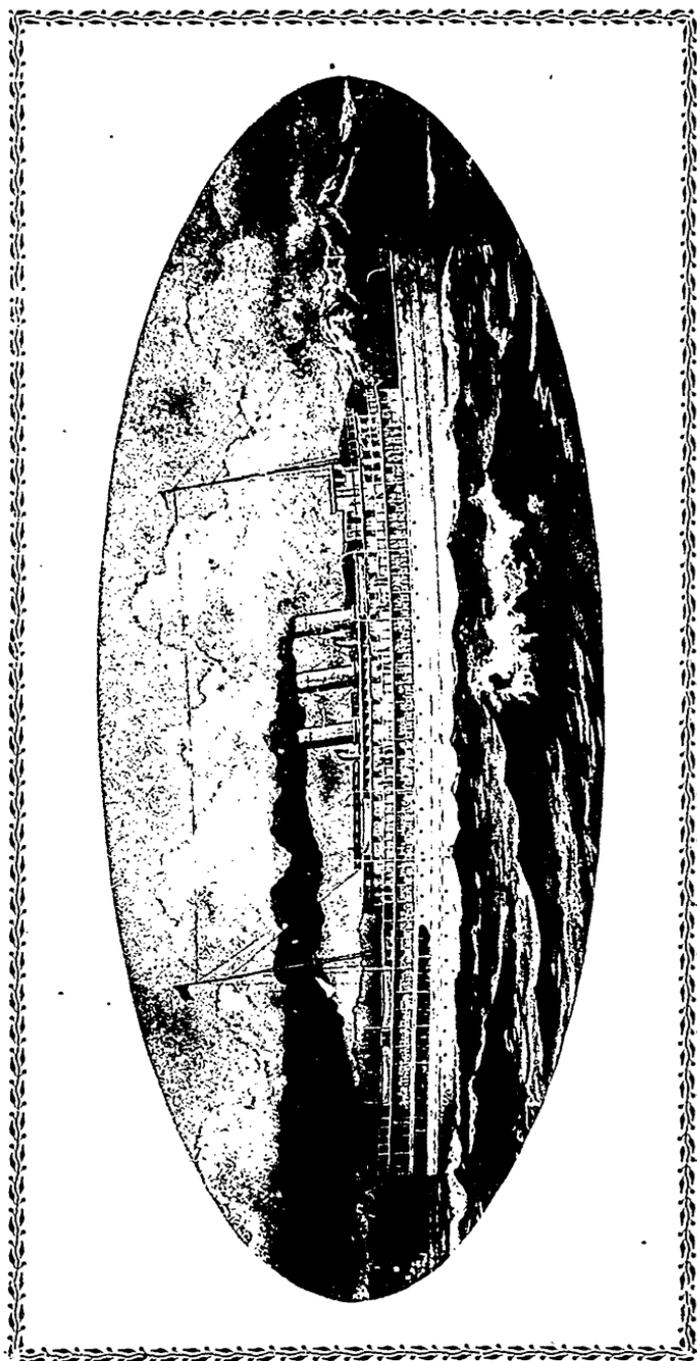
"Victoria's citizens are healthy and wealthy and wise; though they may not plead guilty to each of these charges. They are healthy because they can 'go'; and they are wise because they 'go slow.' They are proud of their city—small wonder—and they cannot see why all the Vancouver folk do not sell out and come to Victoria.

"The city has a very rich country behind it. Vancouver Island has great mineral wealth. On the West Coast, cinnabar is found in abundance, and at Alberni gold has been discovered. The timber of the country is very large and fine; the big Douglas fir and the mammoth cedar, centuries old, are waiting for the logger and his axe.

"Vancouver Island, in the neighborhood of Victoria, is peculiarly well suited to fruit-growing. Every variety of fruit grown in temperate climates attains to a wonderful excellence, and in this line the prospects for great development are very bright. The moisture and the mildness of the climate make the Coast and the Island almost tropical in regard to vegetation; in the big woods, ferns and undergrowth form a veritable jungle.

"Victoria has a thing of beauty and, they hope here, a joy for ever, in the Parliament Buildings. Both in form and finish they are unsurpassed in Canada, which, of course, is a large statement, but a correct one."

Such is Victoria, Great Britain's most western outpost of Empire. Her climate in summer is perfect, and in winter is very similar to that of England. A large number of Eastern people, tired of hard winters and hot summers, are becoming permanent residents of the city, and it is safe to say that an era of prosperity is now dawning that will make her in a few years not only the most beautiful and the most healthy, but the most prosperous for her size, of all the cities on the Pacific coast.



Therapeutics.

The Treatment of Whooping Cough.

Louis Spitz, in *The Therapeutic Review*, summarizes the various remedies that have been employed in this obstinate affection. Antipyrin given in doses of from 1 to 3 grains every 5 hours, will nearly always decrease the number of paroxysms, but not the severity of each attack. Solution of quinine, 1 grain to 1 ounce of water, applied to the pharynx by means of a spray, is useful to allay symptoms as well as for a prophylactic measure. Tincture of belladonna and nitrate of amyl have been employed with good results. Benzine by inhalation has benefited some cases, and the French have administered it internally in this condition in doses of from 10 to 15 drops, But this is not to be recommended." Madison Taylor, of Philadelphia, states that relief is almost immediate from hot poultices applied to posterior surface of lungs. C. G. Kerby has made comparative studies of 752 cases, and he believes that antipyrin controls the paroxysms better than any other drug employed. Brilliant effects are claimed for aristochin, a tasteless quinine preparation, by numerous German physicians, a cure often being noted in from one to four weeks, the effects being especially noticed in children under one year. Martindale's emulsion of bromoform is as follows:

℞. Bromoform	½ fluid dram.
Tinct. senega	3½ fluid dram.
Syrup of orange	½ ounce.

M. Shake and gradually add water to 6 ounces. Sig.: Dose, 2 to 4 drams.

S. Henry Dessau believes that mild cases of the disease will end in a short time, no matter what the treatment; in severe cases it is often very difficult to find any drug to prove effective.

The Treatment of Typhoid Fever as Carried out in Johns Hopkins Hospital.

McCrae (*The Practitioner*, 1904, Vol. LXXVII., p. 161) believes that typhoid fever can be much more satisfactorily treated at a hospital than in the patient's house. Not only so far as the patient is concerned, but because of the danger of spreading infection is much diminished. He describes the treat-

ment carried out in Prof. Osler's clinic in the Johns Hopkins Hospital as follows:

The diet is of milk and albumen water, of the former of which the patient receives four ounces diluted with two ounces of lime water every four hours; of the albumen water he receives the white of one or two eggs in four ounces of water flavored with lemon or orange juice, every alternate four hours. In patients with whom milk does not agree, some of the modifications, such as buttermilk or koumys flavored with vanilla, or some similar preparation may be employed. Their patients are allowed tea or coffee, or cocoa, as well as ice cream, at any stage of the fever. Bouillon and similar preparations are sometimes resorted to, but not often. The beef tea preparations and peptonates are never used. A point of great importance in connection with the diet, is to see that the patient gets a sufficient amount of water. The rule is that every patient shall receive at least three quarts of fluid in 24 hours, while some of them take as much as twice this quantity.

The hydrotherapy is employed from the beginning. He does not believe that the main object of the use of the cold bath is the reduction of temperature, but on account of its effect on the nervous system and the stimulation to the circulation. The rule as to tubbing is that the patients are tubbed every three hours when the temperature is 103.5 degrees or above. The water is from 70 to 85 degrees, and the bath lasts from 15 to 20 minutes. It is advantageous to commence the bath with a higher temperature, after which the temperature of the water may be reduced as the patient becomes accustomed to the mode of treatment.

No purgative is employed during the febrile period, a state of constipation being considered desirable. If necessary the bowels are moved every second day with some simple enema, occasionally in conjunction with an injection of oil. If diarrhea occurs the diet is reduced, the milk being cut off and the looseness of the bowels controlled with bismuth or lead and opium. For tympanites, turpentine, either externally or internally, is employed. Much attention is given to the condition of the mouth, the patient being made to cleanse the mouth after each feeding, either with a dilute solution of carbolic acid or a saturated solution of boric acid.

As for drugs, none are used routinely. *Alcohol is given for the extreme toxemia and failing circulation, and for weakness of

the pulse, strychnia and digitalis are employed hypodermically. Intestinal antiseptics are never administered.

In the convalescent period, solid food, in the form of scraped beef or sweetbread, is allowed on the 10th day. The patient is allowed to sit up in bed the same day and allowed out of bed in a wheeled chair three or four days later.—*The Therapeutic Review*.

Pruritus Ani.

In those interesting cases of pruritus ani, Tuttle (*American Journal of Dermatology*) where sleep is impossible, prescribes the following:

R. Ac. carbolic	.....	ʒii.
Ac. salicylic	.....	ʒi.
Glycerini	.....	ʒi.

The patient should apply this about the anus and up within the anal canal once or twice during the night, in order to give him rest. Tuttle further states, where the disease is due to parasites or infection of the hair follicles, this remedy may be curative as well as palliative.

For Bites and Stings of Insects.

John V. Shoemaker employs for these:

R. Infusion of digitalis	.....	ʒii.
Spirit of nitrous ether	.....	ʒii.
Brandy	.....	ʒii.

M. Dose, one to two teaspoonsful in water every two or three hours.

The Treatment of Pneumonia.

R. S. Thornton, Deloraine, Manitoba, in *American Medicine* discusses the different points in the treatment of pneumonia. Rest is the chief indication, general as well as local, which means the avoidance of any muscular movement calculated to lay strain upon the heart muscle. Patient should not be allowed to sit up for food, or to get up to void urine or empty the bowels. Then there should be no talking to the patient by sympathetic friends. He advocates the employment of poultices up to the time of consolidation, when they should be discarded. After these the cotton jacket is to be used. Restlessness, sleeplessness, delirium and cough are to be relieved as far as possible, and he recommends for this $\frac{1}{6}$ grain morphia. If further pain de-

mands more, codein is preferable. He enters a plea for the employment of the active principles rather than the uncertain tinctures and extracts. For many years Thornton has abandoned whiskey and brandy in these cases, and believes we have as satisfactory stimulants in the carbonate and the aromatic spirits of ammonia.

The Formalin Treatment of Laryngeal Tuberculosis.

L. B. Lockard, Denver (*Colorad. Med. Times*, Nov., 1903) considers formalin to be more generally applicable and effective than any other remedy for laryngeal tuberculosis. Besides its pre-eminent germicidal effect is another hardly less essential, its absorbent or shrinking power upon hyperplastic tissue.

It is also pointed out that while formalin is positively germicidal in strength of 1 to 75,000 locally in the larynx, without any inconvenience other than momentary smarting, which can be controlled by the previous use of cocaine, we can use solutions as strong as 1 to 50. As to its prohibitive action upon secondary invasion there can be no question. The remedy has been condemned by some who have neglected to remove vegetations and infiltrations surgically. Lockard has seen several cases where complete cicatrization has followed the use of formalin upon extensive ulcerations of the epiglottis, so often considered hopeless. Another property of the remedy is its power of producing anesthesia.

Almost every observer who has reported against it has used it inefficiently.

Lockard advises daily or at least tri-weekly office treatment with a spray of one-half per cent., and vigorous rubbings with a 3 to 10 per cent. solution, depending upon the degree of involvement and the susceptibility of the individual. In addition to these daily treatments, a spray of one-half per cent. solution should be used at home three or four times a day, so arranged that the intervals are never more than three or four hours.—Abstract by Eaton in *The Laryngoscope*.

Eczema of the Palms of the Hands.

The following combination has been recommended to the Therapeutic Department of *The Journal* by Dr. C. C. Gentry, of Antrim, Pa., in the treatment of eczema of the hands, especially eczema involving the palms of the hands. Although our attention has not been previously called to a similar combination,

it deserves attention on the recommendation of Dr. Gentry. The formula is as follows:

R. Formaldehyde (40 per cent.)..... gtt. x-xv.
 Petrolati..... ʒi.

M. Sig.: Apply thoroughly night and morning.

J. A. M. A.

Notes on the Therapy of Acetanilid.

J. R. Johns, in *American Medicine*, gives these points on the therapy of acetanilid: Acetanilid is most frequently employed as an analgesic. Too large a dose is quite generally stated in the literature of acetanilid. The dose ranges from 2 to 8 grains, with a maximum of 30 grains for the 24 hours. Ten grains at a dose is probably never necessary. While the combination with caffeine is no doubt a good one, partiality is shown for one with monobromated camphor, which is found in all tablet lists.

Acetanilid is particularly inimical to morbid reflexes in the sensory sphere. Small doses, 1 to 2 grains (less than 1 grain in children), produce a sense of ease and quiet within. The effects of acetanilid upon the nervous system are sedative, analgesic, antispasmodic, antipyretic, and antiperiodic. In addition to being beneficially palliative, these effects are in a large measure also curative. Acetanilid is our best remedy for the relief of pain not due to local inflammation, reflex pains, etc., the cries of nerve centres, the fury of nerve storms, the dyscrasia of the sensory nervous apparatus.

Its use is indicated in the pains of tabes, gastralgia, functional dysmenorrhœa, sciatica, rheumatism, neuralgia, migraine, etc. Acetanilid is a valuable adjunct, as a modifier of action, to such remedies as quinine, the salicylates, opium, and calomel. The value of acetanilid in combination with calomel in the treatment of acute and subacute maladies in children cannot well be overestimated. I know of no condition in which small doses of calomel, with or without sodium bicarbonate, are generally used in which acetanilid could not be advantageously combined in the treatment.

There are two instances in which acetanilid is the best drug to employ: 1. When the indications for treatment are not clear; when you do not know what to give—give acetanilid. 2. When only the psychic features of the case demand drug treatment give acetanilid in 2 grain doses. It is as harmless as any placebo, and may be depended upon to produce a favorable mental effect.

Dominion Medical Monthly

And Ontario Medical Journal

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No. 6.

WINNER IN PRIZE COMPETITION.

Robert Macdonald, A.B., M.D. (University of New York Medical College, 1894), New Glasgow, Nova Scotia, is the successful contestant in the DOMINION MEDICAL MONTHLY Prize Competition. His paper appears on page 311. The article was written over the *nom de plume* of "Experience is Fallacious, Judgment Difficult."

TO VANCOUVER AND VICTORIA.

In this issue are presented several views of the cities of Vancouver and Victoria, the Mecca of Canadian doctors during August. There are also photos of several members of the Executive who are exerting themselves on behalf of those members of the Canadian Medical Association who purpose being in attendance at the thirty-seventh annual meeting of our national medical organization. The opportunity to visit the Coast in company with fellow-practitioners from all the provinces should not be considered lightly. It is one which may not present itself

again in a good many years. Flatly, the cost will be about \$150 for the trip, and the time away from practice may be made to be either two weeks or two months. There will be a very attractive programme, both intellectual and social, which will probably surpass anything yet done at any of these annual meetings. In addition to a number of eminent Englishmen being present, there are going to be in attendance from the United States men of world-wide repute; and the papers and discussions will, therefore, be of a high order. Many prominent Canadians will also contribute, and the appearances now are that the Vancouver meeting will go down in the history of Canadian medicine as the greatest gathering of physicians and surgeons of our Dominion. So far, some one from every province seems likely to be present. Quebec, Nova Scotia, and New Brunswick are going to be especially well represented. If these far-off provinces can send good delegations, surely Ontario, Manitoba, and the North-West Territories will arise to the occasion and send delegations worthy of these provinces. This meeting is going to be a record breaker, and you cannot afford to miss it.

HOW TO TAKE CARE OF BABIES DURING HOT WEATHER.

Although the hot weather seems doubtful of arriving this season, nature at any time is capable of playing strange pranks, and "fore-warned is fore-armed." This is what the City of Rochester, N.Y., is doing, anyway, whose Health Department has distributed a concise circular entitled as above. Amongst the practical points prominently placed therein and emphasized, are the following: "No other food, not even a wet-nurse, can take the place of milk from the child's own mother." "Give the baby water." "Give it pure air, day and night; give it no food but mother's milk, or that directed by the physicians; when it cries or is fretful, do not offer it food, but give it water; be sure that it gets enough sleep, two naps during the day at least; do not put too much clothing on it; bathe it in a tub every day; don't handle it; let it alone." "FEED IT BY THE CLOCK," (written large). "Never let the bottle stand with milk in it. Never use a bottle with a long rubber tube."

These are suggestions which the medical attendant should

press well home, particularly to those relating to the giving of water and feeding by the clock. As is well known, mothers and "experienced" nurses are too prone to neglect these most important and vital regulations of the child's alimentary life. More harm probably arises through irregular feeding and satisfying of thirst with milk rather than water than in any other particular in the baby's life. To show the steadfast faith people have in their own ability to properly bring up babies, an illustration may be cited. A doctor was once expostulating with a foster mother on the feeding of a baby under her charge, when her father joined in. "Feed it whenever it cries; let it have plenty whenever it cries for it. I've raised a bigger family than you ever will." "How many have you raised?" "Fourteen." The doctor protested, and said he didn't care to have the personal experience and luck of the old man. Not much use arguing the point under such circumstances. But it is truly remarkable how some families thrive in squalor and grow to manhood under such adverse circumstances. Of course, where there is one such instance there are dozens and hundreds to the opposite side of the account. A good bit of the trouble comes from the crying, and the desire for peace and quietude. This is good exercise for the child's lungs but a signal for stomachic engorgement. Here the trouble often begins, and where it is important to give some water instead of milk.

Prevention of intestinal infection in summer-time in the life of the baby, coincident with the rise of temperature at that period, is a problem which concerns the successful family physician very much indeed; and it should be the rule by the accoucheur to write out at every confinement a set of regulations for the guidance of the mother as concerns the proper care and feeding of her offspring.

CANADIAN MEDICAL PROTECTIVE ASSOCIATION.

It is because a good thing should be talked about, written about, and commended, that we beg to draw the attention of our readers once again to this most worthy organization. The annual fee of \$2.50 is not by any means excessive for the protection accorded. The reason why the great majority of our profession is not in membership, is probably in great part due to neglect; and, no doubt, the medical press of the Dominion

could do a great amount of good in keeping the name and objects of the Association constantly before their readers. Again, it is especially interesting to draw attention to our own organization at this time, on account of the effort being put forth in England to incorporate medical defence under the guidance and administration of the British Medical Association. For several years two different organizations have been promoting medical defence in England, viz., the Medical Defence Union, and the London and Counties Medical Protective Society, Limited, and both have done much good work. The powerful influence of Sir Victor Horsley is now behind the scheme to have all this done by the British Medical Association. He has placed himself on record as follows: "I would therefore suggest to you that if you want to get machinery of the greatest power, the wisest thing for you to do is to take the British Medical Association, and to make that your machine, and to organize it for the purpose of medical defence." The Medical Defence Union has a membership of 5,800, 1,600 of whom are not members of the British Medical Association, some of them being dentists, who are not eligible for membership in the British Medical Association, which organization now numbers some 19,000. As with our own organization, those governing these defence organizations are members of the national medical organization, Sir Victor Horsley, himself, having been at one time President of the Medical Defence Union. Whilst the Canadian Medical Protective Association was founded under the auspices of the Canadian Medical Association, the two are entirely distinct; but probably nearly all of the members of the former are members of the latter. Since its organization, the Protective Association has done admirably good work, and has conducted several cases against its members to a successful termination. On this its executive officers are to be congratulated, and certainly should be generously supported. We do not think they should be left alone to prosecute the success of the organization, but every member thereof should be constantly pressing upon non-members the importance of becoming connected therewith. And the medical press of the Dominion can do a great deal of good in this direction by timely references thereto. In three months' time the next annual meeting will be held, and we express the hope that the president, Dr. Powell, will be able to lay on the table a most encouraging report. If you have not joined, why not join now?

Editorial Note

WM. R. WARNER & Co. have an interesting exhibit at the St. Louis Exposition, located in the Palace of Liberal Arts, and, inasmuch as no general information is given out as to where pharmaceutical and chemical displays are shown, they have thought it would be of general interest to our subscribers to have the fact laid before them, not only as to their particular exhibit, but the class generally.

NEWS ITEMS

DR. ANDERSON, London, has been appointed assistant house surgeon at St. Joseph's Hospital.

DR. STERLING, of Alvinston, has located in Windsor, having formed a partnership with Dr. Carney.

DR. N. J. AMYOT, of Belle River, has been gazetted an associate coroner for North Essex, in place of Dr. J. O. Reaume.

DR. J. M. MOORE, formerly of Brussels, and who sold his practice at Moorefield, has located at Carthage, Perth County.

DR. W. S. TURNBULL, Goderich, who has been taking a post-graduate course in medicine and surgery, has returned to his home.

DR. ARCH DICKSON, of Goderich, has returned from New York and has gone to Winnipeg, with the intention of locating in the West.

DR. C. T. NOECKER, of Waterloo, has gone to New York City where he will spend a month in the leading hospitals and will take a special course in surgery, eye and ear.

DR. W. F. BABE, who has been for the past year one of the house surgeons at St. Joseph's Hospital, London, has been appointed to be chief resident surgeon of Victoria Hospital in the same city.

DR. CHAUNCEY COKE, who has been engaged as ship surgeon on the Elder-Dempster line of steamers, plying between England and the west coast of Africa for the past two years, has returned to his home at Watford.

DR. JNO. G. GUNN, a graduate of the Western Medical School, has been appointed clinical assistant at the London Insane Asylum. The doctor is a son of Dr. Gunn, of Ailsa Craig, and is a well-known figure in London athletic circles.

DR. DAVID SMITH, who has been engaged in very successful practice with his cousin, Dr. McWilliams, of Thamesford, for some months past, has gone to the Old Land, where he will take a post-graduate course in medicine and a special course in hospital work.

SERUM FOR TYPHOID AND TUBERCULOSIS IN MONTREAL.—Dr. de Martigny has been requested by the Hygienic Committee of the Montreal Civic Council to secure some of Dr. Chantemesse's serum for typhoid fever as well as some of Dr. Marmorek's.

DR. HARRY J. WATSON, Trinity '96, who for the past three years has been a surgeon in the U. S. Army in China and the Philippines, has resigned his commission and opened an office in Winnipeg, Man. Dr. Watson was the only Canadian doctor in the U. S. Army, and went to the relief of Peking with the allied forces in 1900.

QUEEN'S MEDICAL FACULTY AND THE FIFTH YEAR.—It is understood that Queen's will try to persuade the Ontario Medical Council to make a change in the regulations regarding the fifth-year course, to the effect that any medical graduate may be entitled to try the final Council examination, who has been a house surgeon for one year, or has served a year with a qualified practitioner, or has attended clinics in a recognized hospital for at least one year.

SCHOOL OF NURSING IN MUSKOKA.—A school for nurses-in-training has been opened in connection with the Muskoka Cottage Sanatorium, Gravenhurst. With the growth of the institution of the National Sanatorium Association this has become a necessity. The step is welcomed by the medical profession, as they have always many patients who are afflicted with tuberculosis. Lectures are given by the physician in charge and the nurse in charge, supplemented by special lectures that will be given by leading physicians in Toronto and elsewhere, who are on the consultant staff of the association, making the two years' course a very complete one. A number of probationers have entered the work within the past month.

MONTREAL GENERAL HOSPITAL.—During the first quarter of the present year there were treated to a conclusion in the wards of the Montreal General Hospital 754 patients. Of this number, 69 died; 19 of the deaths occurring within three days after admission, thus making the mortality rate 6.6 per cent. In the out-door departments there were 9,204 consultations, an increase of 244 over the corresponding quarter of 1903. During the quarter, the hospital has thoroughly equipped an X-ray and electrical laboratory at a cost of \$1 250. The site for the new contagious diseases hospital in connection with the hospital has been secured, and the required amount for building will be \$150,000, of which only \$35,000 has as yet been subscribed, Sir William Macdonald contributing \$15,000. Dr. John McCrae has resigned as resident pathologist, and Dr. D. B. Gillies appointed acting pathologist. The term of Dr. W. G. Turner's engagement as medical superintendent expired on the 1st of June and Dr. Roland P. Campbell has been appointed to succeed him.

CONSUMPTIVE SANITARIA.—At a meeting of the Executive Council of the Canadian Association for the prevention of consumption and other forms of tuberculosis, a committee, consisting of Dr. Bryce, convener; Dr. Lafferty, Calgary; Dr. Fagan, Victoria, B.C.; Dr. Hodgson, Toronto; Dr. Gordon Bell, Winnipeg; Rev. Dr. Hamilton, Bishop of Ottawa; Sheriff Sweetland; Mr. G. H. Perley and the secretary were appointed to take steps to secure the co-operation of municipalities and of the governments of the several provinces, and of the Government of the Dominion for the establishment of one large sanitarium in each province for the treatment of consumption. The secretary was directed to visit Prince Edward Island, Nova Scotia and New Brunswick in August and September, with a view to lecture upon the cause and prevention of consumption, and to lecture in such places in Ontario as might be deemed advisable during June and July, and finally a committee of all the members of the Executive Council resident in Ottawa, and such other persons as they may associate with themselves, with Dr. Small as convener, was appointed to take immediate action for the purpose of organizing a branch of the association in Ottawa with a view to immediate and energetic action, in co-operation with those who have already moved in the matter of the establishment of a sanitarium for Ottawa and the surrounding country.

Special Selection

IRREGULAR MENSTRUATION AND TREATMENT.

BY E. C. WILLEY, M D., LOUISVILLE, KY.

Practitioners of medicine are consulted by no class of patients who display greater solicitude than those who have amenorrhea.

In the popular mind failure of the menses to appear is supposed to be due either to pregnancy or tuberculosis, and either may cause a degree of anxiety that is truly intense.

The term amenorrhea is used to mean the total absence of the menstrual discharge, or a marked deficiency in the quantity of the flow. Amenorrhea may be physiological or pathological. During pregnancy the absence of the menstrual discharge is, of course, physiological and demands no consideration in this article. When pathological, the causes of amenorrhea may be said in general to be due to the following:

(1) Taking cold, at or near the menstrual epoch. (2) Severe mental perturbation, as fright, sorrow, or great elation of spirit. (3) It may be symptomatic in several affections, as tuberculosis, anemia, chlorosis, syphilis, typhoid fever, nephritis, pelvic peritonitis, and other morbid conditions. (4) Obesity. (5) Luxurious life, or overtaxing the nervous system. (6) Stenosis or atresia of the cervical canal, or imperfect development of the tubes, ovaries or uterus. (7) Vicarious menstruation may make the condition obscure, there being a discharge at the regular monthly periods from the nose, lungs, bladder, stomach, nipple, or other part.

The treatment of amenorrhea must comprehend attention to general considerations, and special indications must be remembered at the various expressions of amenorrhea.

The treatment must, in a word, comprehend remedies and measures which are indicated by the etiological factors present in every case which comes up for treatment. When the amenorrhea is caused by having contracted cold, the patient should have a warm sitz bath, and hot applications should be applied to the abdomen and thighs. Often a hot vaginal injection will serve a most useful purpose, and a laxative, preferably a saline, will greatly aid in bringing on the flow.

In amenorrhea, delayed menstruation and dysmenorrhea, Ergoapiol (Smith) has acted in my hands in a most satisfactory manner. In scanty menstruation, I found it particularly valuable, and I shall enter in detail about one of a series of cases of this character, later on in this article, where this agent brought on a full menstruation and the general health of the patient began to improve at once. When mental perturbation is a factor in these cases it is manifestly the duty of the physician to have the environments of the patient made as quiet as possible, and anti-spasmodic or nerve sedatives should be added to the treatment.

When amenorrhea is associated with syphilis, the uric acid diathesis or morbid condition must receive correct treatment. My experience with Ergoapiol (Smith) is such that I regard it as an indispensable remedy in all expressions of amenorrhea along with proper remedies for any diseased condition associated in the causation of the affection. Of course those cases where the amenorrhea is due to atresia of the cervical canal, and to any other condition which is remedial only by surgical means, drugs will prove of no avail. The same can be said of instances in the amenorrhea due to a rudimentary state of the female organs of reproduction.

A lady some time ago brought her daughter to my office for treatment of amenorrhea. The girl was 18 years old and was visibly anemic. She had an indifferent appetite and was more or less dispirited. She had enough menstrual flow each month to stain the napkin, but this was all that could be said. I had this patient to take Ergoapiol (Smith), one capsule after each meal, and on going to bed regularly for a month. At the next menstrual period the discharge was without pain and free, and the quantity and color as natural as she had ever known her menstruation to be. She took Ergoapiol (Smith) in the same way another month, and then ceased to have any further trouble. Her color is good and her appetite is likewise excellent; she is full of spirit, and, in a word, well.

A lady, aged 33, had scanty menstruation which had covered the period of a year. At no time in the year had her menstrual period been longer than eighteen hours, but generally twelve hours told the tale. Her menses were not only scanty, but the color of the menstrual blood was pale, and this was attended with a disagreeable odor. This woman had no associated disease that most searching examination could bring out. Still she had

steadily increased in flesh for the last two years, and to this I attributed the amenorrhœa.

I had this patient to take systematic exercise and a dietary that was rational, and to take Ergoapiol (Smith) with regularity, a capsule four times a day. After two months this woman ceased to take the remedy, her menstruation having become normal.

A girl, 20 years years old, was sent to me by the matron of a boarding-school. She enjoyed good health prior to entering the school, but for the past three months she had not menstruated and was suffering constantly with vertigo and had attacks of hysteria. I attributed the amenorrhœa to change of conditions of life—that of an open life on a farm to that of a shut-in inactive life. Ergoapiol (Smith) was given after each meal for two weeks prior to the day of her usual menstruation. This brought her menses on fully. She has since had no further trouble in this way.

Mrs. A. P. L., aged 35. This lady suffered with frequent attacks of headache, had backaches nearly all the time, and suffered greatly with vertigo. She was the mother of three children, the youngest being 6 years old. For the past four years she had constantly had scanty menstruation and the blood was very pale. She rarely had the menstrual flow to continue longer than fifteen hours. I was satisfied that the vertigo and all her distress was due to insufficient menstrual flow, and I accordingly put her on Ergoapiol (Smith). She took it through the month, one capsule after each meal; but for a week before the expected period she took two capsules instead of one. She was greatly pleased this time to have a full and free menstruation. Acting on my advice, she took the capsules three times daily for two months, and this acted in a happy manner, and she has now passed an entire year and has not failed to menstruate freely.

My diagnosis was fully confirmed by this woman's health being good in every way since the establishment of menses on a basis of health.—*The Southern Practitioner*, July, 1902.