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SOME POINTS IN THE PATHOLOGY  
OF KIDNEY DISEASE.\*

BY H. A. MACALLUM, M.B., LONDON, ONT.

*Mr. President and Gentlemen:*

The pathology of kidney disease has been a more or less close study of mine for the last four years, and as a consequence of this my views have changed much in that time. I have in my possession microscopic specimens of some sixty cases of "Bright's Disease," eleven of which are from *post mortem* examinations made by myself. You must not expect me to classify these. I think the less one does in the classification of Bright's disease the better, at least from a pathological standpoint. The chronic character of the changes seen in all my specimens will be the first thing to strike any observer. I think I am right in saying that death from "simple acute Bright's disease" is very rare, if occurring at all.

I am going to deal only with a few points in kidney pathology, and shall divide the observations into (a) those bearing on the malpighian tuft, (b) those bearing on the tubular contents.

The former of these will receive the major share of attention, so that a few physiological facts stated here will help our pathological examination further on.

- (1) The tuft is a living filter.
- (2) Its filtering quality depends on how well the vascular and nerve supply keep healthy the vascular tuft epithelium.
- (3) If the nutrition of this epithelium is depressed or affected by impaired nerve supply, or by retarded or toxic blood supply, albumin is allowed to strain into the tubes and appear in the urine.
- (4) The capillaries that make up the tuft differ in construction, physiology, and pathology, from those of any other situation of the body. Treatments with the best method of microscopical technique fail to show any endothelial outline in their walls.

Each capillary seems like one continuous tube, with nuclei placed irregularly along its course. On account, I suppose, of the continuous character of the capillary tubes, no leucocytes can diapedese in health or disease. It matters not how severe the inflammation may be, no pus can be found free within Bowman's capsule; and if one does find any there, its occasional presence can be explained by its diapedesing from without, or by histological manipulation.

Having refreshed our histological and physiological knowledge, we can proceed to a study of the changes seen within the tufts.

I will dwell briefly on the following in the glomeruli:

- (a) Oedema and fatty degeneration of the vascular epithelium.

\*A paper read before the Ontario Medical Association.

- (b) Exfoliation of the layer.  
 (c) Hyaline thickening of the capillary walls.  
 (d) Plugging of the capillaries with micrococci and leucocytes.  
 (e) Amyloid deposit.

(a) Œdema of the glomerular epithelium will occur very often in death from any acute disease, but fatty degeneration and other necrotic changes are much more advanced, and are always accompanied by similar changes in the epithelium of the convoluted tubes. It has been asserted that the change may be limited to the glomeruli, but I have not found any kidney showing such a change, and, what is more, I cannot see how such a state of affairs could exist.

(b) Exfoliation of the epithelium. Its most marked examples appear in the scarlatina kidney; but as the ptomaine of this fever, in the process of excretion, is very probably the cause of the necrotic change, the same condition must necessarily accompany—and does, too—other toxic blood conditions, as diphtheria, erysipelas, fatal jaundice, etc. The exfoliation may be so complete as to fill up by crescents the capsule, and press upon the tuft, diminishing the vascular supply to the convoluted tubes. Our clinical history will read here, suppression of urine. This exfoliated mass with a necrosed tuft may fall into hyaline material and be mistaken for amyloid deposit.

(c) Hyaline thickening of the capillary walls is a very frequent change. This is accompanied by a disappearance of the nuclei (often an increase of them), and some authors believe the capillary endothelium is frequently cast off. The change tends towards the obliteration of the lumen of the capillary, and again a consequent impoverished vascular supply for the convoluted tubes.

(d) The plugging of a capillary loop by micrococci is attended with the following peculiar changes: The wall of such a capillary seems to lose its nuclei, and even looks thin (possibly from the loss of endothelium); the neighboring capillaries, although holding no micrococci, undergo a similar change, and, in addition, all the capillaries are crowded with leucocytes, a virtual capillary thrombosis, yet no leucocytes can be seen free in the tissue without the capillary walls.

This formation of thrombi by the leucocytes, of course, tends to arrest the circulation through the tuft, and again we have necrosis of the convoluted tubes.

While this is going on within Bowman's capsule, in all the surrounding tissues we have a round cell infiltration most marked at the part where the vessel enters and departs. Here I might emphasize the fact that the earliest appearance of cirrhosis (likely from arteritis) is often outside where the efferent vessel leaves, and the afferent enters, Bowman's capsule. These round cells, seen flooding the neighboring tissues, may dissolve the capsule and swarm into the tuft; but generally the capsule will resist the invasion of leucocytes, and while the tuft, which may have already undergone necrosis, atrophies, the round cells crowding will cause collapse of its capsule.

(e) The first deposit of amyloid material in the capillary wall is patchy. This irregular deposition will continue till all the capillary walls are involved. This deposit leaves an irregular lumen to the vessel and diminishes its calibre in places, and in this way very slight deposits are attended with necrosis of tubular epithelium. I do not believe any quantity of amyloid material can occur without nephritis. I have never seen amyloid material outside the vessel walls, and I am strongly of the belief that there never was such a thing as amyloid casts; the compound hyaline casts that have been misnamed waxy are not even pathognomonic of this form of nephritis, but will frequently appear in samples of urine from any form of chronic Bright's disease. Nothing will resist the action of suppuration like amyloid material, and it is never absorbed, even after the cause of its deposition is removed.

I shall leave any other change in the tuft, and hasten on to the consideration of the tubular contents. We have seen that on account of the intimate relation of the vascular supply of the tuft and convoluted tubes, pathological changes in the former run concurrently with those of the latter. It is a common thing while in health for the lumen of the uriniferous tubes to give a perfect cast of themselves. These are long, stringy, and wavy, and were formerly called "mucus cylinders." Their supposedly mucus origin is erroneous, and they

are without doubt coagulated sero-albumin and paraglobulin. I have made careful studies of their structure, and have satisfied myself that the living epithelium secretes some ferment which causes the albumin, which chances to transude into the tubes, to become coagulated to form these cylinders. They are most plentifully seen in cases of physiological albuminuria; their presence or absence in a sample of urine I consider of value in diagnosing physiological from organic albuminuria.

Allow me to say here that any physician who depends wholly on the chemical and microscopical examination of albuminous urine without reference to the general condition and history will find himself making sad blunders, so that in forming my diagnosis of physiological albuminuria I would not leave out of sight the following six points along with the cylinders: (1) The intermission in the output of albumin; (2) no impairment of health; (3) amount of albumin less than one-fifth from a 24-hour sample; (4) specific gravity of same about or over 1.024; (5) the youth of the patient; (6) absence of pus, blood, or casts. Yet I have seen in a plentiful sample of mucus cylinders a few shade off into casts, and the other end of the cast often shading off again into mucus cylinders. I think I can put myself clearly before you when I say that albuminous urine showing plentiful mucus cylinders only is almost certainly physiological; their absence is a point, and a strong one at that, in favor of the case being organic. Leaving aside cylinders for the examination of the tubular epithelium in nephritis, we are confronted with the term "cloudy swelling." I do not like it, because it is used loosely to cover numerous changes. I prefer to designate the earliest changes as "œdema of the cells." The best guide to this is the distended and actually dilated membrana propria. This dilation is not sufficiently emphasized by authors; it does not always stop with œdema, but may reach an enormous diameter after its epithelium is swept off. I believe that this dilatation, often arising from plugging of the tube below, ends in the formation of a cyst in this manner, and thus we get cystic kidneys.

Following upon œdema we get hyaline degeneration of the epithelial cells, mostly confined to that half of the cell nearest to the tube

lumen. Here hyaline granules make their appearance; and the free border of the cells having broken down, these particles commingle with those from the neighboring cells to form with albumin a coagulated cast of the diseased tube.

The half of the cell with its nucleus often remains behind; and if the change terminates here, this maimed cell will rebuild its free border, and even the nucleus can be seen occasionally undergoing karyokinesis to replace the swept-off cells. This shows what wonderful reparative power injured epithelium may possess. The change may be so complete as to involve the whole cell, leading by fragmentation to the disappearance of the nucleus; casts from this complete necrosis will occasionally show crescents of undegenerated epithelium which have been carried from the glomeruli into the tubes.

Another change in some way allied to the last is fatty degeneration. The fat droplets are deposited in the border of the cell next to the membrana propria; it is seldom that the entire cell shows this change unless from toxic doses of phosphorus, arsenic, etc. A sample of acute Bright's disease showing plentiful fatty casts does not yield a very hopeful outlook for the patient's return to health, because the tubes lose their epithelium completely.

One more point before bringing this paper to a close. I referred to dilatation of the membrana propria as a valuable point in showing that necrotic changes had taken place in the tubular epithelium. I will call your attention to a diminution of their calibre as pointing to atrophy or cirrhosis.

## CHLORALISM.

BY J. B. MATTISON, M.D.,

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Chloralism has largely waned in the last half decade. The advent of other—though not better, in some respects, I am bound to say—hypnotics has lessened the growth of a toxic disease that, ten years ago, bade fair to assume large proportions and wreck some of the best in the land. Its victims came mainly from the educated rank of our people—brain-workers—those who by super-zealous devotion to duty, or long and exhausting vigils over mental toil, had

banished the "sweet restorer." Many chloral inebriates were found among the large and—at that time more than now—enlarging number of morphine habitués who were impelled to its use by the inroads of the poppy along insomnic lines.

So, too, among rum-takers; the marvellous power of chloral, in wooing the drowsy god, after a big debauch, led to its use—with or without medical counsel—that, at times, could only be called reckless, and that again and again brought the long last sleep.

Besides the use of confirmed addiction from the uncareful use of chloral, it has a pernicious power *per se* that is unique—greater than morphine, though the latter is more snareful and more difficult to cure. Regarding this effect, along various lines—psychic and somatic, no more complete picture has ever been presented than that by the writer, eleven years ago, in a paper—"Chloral Inebriety"—read before the Medical Society of the County of Kings, April 15th, 1879 (at command of any one who may desire and will write for a copy), which contains a striking case, akin to the one presented in this paper, noting a special effect of chloral, and mainly peculiar to that drug.

Quoting from that paper:—"I refer to peculiar pains in the limbs, simulating neuralgia or rheumatism, yet unlike the former, as they are not limited to the course of the nerves, and differing from the latter in not being exactly *in* the joints, but rather *girding* the limbs just above or below them, without pain or pressure, and unaggravated by movement. Their diagnostic import is that they may be mistaken for the diseases they resemble; and their origin being unsuspected, prove obstinate to treatment."

Similar pains are sometimes noted in chronic chloroform-takers. Anstie thought the latter fact afforded some support to the theory that chloral acts by evolving chloroform in the blood. He expressed the opinion that some cases of supposed rheumatic or neuralgic pain would be found on careful inquiry to be due to chloral taking, and cited the following case in which this symptom was prominent:

A. B., physician, began the use of chloral February 1st, 1873, in 30 grain doses, to procure sleep when kept awake by great anxiety. In two months noticed

inflamed and weakened eyes, with scalding tears. Continued the drug, however, sometimes increasing the dose and repeating it. From April to August the usual amount taken was one drachm; in the latter month he commenced using it during the day, one to three times. About December 1st he began to realize the amount he was daily taking, and found it half an ounce, sometimes more. He now began to complain of severe general pains, especially about the joints, which grew worse in the moist air of London; there was no tenderness, and they were not increased by motion. Chloral did not relieve them, except when it put him to sleep. Soon after this he made a mistake in his dose, using from a stronger solution, which brought on the pains with frightful severity, and Dr. Anstie was summoned. He found him with suffused eyes, haggard features, sleepless, peculiar, broken speech, partial paraplegia, loss of co-ordination, and excessive joint pains. An examination disclosed that he had taken more than an ounce of chloral the preceding day. It was at once withdrawn. Cannabis indica was used to relieve the nervous disturbance, tonics given, and under this treatment he recovered.

The following case under our care is of interest:

Mrs. A., æt. 37; began to suffer from insomnia sixteen years ago, which persisted in varying degree until Dec., 1889, when a severe injury, confining her to bed for fourteen weeks, increased this wakeful condition until it became essential to compel sleep. Chloral secured it. The initial dose was 15 grains, at bedtime. This amount sufficed for 14 months, when she began to suffer severe limb pains—not increased by pressure or movement—which soon resulted in a sharp and prolonged bout of hysteria and nervous prostration with increased agrypnia. The chloral dose was doubled, but without effect. During several weeks various hypnotics were tried, with ill success; her physician declared, "In the endeavor to give her sleep I almost exhausted the Pharmacopœia." Finally hyoscyamine was given. This broke the insomnia, but for some reason, after a week's use, recourse was again had to chloral, and this was continued until a week before coming to us, when a new medical adviser decreased it and gave hyoscyamus, with the result of much lessened pain but little better sleep.

At time of placing herself under our care, Mrs. A. was weak, sleepless, anorexic, and greatly depressed; her physician wrote, "This chloral taking, with the shock from the horrible injury she received, has almost entirely wrecked

her nervous system." The chloral was at once withdrawn, and 40 grains chloralamid given. It brought a full night's sleep, without ill after-effects. During the following fortnight, various hypnotics, sulfonal, paraldehyde, morphine, codeine, hyoscine, somnal, and chloralamid, were used. The last named proved by far the best—always fetching refreshing slumber for several hours—and was continued. Meantime she was placed on large doses of strychnine, and two grains thrice daily of quinine. In ten days increased strength permitted a drive, and in a few days more her appearance at every meal. The peculiar pains steadily lessened, and in a fortnight were a thing of the past. The chloralamid was gradually decreased during a month, and then ended. The strychnine and quinine, after a few weeks, were followed by phosphorus and Fowler's solution, with an eight-minute bedtime galvanic seance. Under this treatment Mrs. A. progressively improved in every way, and at this writing she asserts that "life is worth living," and is "feeling better than for years." To complete and confirm convalescence we have advised, in view of her insomniac record, a sea trip, with a short tour abroad, and the winter spent in Bermuda.

This case is instructive. It proves anew the snareful effects of chloral; yet, despite this and other drawbacks, we consider it, in some form, first among hypnotics. Of all the new claimants for favor in insomnia, the two most effective contain it, somnal and chloralamid. The latter we think the better. While deeming it less likely to enslave by continued use, it certainly is less depressing, and the sequelæ are less unpleasant. We use it largely—dose, 30 to 60 grains on tongue at bedtime—and regard it a very valuable addition to our resources.

### EXTRACT FROM THE ADDRESS IN MEDICINE,

*Delivered at the Annual Meeting of the British Medical Association, held in Bournemouth, July, 1891.*

By T. LAUDER BRUNTON, M.D., D.Sc. EDIN.,

L.L.D. (HON.) ABER., F.R.C.P., F.R.S.,

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### TWENTY-FIVE YEARS OF MEDICAL PROGRESS.

When friends meet again after a prolonged separation they almost invariably begin to talk about the changes that have occurred since they parted. In a few weeks more it will be just a quarter of a cen-

tury since the President of this Association and I occupied adjacent rooms in a hospital as fellow resident physicians, but since then our spheres of work have kept us much apart. It is therefore natural that I should take as my subject of address to-day the changes that have occurred in the profession to which we both belong during the time that has elapsed since we were comrades together. Perhaps there is no period in the whole history of medicine in which such rapid changes have taken place as in the last five-and-twenty years. It is impossible to give anything like a complete account of these in the brief space of one hour, and I shall therefore restrict myself to a few of the more prominent points, and especially those that have come directly under my personal cognisance; for, like the man who made one-half of his fortune by attending to his own affairs and the other half by leaving other people's alone, I may probably utilise the time at my disposal best by speaking of what I know myself and leaving other things out.

*Advances in Knowledge and Teaching due to Experimental Method.*—These changes have occurred both in the profession itself and also to some extent—in this country at least—in the education and training of the men who enter it. We notice, first, that a very great increase has occurred in the knowledge of the nature, causation, and treatment of diseases, possessed by the profession as a whole, but perhaps a still greater gain is the general adoption of the experimental method by which most of our recent knowledge has been acquired, and from which we may hope for even greater advantages in the future. In correspondence with the acquirement of knowledge, we notice also a great alteration in the teaching of medicine, and especially prominent is the tendency to make such teaching practical, instead of theoretical, by training men to place their dependence upon objective facts, and not to receive without experimental data the theories or speculations of any master, however great he may be.

*Practical Training.*—Five-and-twenty years ago not only was practical training such as we now find in the scientific departments of medicine—chemistry, physiology, pathology, and to a certain extent also pharmacology—almost entirely wanting, but even in general clinical medicine, not to mention the special departments of the throat, eye, and ear, it was very deficient as compared with what it is now.

*Direction of Advance.*—The greatest advance made in the last twenty-five years has been in the direction of the accumulation, co-ordination, and teaching of facts instead of theories, of the phenomena of Nature as opposed to the fancies of the human mind.

*Co-ordination of Facts.*—But the mere accumulation of facts is of little use unless they can be so arranged, compared, and grouped as to bring them into relationship with some general law, and this we find in the world's history has been done from time to time by some master-mind. In the case of medicine this has also occurred to a great extent during the last five-and-twenty years.

*Changes in Medical Students.*—But great as the changes have been during the last five-and-twenty years in the profession itself, they are perhaps quite as great in the men who enter it. The days when Bob Sawyer was taken as a type of a medical student have long since gone by, and I should think

in all probability there is no class in which one can find so many gentlemanly, thoroughly well-educated and hardworking men as amongst the medical students of the present day. The change began rather more than twenty-five years ago, for it was in 1861 that the regulation of the General Medical Council to the effect that before entering on the medical profession each student should pass a preliminary examination in general education came into force. While our President and I were at college together we had amongst our fellow-students two classes, one consisting of men who had not passed a preliminary examination, and called Old Statutes, and the other of those who had passed, called New Statutes men. The class of Old Statutes men was a very mixed one; many of them, of course, were exceedingly good, able, energetic, and industrious; but a number were also lazy and idle, while some of them were distinctly dissolute and disreputable. The New Statutes men, on the contrary, were, upon the whole, steady and hardworking. The reason of this was that under the old statutes parents frequently thought that when a boy failed to learn anything at school, and was too unsteady to hope for success in commerce, he was good enough to make a medical student of. The preliminary examination at once cut out all those who, by their idleness or stupidity at school, were unable to come up to the required entrance standard. Some of the idlest of our fellow-students under the old statutes, after studying for several years and failing to pass their examinations, drifted into other occupations. Others, again, after repeated trials, managed to scrape through their examinations and entered the profession. Probably some of those who have supplied the lack of book knowledge by experience gained in practice still survive and flourish, but most of the Old Statutes men now engaged in practice belonged to the better class, and would have gained access to the profession no matter how difficult their examinations might have been. There may be a very few exceptions, but I think we may be quite sure that nearly all those who are now thriving have either thorough knowledge or much *savoir faire*, for incompetent men get weeded out in the struggle for existence, which in the medical profession is a very hard one, and of late years has been getting harder and harder.

*Apparent Change in Disease.*—Increased knowledge of diagnosis has led to an apparent change in the mortality from different diseases. Thus, the frequency of deaths from heart disease appears to be much greater, and that from apoplexy much smaller now than fifty years ago. In all probability this difference is not real but only apparent, and is due to the more accurate diagnosis by which the presence of cardiac disease is now ascertained. The supposed increase in the frequency of cancer is probably in great measure due to a similar cause, for I am quite certain that many cases which were formerly classed as chronic diarrhoea, dysentery, jaundice, or dropsy, were really due to malignant disease of the abdomen, while others probably depended upon unrecognised disease of the kidney. For up to a recent date so little attention was paid to the condition of the urine that about fifteen years ago, when examining proposers for life assurance in place of a friend who was away on his autumn holiday, I was astonished to find that there was no

apparatus at the office for examining urine, and I believe that it is only within the last ten or twelve years that an examination of the urine for life assurance has become general.

*Real Changes in Disease.*—But real changes as well as apparent ones have occurred in diseases. Some have become more frequent and others are rarer. Thus, typhoid fever is almost certainly more common, because the increase of our sewage system has given greater facilities for its spread. Typhus fever, on the other hand, has become comparatively rare, and the story of its extermination in Edinburgh is very interesting. Five-and-twenty years ago your President was constantly wearing a smoking cap because his head had been shaved during an attack of typhus, and a few months later one of the physicians and two of the house physicians to the hospital in Edinburgh died of the disease, while another just escaped with his life. There were, I believe, at the end of 1867 nearly 150 typhus patients in the hospital at once. A few years later the disease was completely exterminated by the alterations in the town necessitated by the new university buildings. A certain narrow lane called Hastie's Close, which was a hotbed of typhus fever, and from which the disease used to make periodical excursions into the neighboring districts, was pulled down, and since then typhus has almost entirely disappeared. Pyæmia is another disease which, although not totally extinct, is very greatly lessened in virulence. When I was a student it was the dread of the surgical wards, and I remember one patient dying of it who had been admitted simply for a slight injury to the finger tip, which necessitated amputation of the last phalanx. Now, thanks to the antiseptic treatment introduced by Lister, such cases are almost unknown.

*New Methods.*—The rapid increase in our knowledge has been due not merely to the constant use of old methods, but to the introduction of new ones, and more especially to the general recognition of the fact that the same strategy which has often proved so successful in war is to be applied in attacking complex problems. They are to be separated as far as possible into their several components and each of these is to be overcome in detail. As presented to us by observation at the bedside, the problems of disease are too complex for us to solve, and we are only succeeding in doing it by examining the various factors one by one in the laboratory. The greatly increased powers of the microscope and the better methods of illumination have been of the greatest service, but their utility would be very much less than it is had it not been for the general introduction of the microtome and the invention of new methods of staining. When I was a student the microtome was only used for cutting sections of wood in the class of practical botany. About that time it was employed by Mr. Stirling, Professor Goodsir's assistant, in the preparation of animal tissues, but I believe that we owe its general introduction to Professor Rutherford. The facility with which sections are made by it has made microscopical research much less tedious, and has enabled trained histologists to do more work in a given time, and medical students to acquire knowledge more rapidly. But without the method of staining introduced by Weigert and Ehrlich, we should, even with the best microscopes, be unable

to recognise most of the microbes which are so important in the causation of disease.

*Good Out of Evil.*—It is very interesting to see how good may come out of evil, and a striking illustration of this is afforded by the history of medicine in the period we are now considering; for it seems to me that we can trace a great part of our knowledge of disease germs and of the anti-septic remedies we use in treatment to the cupidity and stupidity of the Spaniards of the Cordilleras. Their cupidity led them to cut down the cinchona trees of the Andes in order to fill their pockets with the gold they received in exchange for the precious bark, while their stupidity prevented them from planting new trees to replace those which they felled. The consequence of this was that quinine became so dear that it was evident that any one who could produce it artificially would make his fortune. Amongst others, Perkins tried to do this, and, although he failed, yet in the attempt he discovered the anilin dyes, whose staining powers have not only helped us so much in ordinary histological research, but have made it possible to distinguish disease germs which without them would have been invisible. But the discovery of the anilin colors was only one outcome of the attempt to make quinine synthetically, for the impulse which it gave to the study of aromatic compounds has led to the production of salicylic acid and acetanilide, antipyrin, phenacetin, and all the other antipyretic remedies, whose number is probably legion, and whose names already have become so numerous as to be troublesome. Here we see good has arisen out of evil; for if the price of quinine had not been so high, the researches which have proved so useful might not have been begun even yet.

*Small and Great, Foolish and Wise.*—In looking at another of the greatest advances which medicine has made—namely, the knowledge of infective disease—we can see how enormous results can arise out of very small beginnings, and the safety of nations may be consequent upon a research which many men would have termed useless or even frivolous. I can hardly fancy any better illustration of St. Paul's observation about the foolish things of this world confounding the wise than Pasteur's researches on tartaric acid; for what could seem more foolish to the so-called practical man than the question, "Why does a crystal of tartaric acid sometimes take one shape and sometimes another?" Yet from an attempt to answer this question has arisen the whole of Pasteur's work on fermentation in general, and on that of wine, beer, and vinegar, in particular, whereby he has been able to save millions to his country by accelerating the production of vinegar and preventing the souring of wine and beer. His observation that tartaric acid sometimes turned the ray of polarisation to the right, sometimes to the left; that, indeed, there were two crystals apparently alike, but really different; and that these could be combined so as to form a symmetrical crystal having no power of rotation, led him to look to life and living beings as the source of asymmetry. He tried to produce this asymmetry in salts of tartaric acid by fermentation, and found that during the process an organism developed which eats up the dextro-tartaric acid, and leaves the lævo-tartaric acid behind. This led him to investigate such minute organisms, and, by simplifying the soil in

which they grew, and separating the organisms one from another, he learned the conditions of their growth, and showed that most processes of fermentation were due to the presence of living organisms. It is true that while Pasteur was still a boy at school, Peyen and Persoz had shown that the liquefaction of starch and its conversion into sugar was due to diastase, and that Dumas, in a report on a paper by Guérin-Varry, had pointed out that, although unlike diastase, the active principle of the gastric juice had not been isolated, it was probably a ferment of a somewhat similar kind. Dumas classed yeast as a ferment along with diastase, and the fact that such a process as conversion of starch into sugar could be effected without a living organism naturally rendered it all the more difficult for Pasteur to prove his thesis that most fermentations were due to living organisms.

*Chemical and Biological Views of Fermentation.*—The two views of the action of ferments—namely, the chemical and the biological—may, I think, fitly be likened to Pasteur's two kinds of tartaric acid, each by itself being lopsided and incomplete, forming a symmetrical whole only when united. There can be no doubt of the truth of the chemical view that diastase is not a living organism, and yet converts starch into sugar. There can be as little doubt of the biological view that yeast and other organisms which cause fermentation are living bodies, and that without the presence of these living bodies, alcoholic, acetic, and other forms of fermentation would not exist.

*Microbes and Enzymes.*—But recently we have come to recognise that these living organisms may produce their effect by manufacturing chemical ferments, and that these ferments may occasionally do the work, although the organisms which form them may be absent. It is quite true that it is difficult—perhaps impossible—to get fermentation from the dead yeast plant, but we may find a parallel for this in the fact that the pancreas of the higher animals sometimes yields an active ferment and sometimes not. Nor need we wonder that the ferments produced by microbes have but a slight action compared with those of the microbes themselves if we remember how very little power of digestion a dead pig's stomach has as compared with the amount which can be digested not by the live animal itself only, but by the herds of swine consisting of its "fathers and mothers, its brothers and sisters, its cousins and its aunts," during all the term of their natural lives; for in the process of fermentation, microbes are growing, fermenting, and dying with great rapidity, and many generations occur in a fermenting fluid in the space of a few hours, so that the total effect they produce will be out of all proportion to any which can be got from the microbes themselves at a single instant.

*Microbes and Disease.*—From organisms as a cause of fermentation and of the diseases of wine and beer, Pasteur went on to investigate their action as causes of disease in living beings—first in the silkworm, next in the lower animals, and, lastly, in man. He established the dependence of the silkworm disease and of anthrax upon the presence of specific microbes which could be transmitted and communicate the disease, and by destroying the infected eggs of the silkworm he eradicated the disease and restored the silk industry to France.

*Weakening of Disease Germs.*—But while this

investigation is interesting to us as illustrating the probable cause of the disappearance of typhus fever, to which I have already alluded, Pasteur's researches on anthrax are still more important as bearing upon the question of protective inoculation; for he found that the disease germ could be cultivated outside the living body and grown in flasks under varying conditions, some of which were favorable and others unfavorable to its growth. High temperature enfeebled the virus, so that it no longer killed an animal with the same certainty; and by inoculating first with a weak virus and then with one successively stronger and stronger, he found that animals could be completely protected either from inoculation by the strongest virus or by infection from other animals suffering from the actual disease.

*Increase in the Virulence of Disease Germs.*—Another extraordinary fact which he made out was that the virus thus weakened so that it will not kill a guinea-pig a year old, and still less a sheep or ox, may again be rendered most potent by inoculating a feeble animal, such as a guinea-pig a day or two old, from this older and stronger guinea-pig's, the strength of the disease germs increasing with every inoculation, until finally sheep and cows may be killed by it. We can thus see how an epidemic of disease beginning sporadically and attacking weak individuals may gradually acquire such strength as to attack and carry off the strongest.

*Pure Cultures.*—Pasteur's plan of growing disease germs outside the body, in broth, although of the utmost value, did not allow a convenient separation of different germs; but this can now readily be done by Koch's plan of sowing them, not in a liquid medium but on solid gelatine spread on glass plates, so that the growth of the germs can be daily watched under the microscope and inoculations made from single colonies on other plates until pure cultures have been obtained. By thus isolating the different microbes we learn their life-history, the mode in which their growth is influenced by differences of soil, of temperature, of moisture, by the addition of various substances which either favor or retard their growth, and, last but not least, the effect which one microbe has upon another when they are grown together at the same time.

*Struggle for Existence amongst Microbes.*—For even amongst these minute organisms the struggle for existence and the survival of the fittest exists, like that which Darwin pointed out so clearly in the case of higher plants and animals. When two microbes are growing together, one may choke or destroy the other, just as weeds in a garden may choke the flowers, or, on the other hand, successive generations of one microbe may render the soil suitable for another, just as decaying algæ and mosses may furnish mould in which higher plants can grow.

*Struggle for Existence between Microbes and the Organism.*—But it is not merely between different species of microbes or different cells in an organism that this struggle occurs. It takes place also between the disease germs and the cells of the organism which they invade, and the result of the struggle may be determined, not by some powerful agency which weakens or destroys either the organism or the microbe, but by some little thing which simply inclines the scale in favor of one or

the other. Thus, in the potato disease the victory of the invading microbe and the destruction of the potato, or the death of the microbe and the health of the tuber, may depend upon some condition of moisture or possibly of electrical change in the atmosphere which aids the growth of the microbe disproportionately to that of the potato. These atmospheric conditions need not necessarily be antagonistic to the potato, they may even in themselves be advantageous to it; but if they help the microbe more than the plant, the microbe will gain the victory and the plant be destroyed.

*Fight between Cells in Higher Organisms.*—The fight between the organs, which Æsop describes in his fables, actually occurs between the cells in some vertebrate animals, and the schism predicted by St. Paul as the result of such a fight actually takes place. For in the tadpole, at one stage of its existence, some of the cells at the base of the tail begin to eat up others, with the result that schism occurs and the tail falls off.

*Phagocytosis.*—This struggle for existence between the cells of an organism and microbes has been beautifully shown by Metschnikoff in the daphne or water flea, where the process of the cells eating up the microbes, or the microbes destroying the cells, can be actually observed under the microscope. This process of phagocytosis is now regarded by many as only a small part of the struggle between an organism and a microbe, but it is impossible to see one part of a microbe half digested by the cell in which it is imbedded, while the outside part remains unaltered, without believing that the process is one of great importance. At the same time, it seems that the process of phagocytosis, where the microbe and the cells meet in close conflict, bears about the same relationship to the total struggle that a bayonet charge bears to a modern battle. The main part of the fight is really carried on at some distance by deadly weapons, by bullets in the case of the soldier, and by ferments, poisonous albumoses, and alkaloïds, on the part of the cells and the microbes. In some of Metschnikoff's observations we can almost see this process for he has figured leucocytes dead, and apparently burst by the action of conidia, lying close to but yet outside them, as if these conidia, like the dragons of fable, had spit out some venom which had destroyed them.

*Venom of Microbes.*—Within the last few years attention has been gradually becoming directed less to microscopical examination of the microbes themselves, and more to chemical investigation of the ferments and poisons which they produce; yet, strangely enough, the very moment when chemistry is becoming more important than ever has been chosen to minimise the teaching of it in medical schools and examination in it by licensing bodies. It is now possible to separate the albumoses and poisons from microbes which produce them either by filtration or by destroying the microbes by graduated heat; for, as a rule, they are destroyed by a lower temperature than the albumose or poisons which they form.

*Microbes and Enzymes.*—As the albumoses produced by microbes are nearly allied, chemically and physiologically, to those formed in the alimentary canal of the higher animals by digestive ferments, it is natural to suppose that microbes, like the higher animals, split up proteids, starches, and

sugars by enzymes, which they secrete, and which in both cases may be obtained apart from the living organisms which produce them; that, in fact, we should be able to isolate from microbes bodies which correspond to pepsin or trypsin, just as we can isolate these from the stomach or pancreas of an animal. In some, although not in all cases, this attempt has succeeded.\*

*Poisonous Albumoses.*—The albumoses produced by microbes resemble those formed during normal digestion in being poisonous when injected directly into the circulation, although they may not be so greatly absorbed from the intestinal canal. One of the most remarkable discoveries in regard to albuminous bodies is the fact that some of them which are perfectly innocuous, and, indeed, probably advantageous to the organism in their own place, become most deadly poisons when they get out of it. Thus the thyroid and thymus glands, which are perfectly harmless and probably useful, were found by Wooldridge, when broken up in water, to yield a proteid which instantaneously coagulated the blood if injected into a vein, so that the animal died as if struck by lightning, while Schmidt-Mühlheim, under Ludwig's direction, found that peptones had an exactly opposite effect, and prevented coagulation altogether.

*Neutralisation of Poisonous Albumoses.*—Perhaps the analogy is too vague, but we seem to find here something very like Pasteur's two kinds of tartaric acid, one rotating polarised light to the right, the other to the left, but, when united together, having no action at all, for here we have two bodies, one of which destroys coagulability entirely, the other increases it enormously; while many albuminous bodies have no action upon coagulation whatever. This view would lead us to suppose that one form of albumose may neutralise the action of another, thus rendering them both completely innocuous, whilst either one or other alone might be a deadly poison. The albumoses formed by microbes appear frequently, if not always, to have a double action, destructive and protective, on the higher animals. Pasteur's treatment of hydrophobia is based on the idea that the spinal cord of rabid animals contains a virus, and its antidote—Koch's tuberculin—may be similar in this respect, and may yet, by suitable alterations, fulfil the hopes of its able and single-minded discoverer.

*Zymogens and Enzymes.*—Perhaps a similar process of splitting up and recombination may explain the formation and disappearance of the enzymes, such as pepsin and trypsin, by which digestion is carried on. The pancreas of a fasting animal will not digest albuminous bodies like fibrin, while the pancreas of an animal killed during full digestion will do so rapidly. Yet the fasting pancreas contains the zymogen, or mother substance, which yields the digestive ferment, and, as Kühne has shown, by treating it first with acid and then with alkali, it becomes active. Again, to recur to the analogy of Pasteur's tartaric acid, we seem to find that the inactive, and possibly symmetrical, albuminous substance of the fasting pancreas is split up by this treatment after death or during the process of digestion in life, and yields the lopsided and active pancreatic ferment. But, if this be so, what

becomes of the other half which has been split off? We do not at present know, but, curiously enough, Lépine has lately shown that while the pancreas is pouring into the digestive canal a ferment which will form sugar, it is at the same time pouring into the circulation another ferment which will destroy sugar.

*Immunity.*—We must be very careful in our speculations and test them by experiment, but such observations as these may tend to throw some light upon the nature of immunity. Immunity is probably a very complex condition, and is not dependent altogether upon any single factor, but we can now understand that if a microbe has gained an entrance into an organism, and produces a proteid or an albumose poisonous to the organism which it enters, it may grow, thrive, and destroy that organism, while the injection of some other proteid which would neutralise the poison might save the animal while the microbe would perish.

*Cure of Anthrax.*—Thus Hankin has found that while a mouse inoculated with anthrax will die within twenty-four hours, a rat resists the poison altogether; but if the mouse after being inoculated with the disease has a few drops of rat's serum injected into it, instead of dying, as it would otherwise certainly do, it survives just like the rat; and from the spleen of the rat Hankin has isolated a proteid which has a similar protective action to that of the serum.

*Cure for Tubercle.*—Working on similar lines, Bernheim and Lépine used the injection of goat's blood in phthisis so as to stop, if possible, the progress of tubercle, and Richet has used the serum of dog's blood, for the goat is quite immune, and the dog is to a great extent, though not entirely, immune from attacks of tuberculosis. The injection of goat's blood in somewhat large quantities has been given up, while dog's and goat's serum in small quantities of 15 to 20 minims at intervals of several days is still under trial.

*Action of Blisters.*—But if immunity can be insured by such slight changes in the organism as a few drops of serum from a rat will produce in the body of a mouse, it is natural to suppose that a similar change might possibly be effected by removing the albuminous substance from one part of the body and introducing it, perhaps after it has undergone slight change, into another. As I have already mentioned, the albumoses of ordinary digestion are poisonous when they are injected into the circulation, and so are the proteid substances obtained from the thyroid and thymus glands. Why then may not the serum of one's own blood, withdrawn from the vessels by a blister and reabsorbed again, be as good as the serum obtained from the blood of an animal? We all know that in many diseases, such as inflammation of the lungs, either pneumonic or tuberculous; in inflammation of serous cavities, such as the pleura, pericardium, and arachnoid; and of solid organs like the liver, or of nerves like the sciatic, the application of blisters is one of the most useful therapeutic means we can employ. In spite of all the changes in medical theory, blisters have always maintained an important place in practice. We have hitherto been in the habit of explaining their action by supposing that they caused derivation of blood from the inflamed part, or reflexly caused the vessels to contract, and lessened the pressure upon the nerves

\*Vide Brunton and Macfadyen, Croonian Lectures on Chemical Structure and Physiological Action, *British Medical Journal*, June 15th, 1889, p. 1336.

of the inflamed tissues. But is quite possible that this may be only a part of the truth, and that the good derived from blisters may be due to this form of treatment being really a form of endermic administration of proteid matters derived, no doubt, from the blood, but altered in their passage from the vessels to the surface of the skin, and thus having an effect upon the body entirely different from what they would have had if they had remained in their ordinary place. It might form an interesting point for investigation, how far the beneficial action of blisters is increased or diminished by leaving the bleb untouched, so that the serum may be re-absorbed, or opening it and allowing the serum to drain away.

*Bleeding.*—It is quite possible, too, that the good effects of bleeding may be due to a similar cause. There can be no doubt that this practice has fallen much into disuse, and I think there can be as little doubt that those who used it in former times were not fools, but were led to use it by the marked relief which in many cases it afforded. Experiments upon animals have shown that withdrawal of blood from the veins causes absorption of proteid matters from the tissues, and these may have an action of their own upon the blood and tissues generally with which they are thus brought into contact. Indeed it is possible that free purgation may be partly due to a similar action.

*Training of Medical Students.*—But the excessively rapid development of medicine and medical sciences requires that men who are entering the profession should not only be taught the things that we know now, but should be so trained as to enable them to keep abreast, more or less, with medical progress. This, I believe, can only be done by giving them a thorough grounding in chemistry, physiology, general pathology, and pharmacology; and this training must be essentially of a practical nature, not only in the way of demonstrations, but of actual work on the part of the student himself. It is, as I have already said, most extraordinary to find that at the time when chemistry is becoming most essential to medicine, some medical boards should so reduce their requirements in the examination on this subject as to render the student's knowledge of it both limited and superficial. But while chemistry may be regarded as at present badly treated, the same cannot be said of histology; and while five-and-twenty years ago comparatively few students possessed a microscope, there is hardly one now who has not only got one at his disposal, but is also able to use it.

The introduction of training in practical physiology, which we owe in great measure to Professors Burdon Sanderson and Michael Foster, has given to the student a basis for his medical studies, such as practical anatomy affords surgery. When I took my degree in medicine I had never looked into an eye or an ear or down a throat; but now we have departments for these specialties, and for others, such as skin and electrical treatment, at most hospitals. I am, unfortunately, unable to give an account of the development of special departments in different hospitals throughout the country, but at St. Bartholomew's there was none for the throat until 1874, when I went to Vienna for six weeks to learn the laryngoscope, and, by the kindness of the Governors, on my return I was provided with everything requisite for opening a special department.

But this department, while I held it, was used almost entirely for the simple treatment of patients; whereas, by my successor, Mr. Butlin, it has been converted into a means for the instruction of students. It is not, however, in this department only that the cases at hospitals are better utilised for instruction. The same thing has gone on in all departments, both general and special, and the change in this respect, which I have noticed in the twenty years during which I have seen out-patients at St. Bartholomew's, has been very great. Everywhere we find men eager to learn, and the desire for knowledge which they show as students they carry with them into practice, where they read and work in a way that makes one frequently astonished that men, the greater part of whose time is taken up in seeing their patients, can manage to keep themselves so well abreast of all the new discoveries. In doing this, great aid has been afforded to men unacquainted with French and German by the abstracts of foreign papers published in medical journals and yearbooks, and especially, perhaps, by the *Medical Record*, now, unfortunately, defunct. Its place, however, has been already filled, and shortly, we hope, will be much more than filled by the *Supplement* to the *British Medical Journal*. Nor is it only in supplying the members of this Association with an epitome of current literature that the Council have shown both wisdom and liberality, for, by granting aid to scientific research and to the investigation of therapeutic questions, the British Medical Association has shown a far-sighted policy and a most praiseworthy desire not to be content with merely keeping abreast with medical progress, but to push onward in the van and further, by every means in its power, the rapid advance of medical knowledge, which is practically the power of rendering aid to suffering humanity. Nor are the periodical meetings of the members of this Association without advantage, for journals may remain unread, or be laid aside for a convenient season which never comes, but the stimulus of personal contact and interchange of ideas tends greatly to further the object which we all have at heart—the prolongation of life, the preservation of health, the alleviation of pains, and the cure of disease.—*Abstract British Medical Journal.*

## PRESIDENT'S ADDRESS

DELIVERED AT THE

FIFTY-NINTH ANNUAL MEETING OF THE  
BRITISH MEDICAL ASSOCIATION,

By J. ROBERTS THOMSON, M.D., F.R.C.P.,

Consulting Physician to the Royal Victoria Hospital  
and to the National Sanatorium for Consumption, Bournemouth.

My first duty—in the name of the Dorset and West Hants Branch of the Association, in the name of the local members of the profession, in the name of the Corporation of Bournemouth, and in the name of my fellow-townsmen—is to bid you all a very hearty welcome, and to express the hope that, favored by Bournemouth weather, your sojourn here may be a very enjoyable one; that you may obtain refreshment and strength from our health-giving breezes; and that you may thus carry away pleasant memories of your visit to this delightful neighborhood.

The place in which you find yourselves would not, a few years ago, have been large enough for the annual meeting of our Association. The history of Bournemouth does not go back into the dim and distant past. There are those among us, by no means very advanced in years, who can remember when it was little more than a village, and when the nearest station—then called Christchurch Road, now Holmsley—was twelve miles off. Now we are within two hours and a half of London, and three lines of rail find a terminus here. By one route you may travel to Birmingham, York, Bradford, without change of carriage; by another, Shrewsbury, Chester, even Birkenhead may be reached without leaving the carriage in which you began your journey. Comparatively, a few years ago, it was but a tiny place, now the population of the borough and the immediately surrounding district exceeds 40,000. What are the causes which have brought about this large increase? The answer is threefold:

1. The medical results of residence during the winter and spring months in Bournemouth have been so satisfactory that invalids have returned here winter after winter, and have brought their friends.

2. The discovery which people have made for themselves, that, though a mild winter climate, it is also a delightful summer climate, and thus we have had a steadily progressive summer season.

3. That care has been taken to preserve, and when possible to improve, the natural advantages of the district.

Did time allow, or were this the fitting place, there is much that could be said upon each point in this threefold answer. With regard to the second and third points, I will not detain you. Suffice it to say that for our summer visitors—be they invalids seeking health, or persons jaded and overdone, seeking restoration of strength or refreshment only—much is done in the way of catering for their recreation and amusement. A fine fleet of steamers daily provides charming sails of much variety, while an endless diversity of drives is offered to those who prefer land excursions, and who do not care "to go down to the sea in ships."

For the geologist there are many attractions, both physiographical and palæontological. The Portland and Purbeck Beds are close at hand, to the west, while the famous Barton Beds are within easy reach to the eastward.

For the botanist, within the compass of a day's excursion, either on the heaths and moorlands in the fertile valleys of the Stour and Avon, or in the New Forest, rich and interesting fields of investigation are to be found.

For the antiquary there are a great variety of objects of interest, Badbury Rings, an old British encampment, and Maiden Castle, one of the most perfect and most elaborately fortified early British camps, are within no great distance. Corfe Castle stands pre-eminent amongst the castles of Great Britain as a grand and noble example of mediæval military architecture, although it is chiefly noticed in history as a State prison. The incident which has most contributed to the notoriety of Corfe is the murder of King Edward the Martyr, but this is associated with the spot only, and not with the fortress as we now see it, for the event took place before the existing castle was erected. We have,

in connection with Corfe Castle the earliest record, so far as I know, of a London consultation in these parts. In the reign of King Henry III., Master John de Beauchamp was sent from London to see a princess who was ill. His journey was probably a hurried one, and, the distance being long, the palfrey on which the doctor rode seems to have been overworked, for it died on its way back to London. The Treasurer and Chamberlains of the Exchequer were ordered to pay to its master out of the King's treasury 3 marks (£2) in compensation. Nags were either very cheap in those days, or else the King's physician was content to ride a very second-rate animal. A consultant from London visits us under somewhat more favorable circumstances nowadays.

For those who love ecclesiastical architecture, the Priory Church of Christchurch is only five miles off, and the Minster of Wimborne may be reached in little over half an hour.

But I may be pardoned if I dwell for a few sentences on the purely medical aspect of the subject. It will, I trust, prove of interest to you, and may also, I venture to think, be useful.

As a winter resort for the phthisical patient, and for all those invalids whose vitality gets lowered by confinement to the house, Bournemouth offers many advantages. There are many to whom a journey is an impossibility, or who dislike the separation from home and friends which going, say, to the Riviera involves. They do not escape an English winter by coming here, but they will get the driest climate which England has to offer, and they will thus be able to get a large amount of out-of-door exercise.

In the summer we have a beach available at all times for bathing, shade to an extent which can seldom be found at the seaside—where is there a seaside resort in England with more trees?—and the climate, because of the dryness, not relaxing; also, as the result of being in a bay, we always have a breeze in warm weather.

Persons must not, of course, expect too much. They sometimes speak as if they anticipated a subtropical climate 100 miles south of London, and as if they were prepared to find that our woods consisted of palm trees and cocoanuts. They have not left England, and so must be prepared for the uncertainties of an English climate. But they will find these modified in a marvellous way by local causes, and will obtain medical results from residence here not inferior to what may be got by journeys much further afield. They will also avoid the discomforts and disadvantages which result therefrom.—*Abstract Brit. Med. Jour.*

**BANANAS IN CHRONIC BRONCHITIS.**—In cases of chronic bronchitis with difficult breathing and scanty expectoration, the use of banana-juice has been highly praised. The juice is prepared by cutting up the bananas in small pieces and putting them, with plenty of sugar, in a closed glass jar. The latter is then placed in cold water, which is gradually made to boil. When the boiling-point is reached the process is complete. Of the syrup so made a teaspoonful every hour is the proper dose.—*Med. Rec.*

## Selections.

AN EASY AND EFFECTUAL METHOD OF PLUGGING FOR EPISTAXIS.—A piece of old, soft, thin cotton, oiled silk, or silk, about 6 inches square—a piece of an old handkerchief will answer—is taken, and by means of a probe, metal thermometer case, or penholder, is pushed, “umbrella” fashion, into the nostril, the direction of pressure, when the patient is sitting erect, being backwards and slightly downwards. It is pushed on until it is felt that the point of the “umbrella” is well into the cavity of the nasopharynx.

The thermometer case is now pushed on in an upward direction and then towards the sides, so as to push more of the “umbrella” into the pharynx, and is then withdrawn. The closed end of the sac protrudes well into the pharynx, and its open end protrudes at the anterior nares. The inside of the sac may be brushed with some astringent, such as alum, turpentine, etc.

A considerable quantity of cotton wool is pushed well back to the bottom of the sac in the pharynx. Then, the thermometer case being held well against the packed wool, the mouth of the sac is pulled upon, and thus its bottom is drawn forward, and forms a firm, hard plug wedged into the posterior nares. The sac may now be packed full of cotton wool, dry or soaked in some astringent solution. The mouth of the sac is tied just outside the nostril, trimmed with scissors, and the ends of the thread secured outside.

It might be suggested to oil the cotton or silk, but I have never found any difficulty without the oil, as the blood renders the material wet and easy of introduction; while the oil does not facilitate removal, and may modify the effect of any hæmostatic employed.

In removing the plug, open the mouth of the sac, and, with small dressing forceps, gently remove the cotton wool bit by bit. If there is bleeding, simply syringe the sac with weak carbolic lotion or Condy's fluid, and repack with clean cotton wool. If there is no bleeding when the wool is picked out, gently pull out the sac; or if it be adhering to the mucous membrane of the nostril, apply a little warm water, and it may then easily be removed.

There are many advantages in this method: (a) It is easy, quickly accomplished, and effectual, and the materials used are to be found in every house, and, indeed, about everybody's person (I have plugged in this manner, simply using a handkerchief, one part of which was used as the sac, and the other torn into narrow strips, in place of cotton wool); (b) no damage is done to the floor of the nose or back of soft palate by strings, etc.; (c) no disagreeable hawking, coughing, or vomiting takes place during introduction; (d) no disagreeable strings are left hanging inside the mouth causing coughing and vomiting; (e) the plug can be removed without any force, so that no damage is done to the mucous membrane, and no return of hemorrhage caused.

I employed this method frequently when in country practice and do so now in bleeding after operation on the nares, and have always found it to be satisfactory.—*A. A. Philip, M.B., C.M. Aberdeen, in Brit. Med. Jour.*

“TESTS FOR ALBUMIN” was the title of a paper read by Dr. William B. Davis, of Cincinnati, at the meeting of the Ohio State Medical Society. He said: Among the equipments required of the physician of to-day is that of making a thorough examination of the urine. In the United States albuminuria has been found to prevail in from ten to twenty per cent. of all persons examined; in Great Britain and Europe larger percentages have been found, Professor Grainger Stewart having demonstrated its presence in nearly one-third of the population. Professor Senator, of Berlin, states in his recent work that forty-one out of every one hundred healthy individuals, particularly soldiers, have albuminuria.

Of late years there has been a great multiplication of tests for the discovery of albumin in the urine. Posner's test, as published by Senator in his late work, is this: “Add to the filtered urine three times its volume of alcohol or a concentrated aqueous solution of tannin, wash out the precipitate with water, and then dissolve with acetic acid; or add a large quantity of acetic acid to the urine, and then evaporate in order to concentrate the urine. In both cases in the acetic acid solution, all the tests for albumin which are not influenced by the acetic acid will give a positive result.” There is no doubt

that some of the tests recently introduced are useless, others misleading, and some are very difficult of application. In order that there may be uniformity in our investigations, there should be an agreement by chemists and the medical officers of life assurance companies upon certain tests for albumin in the urine which shall be recognized as standard.

Dr. Davis here quoted a number of authorities who gave different tests for albumin, and from all the testimony he concluded that the familiar tests of heat and nitric acid were the most popular, the best, and most reliable reagents for the detection of albumin in the urine. Prof. Vaughan, of the University of Michigan, wrote him that he thought the only tests which distinguished the albumins from the albuminoses and peptones were the nitric-acid and heat tests, the nitric-acid contact test, and acetic-acid and potassium-ferrocyanide test.

The author concludes, however, that the refinement of our chemical tests, and the fact that some of them give reactions with other proteids than serum-albumin, do not account for the wide discrepancy between the American and Continental reports of the prevalence of albuminuria in persons otherwise healthy.—*Med. Rec.*

TREATMENT OF PRURITUS ANI AND VULVÆ.—The best method of treatment for this exceedingly unpleasant condition is this, viz.: Cleanse the vagina thoroughly every day with a spray or douche (the spray is better) with a solution of peroxide of hydrogen, one part to three of pure water. (It may be sprayed very thoroughly in the Sims' position and dried with absorbent cotton. At the same time the upper part of the vulva can be cleansed in the same way and dried. Then the whole vagina and vulva should be dusted with Squibb's pure boracic acid in fine powder. The whole external surface of the genitals and anus is to be cleansed in the same manner with the spray, dried and dusted with the powdered boracic acid. Under no circumstances should the parts be washed with soap.) After this a thin layer of absorbent cotton, which has been dusted with the same powder, is to be placed between the folds of the labia majora and between the folds of the buttocks close to the anus and perineum,

the object being to prevent contact of the two irritated surfaces. These pieces of cotton should be removed as soon as they become in the least moist and replaced by fresh pieces.

By manipulating the blade of the speculum, the posterior vaginal wall can be as perfectly cleansed as any other portion of the vagina. And it can be dusted as the speculum is withdrawn.

Though this will effectually relieve the pruritus, it may not prevent its return and is powerless to produce a cure of the condition which produces it. Pruritus of the anus may be caused by rectal disease or from the discharge of the fistula, or it may be produced by a discharge from the vagina, in which case the vulva will be similarly affected. It is most frequently found in pregnant women where there is an old endometritis and where there is extensive erosion of the cervix. In pregnant women a few applications to the cervix of Churchill's tinct. of iodine (this should be five times the strength of the ordinary tincture) every third day, and a douche twice a day of a solution of creolin, will frequently produce a prompt cure.—*Archives of Gynecology, etc.*

INHÀLATIONS IN THE TREATMENT OF PHTHISIS.—The results of this method have not been commensurate with the expectations excited by it. Several potent objections have been urged against the method. First, it has been denied that the various antiseptic and germicide agents applied by inhalation succeed even in reaching the seat of the disease, viz., the sub-mucous tissue of the bronchial mucous-membrane—but are arrested often in the pharynx, oftener still in the larynx. Even assuming that the medicated atmosphere produced by one of the ordinary inhalers really reaches the seat of the disease, its impregnation with carbolic acid, creasote, thymol, or other such agent, is so exceedingly feeble as to leave no solid ground for anticipating serious benefit from its use. Further, many authorities urge that if the phthical patient be taught to rely upon inhalations, the inevitable result will be a life of indoor invalidism and a constant tinkering with his inhalers—a mode of existence sure to effect an amount of mischief more than sufficient to counterbalance the problematical advantages of inhalation.

Professor Germain-See has sought to overcome the first objection, viz., the failure of medicated atmosphere to reach the actual seat of the disease. The method recommended by Germain-See is as follows: The patient is shut up in a metal chamber, hermetically closed, and compressed air passed through creasote and eucalyptol is made to enter slowly. The air in passing through these liquids is saturated, and arrives charged with a large quantity of these medicaments. The pressure must be slowly increased, and should not exceed a half-atmosphere. The speed of delivery of the air saturated with the medicated vapors is from fifteen to twenty cubic metres per hour for a space of five cubic metres of capacity. The patient usually remains in the chamber two hours, sometimes three or more, and no inconvenience ensues as the result of this procedure. The inhalations are made daily, or more frequently.

Germain-See has tried this method in twelve cases, of which one was apical bronchitis, a second foetid bronchitis, and the remaining ten genuine tubercular phthisis—all of which, with one exception, had arrived at the stage of softening. The results were surprising, a marked amelioration being in most cases observable, not only in the amount and character of the expectoration, but in the general constitutional condition, and in some cases, though not in all, a corresponding improvement in physical signs. Contrary to what might seem probable, hæmoptysis was not only excited, but seemed controlled by this mode of treatment, and the appetite and digestion were improved rather than otherwise. Hectic fever was also diminished. Naturally, the least improvement was manifested in the physical signs, but Germain-See is inclined to hope that by this new method the disease, if not cured, may be at least arrested, and further progress prevented. Benefit was obtained in some cases in a fortnight, in others the treatment was kept up for three months.

It is hardly necessary to emphasize the necessity for extreme caution in admitting the claims of any new alleged remedy for tuberculosis, and the evidence in the present case, although interesting, falls far short of demonstration. One benefit, somewhat negative in character, may even now be derived from Germain-See's

researches, viz., the realization of the utter futility of the methods of inhalation so long adopted, and the uselessness of the inhalers now commonly employed. If inhalation is ever to become a valuable agent in therapeutics, it will probably be by the adoption of some plan analogous, and, according to our present knowledge, the most hopeful medicament with which to experiment would seem to be creasote.—*N. Y. Medical Journal.*

THE TREATMENT OF CHRONIC OVARITIS.—Many of the cases treated by abdominal section are not much, if at all, improved. The cases cured are those operated on when near the menopause; those improved are generally such as have suffered from complicating affections; for example, dysmenorrhœa; while the unimproved are the younger subjects in whom the disease was uncomplicated. The indications for treatment are both general and local. The indications for general treatment are to lessen the blood supply and relieve pain by correcting the deranged innervation. This, in the early stage, demands rest in the recumbent position. At the same time general exercise should be advised, either by massage or by gymnastics in the reclining position. The condition of the digestive organs should be carefully watched and relieved by small doses of mercury and a laxative. The saline laxatives are the best. To relieve pain and lessen the hyperæmia, the bromide of sodium and fluid extract of *hydrastis canadensis* are by far the most potential agents; they are given in combination - twenty to thirty grains of the bromide and ten to twenty minims of the *hydrastis*, three times a day, until the physiological effects of the bromide are noticed in a mild degree.

Sometimes the bromide fails, even in larger doses, to relieve the menstrual pain. In this case ten grains of salicylate of sodium and five of antipyrin, given between meals, answer for some time; others, more especially those markedly debilitated, do better on full doses of aromatic spirits of ammonia, camphor, and chloric ether, with small doses of *cannabis indica*. In the unmarried, local treatment should be avoided. Hot sitz-baths, counter-irritation, and hot vaginal douches comprise about all that should be employed in young women. In married women

any complicating disease should be treated locally. In addition, applications which will relieve the tender and hyperæmic ovaries are applicable. A small tampon, saturated with equal parts of tincture of belladonna and glycerine, applied behind the cervix and permitted to remain forty-eight hours, is useful, and after its removal a hot douche. These are continued for five days, and are followed by an application of tincture of iodine to the vaginal vault. Good effect has been obtained from the sulphichtho- late of ammonium, five parts in ninety-five of glycerine, applied in the same way as the bella- donna and glycerine. The general and local treatment thus briefly outlined gives relief to the more pronounced symptoms. The pain be- comes less and also the tenderness. The general health improves and the pelvic conges- tion subsides. From this point tonics and laxatives may still be required, but alteratives are also indicated. Iodine and mercury are the chief agents. Small doses of bichloride of mercury, with chloride of iron, when iron is indicated, followed by syrup of the iodide of iron, in doses as large as can be borne, may be administered. These can only be used when the bromides are given up. In place of the bromides, sulphonal is of great value to promote sleep. The treatment is necessarily a long- continued one and requires patience and careful watching.—*Skene, in Med. News.*

THE NUTRITIVE VALUE OF RECTAL IN- JECTIONS OF EGG ALBUMEN.—The assertions of Voit and Bauer and Eichhorst, that egg albumen is absorbed by the rectum only in the presence of a certain proportion of chloride of sodium, but is returned unaltered with the fæces if this reagent be absent, had led Huber to in- vestigate this point anew, and to make his ob- servations on man, and not on dogs, as his predecessors had done. The experiments were planned with great care, and the quantity of albumen removed from the body, both by the urine and the fæces, was estimated. As the outcome of several series of experiments, the results of which show a great agreement, the author concludes that egg albumen simply beaten up is absorbed by the rectum, but only in very small quantities, and consequently a nutrient en. ma of this kind possesses hardly any

value. When, however, a certain amount of common salt is added (15 grains to each egg in the present series of experiments), the quantity of albumen absorbed is doubled. Peptonized egg albumen was absorbed in very slightly greater proportion than that treated with com- mon salt; but of peptonized albumen with salt between sixty and seventy per cent. was absorbed, and we, therefore, have in this mixture an extremely valuable material for nu- trient enemata. In no case of Huber's were the enemata expelled; nor was albuminuria ever found to occur after their use.—*Med. and Surg. Reporter.*

PUERPERAL FEVER.—Dr. Dorr (*Archives of Gynecology*, May, 1891) does not place much confidence in the curette and irrigation with sublimate. He prefers cleansing the uterine cavity with iodine. Although that elementary substance is not the most powerful germicide, its wide range of curative powers in removing products of inflammation and healing sores makes it preferable for application to the uterus in these cases. Iodine suppositories are not always satisfactory. Dr. Dorr prefers the simple vaginal wash and compound tincture of iodine, ʒ drachm to the pint of water, the irrigation being repeated every six or eight hours. When, however, the symptoms of fever persist, not- withstanding irrigation of the uterus and antipy- retics, a small incision should be made into the abdomen, just wide enough to pass in two fingers, which should be rapidly passed into the sides of the abdominal cavity. Then a good stream of warm boracic lotion must be intro- duced through a tube and allowed to run in by means of a siphon apparatus, so that the ab- dominal cavity is thoroughly washed out.—*Brit. Med. Jour.*

HOW TO KEEP NEEDLES FROM RUSTING.— Dr. Dawbarn, in the *New York Medical Journal*, says: "For the past year I have been pleased with the results of a new plan—new to me, that is, though very probably not to others. This is simply to keep my needles in alcohol. For extreme safety against rust I use absolute alco- hol; but the commercial article would probably be efficient. At least, some needles that I have kept in common alcohol for a month as an

experiment are as bright as ever. Upon buying the needles I immerse them in benzine to remove grease. Then, after running them through a towel, I plunge the point (a cutting-edge Hagedorn) into a bit of cork the size of a pea—to avoid dulling from jolting—and finally, with their corks, they are put and kept in a wide-mouthed, glass-stoppered bottle filled with absolute alcohol. After use, I sew through a thick, wet, soapy towel repeatedly, cleanse the eye with a thread, immerse in benzine, and finally replace in the alcohol. This last is certainly an efficient disinfectant, besides being an excellent protector against rust. By the bye, I long ago gave up using (save in bowel work) any other than Hagedorn self-threading needles, which are a decided comfort, and, when properly made, do not cut the thread.”

RECTAL SALINE INJECTIONS FOR ACUTE ANÆMIA.—Herr and Haussmann (*Centralblatt für Gesammte Therapie*, H. 5, 1890) report the successful employment of rectal injections of one-half per cent. lukewarm salt water in a case severe hemorrhage from premature detachment of the placenta. The loss of blood continued throughout a difficult version and extraction, and after delivery the mother was in a condition of collapse, the pulse barely perceptible, and the superficial veins of the arm empty. The patient did not react, although subcutaneous injections of camphor, ether, and internal stimulants, together with massage of the uterus, had been used vigorously. Transfusion and subcutaneous injection of the saline solution were impracticable, and about two quarts of the fluid were introduced into the rectum and the pelvis elevated. The injection was repeated later, and soon after the pulse could be felt feebly returning. The following day the patient's condition had improved considerably, and convalescence was soon established.—*Univ. Med. Mag.*

FEL BOVIS INSPISSATUM.—Porter (*Medical News*) writes very suggestively concerning the value of inspissated ox-gall in all functional derangements of the digestive and hepatic systems. When taken into the stomach, in doses of two to five grains in capsule, this agent is said to temporarily retard the flow of hydrochloric acid and to stimulate a more copious

discharge of a more active milk-curdling ferment and an improved pepsin. A certain amount of the bile, which passes on into the intestine, there aids in the diastatic and peptonizing actions, which are complete at this point, prevents putrefaction, stimulates the intestinal secretions, and acts as a natural stimulant to the muscular coat of the whole intestinal tract. Finally, when conveyed to the liver, it is partly converted into new and healthy bile, and partly aids in the vital processes carried on by the protoplasm of the hepatic cells. In the light of this knowledge, the author believes that ox-gall becomes one of the most potent physiological antipyretics at command. Its use in typhoid fever is commended as rational and successful; and, in as many as fifty observed cases, the duration of the disease thus treated has been shorter, and the attack milder, as compared with many cases previously observed.—*Univ. Med. Mag.*

THE INFLUENCE OF SMOKING ON PHYSICAL DEVELOPMENT.—From the records of the senior classes of Yale College during the past eight years, the non-smokers are proved to have decidedly gained over the smokers in height, weight, and lung-capacity. All candidates for the crews and other athletic sports were non-smokers. The non-smokers were 20 per cent. taller than the smokers, 25 per cent. heavier, and had 66 per cent. more lung-capacity. In the graduating class of Amherst College of the present year, those not using tobacco have in weight gained 24 per cent. over those using tobacco, in height 37 per cent., in chest-girth 42 per cent., while they have a greater average lung-capacity by 8.36 cubic inches.—*Med. News.*

PYOKTANIN IN CANCER.—Dr. V. Sehlen (*Monats f. prakt. Derm.*, June, 1891, p. 515) describes the case of a man, 70 years of age, who was the subject of an ulcerating carcinomatous tumor on the right cheek. After treating him without result by resorcin plasters, etc., the author applied pyoktanin in substance, which at first caused so much pain that cocaine-antipyrin compresses were used before the application. Within five days secretion had diminished and the ulcer was flatter, cicatrization eventually taking place.—*Brit. Med. Jour.*

THE  
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TORONTO, SEPTEMBER 16, 1891.

A USEFUL CHARITY.

On Saturday, September 5th, an interesting ceremony took place at the Lakeside Home for Little Children, when the donor of the institution, Mr. J. Ross Robertson, formally handed over the title deeds of the property to the trustees of the Victoria Hospital for Sick Children. Toronto is specially favored by the existence of two such noble charities as the Hospital, which is about to be opened on College street, and the Lakeside Home, which was formally presented to the trustees on Saturday. It has been stated that in the Lakeside Home for Little Children this city probably possesses the finest sanitarium for children on the continent. The building is three stories high, and has on all sides large open verandahs, which open off each of the wards; the plumbing, the arrangements for heating, and the provision for thorough ventilation are all adequate; and the promoter of the charity, who has visited and made a study of many of the modern hospitals in this country and in Europe, has made use of his extensive knowledge in providing for the Lakeside Home the most complete equipment in every respect. There is an operating theatre and a good dispensary, whilst for healthful recreation, as well as for special treatment, a gymnasium is provided. In addition there is a play-room for children, where those who are sufficiently well may amuse themselves. The verandahs and wards are so arranged that the cots can be readily wheeled from the one to the other without disturbing the patients. Isolation wards are situated on the third floor and infectious cases are there kept apart from the general wards. The

kitchen and laundry are in a partially detached building at the back. The different parts of the building are connected by telephone communication and electric bells. The institution is capable of accommodating 160 patients, and has provision for 20 nurses and a resident medical officer. A large amount of money has been spent in levelling and sodding the grounds about the building. The house is situated on the south shore of the Island, within two hundred yards of the shore of Lake Ontario; a more suitable spot could hardly be found for a convalescent home. This institution, equipped as it is, will probably serve for more than a mere hospital for convalescent patients; there is in it provision for skilled nursing and medical attendance, so that the most serious medical and surgical cases may be treated there. It is the custom in most convalescent homes with which we are acquainted to send patients from hospitals after they have sufficiently recovered to make them to some extent independent of the nurse and the doctor. Whilst fresh air and healthful surroundings are of undoubted benefit in hastening convalescence, yet it is highly desirable that during the summer months patients, in whatever stage of disease, should benefit by pure air and sunlight; this is all provided for in the Lakeside Home in a way which would be quite impossible in a hospital within the city limits. A noteworthy feature in connection with the Home is that it is worked in conjunction with the Victoria Hospital for Sick Children. This is a great boon to the latter institution. Anyone who has been connected with a children's hospital appreciates the difficulty of providing suitable quarters for convalescent patients during the hot summer months. This difficulty will not present itself to the managers of the hospital in Toronto, as more than adequate accommodation is provided in the Lakeside Home.

INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

The Seventh International Congress of Hygiene and Demography was held in London last month. The meeting was a very successful one. Scientists from varied fields of work met and discussed subjects which have a widespread interest, not only to all medical men, but more

particularly to sanitarians and those engaged in the public health departments of large towns and cities. His Royal Highness the Prince of Wales, as President of the Congress, delivered the inaugural address. The direct patronage of Her Majesty the Queen, and the part played in the proceedings by the Corporation of the City of London, by greeting the members of the Congress in its Guildhall, gave evidence of the acknowledged importance of the meeting of the Congress. The leading corporations of Great Britain were represented, and a number of colonial delegates were present. The multiplicity of subjects dealt with and the ground covered in the discussions were enormous. The views expressed by eminent sanitary authorities, in their papers and during discussion, have, in most instances, been the outcome of widespread experience in different countries and under most varied conditions. The proceedings of the meeting must necessarily have a great influence in advancing scientific work, and the papers published will be eagerly read by those interested in the subjects dealt with. A paper read as an introduction to a discussion on "Tuberculosis in all its Aspects," by Dr. J. Burdon Sanderson, is one of great interest. Sir Joseph Fayrer, in his presidential address in the Section of Preventive Medicine, contrasts the state of England, with its population of more than 29,000,000 during the Victorian age, with the England of the Elizabethan age, with its 4,000,000. At the present time we find great improvements in the mode of living, the result is that the death-rate is considerably reduced and the expectancy of life enhanced. The Section of Bacteriology was presided over by Sir Joseph Lister. The hygiene of infancy, childhood, and school life, was a subject of deep practical interest, and the discussions afforded many practical suggestions. The spread of diphtheria, and the methods of preventing it, was exhaustively discussed. A special section dealt with naval and military hygiene, and another with state hygiene. Among other subjects discussed of special interest might be mentioned "Cancer as an Infective Disease," and "Psoroptosis as a Possible Cause of Epithelial Tumors." It is impossible in these columns to reproduce at length the proceedings of the Congress, but we merely wish to partially indi-

cate the ground covered. Those who are interested in the subjects discussed before the Congress will find in *Public Health*, the official organ of the Congress, special reports of the meetings and discussions.

#### "COUVADE," OR MALE CHILD-BED.

Couvade means a custom according to which after a child is born the father goes to bed and acts as if he had passed through the pangs of labor, while the mother gets up, attends to her ordinary household duties, and perhaps looks after her sick husband. An interesting paper on the subject was recently communicated by Mr. H. Ling Roth to the British Medical Association at Cardiff.

The *Journal*, in commenting on the subject, says: "The custom is met with in Europe, Asia, Africa, and mostly in America. In the West Indies and in South America to this day travellers frequently come across it as a living custom. In Australia it is unknown. It is mostly found amongst people who live in isolated districts and who appear to have been driven from more fruitful lands. It is not found amongst the lowest class of savages nor amongst the highly civilized. Comparisons between the state of the large continents do not explain the causes of its distribution, but an ethnological examination will probably explain it. Quatrefages divides mankind into five great races, namely, black, yellow, white, mixed Oceanic, and American. Couvade is not found to exist in Australia. The reasons for the custom given by the people themselves and the explanations given, by anthropologists and travellers are all equally unsatisfactory. Bachofen's original theory that the custom indicates the turning point in society from the maternal to the paternal finds new support at the present day. The apparent soundness of this theory is most convincing. But if it be correct, why is the custom not found in Australia, where the great society change is going on at the present day? Mr. Thurnim suggests that we should compare the custom to those apparently allied to it, and so get at its origin. The custom as practised by savages shows that the savage believes that there is some hidden link which binds the newborn child to its father. Many curious beliefs are met with among the

uncivilized showing similar belief in occult links, or bonds, or lines of force. These forms of belief are usually described under the general heading of witchcraft. Similarly in the custom of couvade the action of the father is to avoid bewitching his child, so that the custom is an example of an aberrant form of reasoning, and it shows how man may err in his striving after knowledge. We have many examples of this in our nurseries."

## Meeting of Medical Societies.

### PATHOLOGICAL SOCIETY OF TORONTO.

Annual meeting, May 30th, 1891.

The society met in the Biological Department, the President, Dr. J. E. Graham, in the chair.

#### CARCINOMA OF THE STOMACH.

Dr. W. J. Greig presented a specimen and read the following history :

D.S., æt. 39 years. Occupation, dentist. Height, 5 feet, 6 inches ; probable weight, 125 pounds.

*Family History.*—Mother alive, and in good health. Father died of heart disease, but suffered from indigestion. All the brothers are alive and well. One sister not in good health, but no cancer is suspected. No history of cancer in any branch of the family.

*Previous History.*—Had suffered from indigestion at intervals the most of his life. Between the ages of twenty and twenty-five years had frequent vomiting spells, but after marriage, owing to plainer food, this symptom was relieved. But he very frequently suffered from attacks of what was supposed to be purely functional indigestion.

*Present Illness.*—This began in October or November, 1890, with an increase of the dyspeptic symptoms, due, it was supposed, to a closer application to business. He suffered from pain and distention after eating, vomiting, foul eructations, and tenderness in the epigastrium, but had a good appetite.

Condition when first seen, April 24th, 1891 : Increased liver dullness in right side. In the mid line, dullness normal, reaching a point half way between the base of the sternum and

the umbilicus. No dullness in left side. Epigastric tenderness; a small nodule, the size of a marble, was felt in epigastrium, with three or four smaller ones surrounding it. No elevated temperature; pulse 90; tongue, furred; bowels normal; lungs and heart normal; urine loaded with lithates. After filtration, albumen was found, but no casts. Vomited matter was very acid, but had no characteristic appearances. Complexion sallow; and while suggestive of the cancerous cachexia, was by no means typical. At this time the stomach digestion appears to have been almost *nil*, the patient stating that a raw oyster would be returned twenty-four hours after ingestion unaltered. His great complaint was that food would not pass on from the stomach, but would lie there for hours, causing him distress.

*Condition before Death.*—May 28th, 1891: Liver dullness had increased, especially in the mid line of the body, reaching two inches below the umbilicus, also extending to the left side. Epigastric nodules had increased in size, and new ones had made their appearance. No elevation of temperature. Pulse varying from 100 to 160. Bowels acting very well considering the amount of food he was able to take. Lungs and heart still normal, excepting the weaker cardiac action. Vomited matter the same. On only two occasions was there any blood, and then simply a trace. Once my attention was called to a piece of flesh the size of a bean, and resembling organized lymph, in the vomit. Slightly jaundiced. Very much emaciated. Patient died on the morning of the 29th.

*Post Mortem.*—Emaciation very great. All the subcutaneous fat had disappeared. Abdomen full of a blood-stained serum. Liver enormously enlarged, and fully three-quarters of the liver structure was supplanted by cancer tissue, which broke down easily under the finger. The nodules felt in the epigastrium before death were in the left lobe of liver, and were small round cancer growths. Gall bladder was full, but apparently no obstruction to the flow of bile. Stomach: The pyloric end of this organ was a mass of scirrhus cancer. It completely encircled the stomach, and extended to, if it did not include, the pylorus. The mass was thicker on the lesser curvature, where apparently it had originated, and extended in a circular di-

rection, until it completely surrounded the viscus. The cardiac end was free from disease, and the space there would have held half a pint of fluid. The mucous membrane of this part was congested, while that of the pyloric end was supplanted by a huge ulcer. The passage from the cardiac end through the cancerous mass to the duodenum must have been very small. Spleen was atrophied, and kidneys small and congested. No further examination was made of the body. One abdominal gland was found enlarged and cancerous.

*Interesting Points.*—No family history of cancer. Notwithstanding the extensive distention of the liver present, there was no jaundice until two or three days before death. Although the cancerous portion of the stomach was a mass of ulceration, there was no coffee-ground vomiting, properly so-called. On only two occasions was there any trace of blood. It would be interesting to know the relation of the cancer to the attacks of indigestion for the last fifteen years; whether these continually recurring attacks of functional indigestion were sufficient to cause the cancer by irritation, as some authorities claim; or whether it is necessary to fall back on Cohnheim's hypothesis of misplaced embryonic cells acted on by an irritant; but we feel safe in stating that, granting the presence of the embryonic cells, yet, if the irritation had been absent, the cancer would not have developed.

Dr. Fenwick, of the London Hospital, states that cancer may and does occur in men hitherto perfectly healthy, and who have never suffered from indigestion. This, however, we believe to be contrary to the experience of most medical men, and is contrary to the accepted opinions of the day, unless we grant that normal digestion produces irritation, or that an indigestion not sufficient to cause trouble had been present for some time before the occurrence of symptoms pointing to cancer.

Dr. McPhedran said the unaffected part of the stomach would likely show atrophy of the gastric tubules, and so one would expect aepsia. He thinks that dyspepsia has nothing to do with the etiology of cancer of the stomach, for there are as many cases of cancer without a history of indigestion as with it. The condition of the gastric glands shows the difference between simple and malignant ulceration. Some cases

have been reported of very long duration—one of fifteen years. In chronic cases, where there is a good deal of fibrosis, one would expect but little hemorrhage.

Dr. Ferguson related the history of a case with continuous dyspeptic symptoms for ten years, becoming progressively worse, but with no hemorrhage, and dying of cancer of the stomach.

Dr. Graham suggested that these slow cases might be of a nature similar to rodent ulcer of the skin.

Dr. Oldright thought the cancer might not exist from the first, but might be developed towards the end in a course of long dyspeptic symptoms.

Slough separated from a mammary cancer after application of arsenical paste, followed by poulticing: This specimen was presented by Dr. Oldright. The patient said she had been using a cancer paste and then a poultice, and that this large slough had separated.

#### MICROSCOPICAL SPECIMENS.

Dr. Acheson presented (1) slides of diphtheritic membrane from a case of pharyngeal diphtheria, stained with an alkaline solution of methylene-blue, and showing the Klebs-Loeffler bacillus, together with the other micro-organisms usually found in such membranes; also plate cultures on glycerine agar, and tube cultures on solidified blood serum. He considered the only positive test for diphtheria was finding the Klebs-Loeffler bacillus in the pseudo-membrane. It could be readily distinguished by its bent club-shaped end, especially after staining. (2) Sections of a tumor of the spinal cord, from a case where there had been paraplegia for four years. The diagnosis of tumor, probably a fibroma, had been made by Dr. Graham; and the vertebral canal had been opened by Dr. Cameron; with the result that a tumor was found growing from the inner surface of the dura mater, and removed. The tumor proved to be composed of fibrous tissue, containing numerous dilated blood channels, and, in places, a dark pigment, composed of variously sized granules, probably of the nature of melanin. The growth might be designated an angeio-fibroma.

After the transaction of some routine business, and the reception of various annual reports, the following Council for the next year was elected:

Dr. J. E. Graham, President; Dr. A. McPhedran, Vice-President; with Drs. A. B. Macallum, G. A. Peters, and George Acheson, Councillors.

The society then adjourned till Sept. 26th, 1891.

#### GYNECOLOGICAL AND OBSTETRICAL SOCIETY OF BALTIMORE.

April meeting.

The President, Dr. Henry M. Wilson, in the chair.

Dr. Wm. P. Chunn related a case of ascites which he treated by tapping and permanent drainage with apparently good results.

Dr. B. B. Browne operated more than a year ago upon a woman with ascites, who also had an abdominal tumor which proved to be papillomatous. There has been no return of either the dropsy or the papillomatous growth. He referred to the many cases of laparotomy and washing out of the abdominal cavity.

Dr. Geo. W. Miltenberger could not see why any malignant tumor should not be able, by irritation of the serous membrane, to cause ascites. We often see ascites without any definable cause; and when a growth did exist, it seemed a very good reason for the presence of the fluid. He referred to the case of a colored woman operated upon by Dr. Neale.

Dr. L. E. Neale said that in the case of the colored woman referred to there was no assignable cause for the ascites, except the presence of a sub-serous uterine foetus myoma. At the operation he removed the uterine appendages. The growth remained, but there was no return of the ascites. There was also a complete proclivitas; but after the operation, he was enabled to keep the uterus in place with a soft rubber ring. The tumor gradually diminished and ultimately disappeared. Is the exposure and irritation of the serous membrane during the operation a sufficient explanation of such an alteration in its function when the apparent cause of the ascites extension remains? He thought the question eminently important and practical in its bearings, and that it required further elucidation.

Dr. Wilmer Brinton remarked that in a case of cirrhosis of the liver in a male patient

tapping for the ascites had been followed by a permanent opening, which persisted until the patient's death, one month afterwards.

Dr. J. Whitridge Williams, in referring to Dr. Moseby's remarks, said that the ascites accompanying papillomatous growths was considered to be due, in great part, to direct exudation from the vessels of the growth. He also referred to tubercular peritonitis.

Dr. B. B. Browne exhibited a small tumor about the size of a large hickory nut, and apparently a fibroid, which he had removed from a point a little to one side of the median line, and between the clitoris and urethra. It pressed on the urethra, interfering with micturition. The growth was easily shelled out and the patient did perfectly well. It was the first growth of the sort he had seen in that locality.

Dr. Neale related a case of imperforate rectum in a white male child, naturally born at full term of healthy parents. The child was puny, weighing only  $5\frac{3}{4}$  lbs. at birth, and one inch within the anus the rectum was imperforate. Dr. T. Hanny operated upon the child when it was two and a half days old, very feeble, and partly cyanosed. No anæsthetic was used when anus was cut through, the perineal structures laid open, the coccyx removed, the rectum opened through its posterior wall just above the imperforate part, and its mucous membrane stitched to the skin just behind the original anal aperture. The stitches sloughed out and the large wound healed slowly by granulation. A copious discharge of flatus and meconium occurred during the operation, and the tympanitic abdomen disappeared. Profound shock and collapse followed the operation; the child lying motionless, the feet and lower limbs cyanosed; the face and head less so—jaw dropped, mouth opened, eyes closed, lids blue, surface temperature but little, if at all, lowered, no cry. The features were frequently pinched or wrinkled from pain, becoming more or less blue at irregular intervals. In this condition the child would make no effort at suction, but would swallow two teaspoonfuls at a time of milk and brandy when poured into its mouth, rarely refusing to swallow and never vomiting the food and stimulus, which were given freely and frequently. For nearly two days and a half did it remain in this state—partially rousing during the administration of

food or other disturbance, and again relapsing. Even after this period, when the first decided improvement occurred, the child would frequently relapse and remain in this condition for hours at a time. The first two weeks of its life were passed in this manner. The digestive and urinary apparatus functioned normally. From the tenth to the fourteenth day these attacks gradually diminished and ultimately disappeared. The child is now nearly two months old, but very feeble, and weighs only  $5\frac{1}{4}$  lbs. It has been reared chiefly on condensed milk. The dense cicatrix, just about the seat of the old imperforation, has to be dilated daily with the finger; another operation will be necessary. No diagnosis of abnormality in vascular system could be made.

Dr. Brinton mentioned a case of a child which lived nine or ten days with an open ductus arteriosus.

Dr. Miltenberger said that in Dr. Neale's case the sphincter and anus were perfect. On introducing his finger to the end of the cul de sac, he felt what appeared to him the end of the gut. He thought that no ordinary trouble could account for the symptoms in the case. The cyanosis would not clear up entirely and then recur. He did not consider the condition one of collapse. There was no feebleness of pulse or coldness of surface. The child would lie in an apparently comatose condition, with no evidence of sensation, and then recover. The first attack followed immediately the operation, and evidently from shock; but after two or three days it could not be attributed to this cause. There was no chill or febrile condition. After the child had commenced taking food, he used quinine by inunction, and also small doses of dialysed iron, and, as he believes, with benefit from the latter. He was inclined to account for the condition in this way: A very feeble child had food forced upon it for eight or ten hours; and when it had taken in all it could, it apparently fell into a condition similar to that of vomiting animals, and when the supply of food was exhausted it would recover and take more nourishment. This condition entirely disappeared after the first two weeks.

DR. T. S. CULLEN, of Toronto, is at present at Johns Hopkins Hospital, Baltimore.

## Correspondence.

*Editor of THE CANADIAN PRACTITIONER :*

DEAR SIR,—I read with much interest the case reported by Dr. James F. W. Ross in your issue of Sept. 1st, under the heading of "Symptomatic Cure of a Uterine Fibroid by Electricity," etc. I am a firm believer in the beneficial effects of electricity in properly selected cases, and a proper application of the remedy in those cases, the one being quite as essential as the other. Time, knowledge, and experience are as essential to the successful application of electricity in large dosage as they are to the abdominal surgeon in his field of labor. The knowledge and experience in both instances ought to be sufficiently matured before condemning either means of cure that, in scores of experienced and practical hands, has proved so invaluable in selected cases.

The case reported, judging from the symptoms given, was anything but a suitable one for the application of electricity. It is just such cases, and the reporting of them, that tends to bring electricity into disrepute.

Granted that all the indications pointed to fibroma; but if they did, they pointed to fibroma with a pedicle, in which event electricity is worse than useless.

Had Dr. Ross introduced a sound to aid the diagnosis—for if he did he does not say so—a normal measurement of the uterus would have at once declared that the tumor did not involve the general uterine tissue, the form of uterine myoma that electricity is specially adapted to; but it is absolutely inert in myomatous uterine offshoots, unless by the dangerous puncture method.

I do not think the patient would have dreaded the application had the current's strength been regulated by her sensitiveness to pain. One will bear 250 ms. with less distress than another individual 75 ms. Experience teaches that the sensitiveness of the patient is the guide to the strength of current; a sufficiently large abdominal electrode being used in all cases.

As an offset to Dr. Ross's electrical failure, I may be permitted to report one of a number, Mrs. S., æt. 40, whom I was called to see in consultation with Dr. Dame in August, 1889. She was then being built up, as she termed it,

preparatory to undergoing the operation of hysterectomy by one of Toronto's foremost surgeons. I was called to give an opinion as to the advisability of treatment by electricity. Found the patient extremely weak and anæmic; went upstairs with greatest difficulty. More or less general anasarca. Very great difficulty in defæcation in consequence of pressure of tumor on rectum, as it (the tumor) filled the whole pelvic cavity. The sound passed to the extent of five inches.

I advised a trial of the treatment, as it seemed a typical case for good results. Patient came into my hospital Sept. 11th, 1889, and remained until Nov. 6th, during which time she received 20 applications varying in intensity from 200 to 250 ms., with the result of immediate and marked improvement in general health; local distress completely removed; tumor reduced  $\frac{2}{3}$  in size; sound entered only to extent of 3 inches; no difficulty whatever in defæcation. On returning home, patient was able to do her own work, which she had not been able to perform for months previous. She returned once a week for treatment during the following two months, (reduced current), when she was well to all intents and purposes; tumor size of cricket ball. She has reported at my office for examination about every three months since; has continued well and able to do her work; no local trouble up to date of last visit, the 26th of last month. My note at the time states, tumor not enlarged, patient's health continuing good. She now bids fair to pass the climacteric period without having undergone the formidable operation of hysterectomy. I could cite many other cases equally brilliant, some of which I have reported, clearly showing that in electricity we have an agent that has its domain of usefulness quite as truly as the knife; and in selected cases, clearly indicating its employment, I contend it is the duty of the family physician to see that his patient is afforded a trial before undergoing capital operation.

Probably no abdominal surgeon is fonder of having the scalpel in his hand than myself, yet when lives are at stake we must pause to consider our responsibility and if a less dangerous remedy will possibly avail, we must in all instances sacrifice feelings to duty.

HOLFORD WALKER, M.D.

56 Isabella Street.

## Book Notices.

*The Pocket Anatomist.* Founded upon Gray. By C. Henri Leonard, A.M., M.D., Prof. of Diseases of Women and Clinical Gynæcology in the Detroit College of Medicine. Fourteenth revised edition, containing Dissection Hints and Visceral Anatomy Detroit, Mich., 1891: *The Illustrated Medical Journal Co.*, publishers. Cloth, 297 pages, 193 illustrations; price, postpaid, \$1.00.

This book is issued on thin, though nicely glazed paper, and takes up but little room, though 300 pages in thickness. The plates introduced are photo-engraved from the English edition of Gray, and are therefore exact.

## Pamphlets and Reprints.

*By-Laws and Regulations of the Board of Health of the Province of Quebec.*

*Vital and Mortuary Statistics of the Catholic Population of the Province of Quebec, 1889 and 1890.*

*Transactions of Kansas Academy of Science, 1889-90.*

*Action, Therapeutic Value and Use of the Carlsbad Sprudel Salt and its Relation to the Carlsbad Thermal Water.* By W. Jaworski; translated by A. L. A. Toboldt, M.D., Univ. of Penn. Philadelphia: P. Blakiston, Son & Co.

*Bloodless Amputation at the Hip.* By E. Lauphear, M.A., M.D.

*The Motive and Method of Electricity in Pelvic Inflammation.* By G. F. Hulburt, M.D., St. Louis.

*A Case of Intracranial Neoplasm with Localizing Eye Symptoms: Position of Tumor Verified at Autopsy.* By C. A. Oliver, M.D., Philadelphia.

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### Personal.

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DR. CASSIDY, of Toronto, after attending the meeting of the Congress of Hygiene in London, went over to the Continent and remained some time in Paris. He was very much pleased with the work of the French surgeons, and we hope to be able soon to publish something from his pen in the same connection. He returned to Toronto on September 10th.

DR. ROLAND HILL, late of the House Staff of the Toronto General Hospital, was married, Sept. 8th, to Miss Ella Hurdon, of Brantford. He left Toronto on Sept. 11th for St. Louis, Mo., where he has arranged to commence practice.

DR. L. F. BARKER, of Toronto, has just completed his term as resident physician for the summer term in a hospital for sick children in a suburb of Baltimore.

DR. JAMES STEWART, of McGill College, has been elected physician to the Montreal General Hospital in the place of Dr. R. L. MacDonnell, deceased.

DR. VICTOR C. VAUGHAN has been elected Dean of the Medical Faculty of the University of Michigan.

DR. PALMER, of Toronto, has removed his office and residence to 40 College street, third door from Yonge street.

DR. M. T. MCFARLANE has returned to Toronto after a stay of six months in New York.

DR. JAMES DOW has commenced practice in Rothsay.

DR. CHAS. O'REILLY, of Toronto, has just returned from a trip to Halifax.

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### Obituary.

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DR. A. T. CARSON, TORONTO.—Dr. A. T. Carson, of Toronto, died at Heidelberg, Germany, August 31st, at the age of 50. In the year 1889 he had two or three attacks of illness, accompanied by pain in the region of the liver,

the cause of which was somewhat obscure. Early in 1890 he had a severe attack of la grippe, from which he never fully recovered. In June and July of same year he had pronounced, if not pernicious, anæmia. In October he crossed the Atlantic, and, although it was feared that he would scarcely survive the voyage, he derived much benefit from the sea air. After spending a few days in Edinburgh and London, he went to the south of France. From Cannes we received very encouraging reports of his apparent progress towards recovery. He spent the later months of the winter in Italy, and still appeared to be improving in health. Suddenly, however, he grew worse, and had an attack of what seemed like *Roman Fever*. His friends at once decided to bring him back towards home. When they reached Heidelberg he had become so ill that it was deemed advisable to place him in a hospital. He continued to sink, and soon his friends gave up all hopes of his recovery, and now the cable brings us the sad news that his sufferings are ended by death.

Dr. Carson was an Irishman by birth, and was educated principally in Dublin and Edinburgh. He passed for M.R.C.S. Eng., in 1861; M.D. Edin., in 1862. He also received the Lic. Mid. from Edinburgh, Rotunda of Dublin, and the College of Surgeons of England. He was undoubtedly one of the best educated men, both in a medical and in a general sense, that this country has known. After graduating he commenced practice with his father, Dr. James C. L. Carson, in Coleraine, in the northern part of Ireland. In the year 1883 he settled in Toronto, where his abilities and capabilities were soon recognized both by the public and the profession. Before his illness he was engaged in a large and fairly lucrative practice; and among his many friends who mourn his loss will be found many of his former patients, who not only respected him for his ability, but also loved him for his kindness of heart.

DR. BILLINGS, OF HAMILTON.—Dr. L. W. Billings, one of the oldest physicians in the city of Hamilton, died September 9th. Deceased had reached his 87th year. He was one of the last of Sir Astley Cooper's students, beginning practice in Barton Joyce, Nottingham, in 1827. In 1842 he came to Canada, going

first to Guelph, where he remained but a short time before removing to Waterdown, where he lived on a farm for two years. He then removed to Hamilton, where he had resided ever since.

DR. JOHN R. CLARKE, COBOURG.—Dr. John R. Clarke, of Cobourg, died suddenly at his home, August 15th, in the 41st year of his age. He graduated in Arts in Victoria College, and took his medical course in Trinity Medical College. After receiving his degree of M.B., he spent some years in Great Britain, and returned to Canada in 1882, when he commenced practice in Cobourg. He leaves a wife and two young children.

### Births, Marriages, and Deaths.

#### MARRIAGES.

NORTON—ROBERTS.—On Sept. 1st, 1891, Thomas Norton, M.D., of Shelburne, Ont., to Miss Annie L. Roberts, of Port Perry.

THOMPSON—BROWN.—On Sept. 9th, Alexander Stewart Thompson, M.D., of Strathroy, to Miss Mary Louise Brown, of Toronto.

### Therapeutic Notes.

TREATMENT OF URTICARIA (*La Tribune Médicale*, Jan. 1st, 1891).—Quinquaud recommends in cases of intermittent urticaria, quinia, but preferably arsenic. In the chronic form, baths and hydrotherapy in all its forms are to be absolutely forbidden. On the other hand, wrapping the patient up in cotton batting is often excellent. Internally alkalies, arseniate of soda, naphthol, are indicated.

For the pruritus he advises :

R.—Aq. lauro-cerasi . . . . . 50  
 Chloral . . . . . 5  
 Aquæ . . . . . 200

M.

Or,

R.—Ether . . . . . 30  
 Tepid water . . . . . 60

M.

Also a powder for dusting on the surface :

R.—Amyli . . . . . 50  
 Zinci oxid. . . . . 10

Or Acid. salicyl. . . . . 5

M.

When fresh outbreaks supervene, one-fourth of a milligramme of aconitine in divided doses will prove serviceable.—*George T. Elliott, in Jour. of Cutaneous and Genito-Urinary Diseases.*

CHRONIC RHEUMATISM.—The clothing of the patient must be attended to. It is essential that flannel should be worn next to the skin. The Jager underclothing is very good. The diet should be nourishing, and, if stimulants are required, a little whiskey is, perhaps, the best. The internal treatment adopted is very various. I have found the following prescriptions most useful :

R.—Pot. bicarb . . . . . gr. xv.  
 Pot. iod. . . . . gr. iij.  
 Tr. hyoscyam . . . . . m x.  
 Spt. chlorof. . . . . m v.  
 Inf. gentian . . . . . ʒss.

M. S. Ft. haustus, ter in die.

In strong adults, a few drops of vin. colchici is beneficial. I have seen good results from three-grain doses of salicylate of soda three times daily. Guaiacum is useful in some cases.

As the patient progresses, a mixture of the following may be given :

R.—Ferri et ammon. cit. . . . . gr. x.  
 Pot. iod. . . . . gr. iij.  
 Pot. bicarb. . . . . gr. xij.  
 Spt. chlorof. . . . . m v.  
 Aquæ pimentæ. . . . . ʒj.

M. S. Ter in die.

The syrup ferri iodidi answers well in some cases. If there be much pain, opiates, especially given subcutaneously, are often of marvellous efficacy. If the patient is debilitated, cod-liver oil is useful.—*Hospital Gazette.*

TREATMENT OF SYCOSIS (*Annales de Dermatol. and de Syphilis*).—Rosenthal recommends the following method, which possesses the advantages of facility of application, freedom from pain, and relatively rapid cure.

The diseased surfaces should be carefully shaven each day and the following ointment applied two or three times a day :

R.—Tannic acid . . . . . 1 gm.  
 Sulphur . . . . . 2 gm.  
 Vaseline . . . . . 10 gm.

M.

After the friction with this ointment at night, an emollient ointment, Wilson's or Hebra's, may be applied.

The writer has also recently employed, with good results, the following paste :

R.—Tannic acid	. . . . .	5 gm.
Sulphur	. . . . .	10 gm.
Oxide of zinc.		
Starch	. . . . .	aa 17.50 c.cm.
Vaselin	. . . . .	50 c.cm.

M.

This may be applied night and morning. By this method epilation may be dispensed with.—*Jour. of Cutaneous and Gènito-Urinary Diseases.*

### Miscellaneous.

LADIES' RIDING ATTIRE.—Those of our readers who take or see the *Illustrated Sporting and Dramatic News* will probably have noticed some very well-drawn figures of ladies on horseback, entitled "Riding on the Road." They are accompanied, as they should be, by one or two well-attired men on horseback, who may possibly be their riding-masters. Such a group is frequently seen undergoing their lessons in riding at our fashionable seaside resorts. We have on former occasions called attention to improvements in riding habits, especially with a view to the increased safety of ladies on horseback in case of accident, and we are pleased to find that considerable advance has been effected in this respect. Fashion is capricious in riding habits as in other articles of ladies' attire, and it will be seen, on reference to the sketch above mentioned, that in the place of the loose-flowing skirt an unbecomingly tight one has come into vogue. We are not concerned with the artistic outline given to the figure by this modification of the garment so admirably depicted in Mr. J. Sturges' delineation of elegant figures on horseback in the issue of our contemporary of Aug. 22nd, though we are aware that such fashions are thought to be very "fetching"; but it is a matter of interest to our readers for us to point out that such tightly fitting habits, cut so exactly to the configuration of the female form, lessen freedom of movement in the event of accident, and therefore increase danger. Moreover, such tightly adjusted garments suggest that the underclothing, considering the amount of covering this portion of the body usually has, must be altogether inadequate. A sufficient freedom of movement should be insured by the cut of the

riding-skirt, and underneath knickerbockers and gaiters in one should be worn, made of material sufficiently warm and elastic to suit the time of year—thicker in winter, and thinner in summer. Ladies will find such garments by far the most comfortable to ride in, the safest in the event of accident, and the best suited to promote health.—*Lancet.*

BEER-DRINKING AND HEART DISEASE.—It is said (*Blatter f. Klin. Hydrotherapie*, 1891, No. 4) that disease of the heart is very prevalent in Munich, where the consumption of beer amounts, on the average, to 565 litres per head annually; and in the same place the duration of life among the brewing trade is shorter than that of the general population. Whereas the average age attained among the latter is 53.5 years, that of ale-house keepers is 51.35 years, and of brewers 42.33 years. The same note adds that for the whole of Germany the annual consumption of beer per head amounts to 88 litres, but for Bavaria it is 209 litres.—*Lancet.*

IODOFORM AND ARISTOL.—Dr. Richtmann recommends that iodoform should in all cases be replaced by aristol; the latter has the advantages of iodine and of thymol without their drawbacks. It is not irritating, its absorption is not followed by toxic symptoms, and its odor is not disagreeable. Unfortunately, it is insoluble in water. The following are some of the ways in which it may be used:—

In the form of powder, externally, or one part dissolved in ten parts of ether for external use.

A mixture containing 3 per cent. of aristol, in 20 of olive oil and 77 of lanolin, is a good application for burns.—*Nouveaux Remèdes.*

A NEW USE FOR ARISTOL.—Dr. Levick, of Philadelphia, says (*Med. News*): In a case of poisoning of the hands from *rhus toxicodendron*—poison oak—recently under my care, which had reached the vesicular stage, and was attended with much swelling and burning, the happiest results promptly followed the free dusting of the powder of aristol on the affected parts. The change was almost magical, so sudden and so prompt was the relief afforded. Might not this powder, applied in the early stage of the disease, do much toward preventing the ulceration and pitting of variola?