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ORIGINAL ARTICLES.

AN HISTORICAL SKETCH OF CANADIAN MEDICAL EDUCATION.

By WALTER B. GEIKIE, M.D., D.C.L., Dean of Trinity Medical College, Toronto.

(Continued from January issue.)

The Medical Department of Bishop's College. This Medical School was organized in Montreal in 1871. Its first session was held in 1871-2 and Dr. (now Sir William Hingston) was the first Dean. The school was first carried on in the third story of Barron's building on the northeast corner of McGill and Notre Dame streets, and its first class numbered in all 25 students. The next session was held in a new building specially erected for it, and was opened by the present Dean, Dr. F. W. Campbell. At great personal expense the Faculty—giving up all that they had earned by teaching for College purposes, with but a single exception where the teacher's whole time was occupied by his work, and with a devotion to duty such as is seldom met with but in members of the Medical profession—have now got a good, growing, and well-equipped Medical School. If the same energy is continued in the future which has characterized its past history, its prosperity cannot fail to be sure and lasting.

The Laval School of Medicine and Surgery. The Medical Faculty of Laval University has had nearly 60 sessions, having been founded 1843. It is a French School and was first incorporated in 1845. From 1867 to 1891, it was connected by mutual arrangement with Victoria University as its Medical Faculty in Montreal, but in the latter year became the Medical Department in Montreal of Laval University. Its students in all classes now number from 280 to 300 each year. The School is doing good work and is prospering. It has, like the other Canadian Medical Colleges, a large Faculty—well-equipped and up to the present day requirements in its teachings. The Faculty of Medicine in Quebec is also connected as its Medical Department in that City with Laval University. The instruction is all given in French, and it too, is doing good work and has good classes.

Medical Education in Nova Scotia. In December, 1867, a meeting of Medical men in Halifax was convened and, after full consideration of the desirability of establishing a Medical School in that city, it was decided that a course of lectures should be given during the coming summer, and that Dalhousie University should be asked to recognize the course thus given. In 1868 the first annual announcement was issued and the School was definitely recognized as the Medical Faculty of Dalhousie University. The Hon. W. J. Almon, M.D., was its first presiding officer. The intention at first was simply to supply a preparatory course of instruction, and the granting of degrees was not proposed. But in 1870 it was decided to fill the final chairs and to establish a regular full course of from four to six months' sessions, and in future to grant the degrees of M.D., C.M. During the following session of 1870-1, 26 students were in attendance, and in 1872 the first graduates (5) were sent out.

In 1875 the Faculty erected a new building near the Provincial and City Hospital and the Poor Asylum. In order to secure the definite ownership of its property, it separated from the University, and obtained an Act of Incorporation as "Halifax Medical College." The College was empowered to grant degrees in Medicine and Surgery and the Allied Sciences. In 1876 the College sent out its first two graduates under its new name. In 1877 it became affiliated with the University of Halifax which the Legislature had constituted as a Provincial University and which examined candidates and conferred degrees in the various Faculties. This University lasted only a few years. Matters went on nicely till 1885 when a Hospital difficulty arose which ended in the resignation of the entire Hospital staff—and this led to the Medical College closing for a time. Just prior to this difficulty, the College had become affiliated with Dalhousie University, which institution gave the instruction in general and practical Chemistry and in Botany, to the students. To these subjects Physiology was added and the course was given by the teacher of that subject in the Medical College.

It was hoped that the Hospital difficulty would be settled, and the regular full Medical College work soon resumed. At length, in 1887-8, the School re-opened for instruction in the primary branches only. In 1889-90 the trouble was so far arranged to as admit of teaching in the final branches being recommended—and the class that year numbered nineteen in all. Since that time the progress has been uninterrupted and the class has grown so large that soon, a good number of students were in attendance. The Government of the Province had given a small grant to the Medical College, to retain which, the affiliation with Dalhousie University had to be given up, and the Faculty reverted therefore to the former independent position. Dalhousie University appointed the Examiners in all Medical subjects, and the Medical students of the College have, since 1890, gone up to the University for their Examinations and degrees. Associated with the Medical Faculty of the College is a Faculty of Pharmacy, but few Druggists have as yet gone up for their degrees. As a rule they take the examinations of the Pharmaceutical Association.

Canadian Medical Legislation. I desire now to trace as briefly as possible the Medical Legislation in Canada during the past thirty-seven years. For a long time prior to the passing of the Ontario Medical Act as it now exists, the old Medical Board of Upper Canada (Ontario) was the general licensing body of the Province. As teaching Medical bodies gradually increased with the increase of population, the desire naturally became stronger and more general on the part of students to graduate in Medicine rather than to be as heretofore content with a Provincial license. A medical degree obtained from a British or Colonial University entitled its holder to a license, and at least one of the incorporated Medical Schools had obtained the legal right to examine and issue its certificate to successful candidates, and this carried a license with it. Two other licensing Medical Boards had sprung up, conducting their examinations under special Acts. One of these was the "Homœopathic" and the other the "Eclectic" Medical Board. The former came into existence in 1859, the latter in 1861.

With such an increase in the number of licensing bodies of one kind and another, it was self-evident that no little danger was likely to arise from a certain amount of competition, which would be inevitable whatever efforts might be made to guard against it, and would tend to make the obtaining of a license easier than had hitherto been the case. The members of the profession justly feared that the standard of Medical training was likely, if not certain, to be lowered rather than raised under such conditions. This had been wonderfully well maintained so far. But now, prominent Medical men, teachers for the most part, asked, whether it would not be very advantageous to have a central Medical Board established, before which, and wherever educated, all candidates for license should have to be examined? This question admitted of but one reply, and that was in the affirmative—provided that such a Board could be so constituted as to inspire perfect confidence in its absolute impartiality as between the various graduating and teaching medical bodies. It would undoubtedly be a great boon in such case. As might have been expected, however, the first suggestions made, and sought to be passed through the Legislature, were very crude, and were on this account strongly opposed by many who entirely believed in the Central Board principle.

In 1866, "Dr. Parker's Bill," as it is called, was passed. This was the first Act passed since that which had been many years before disallowed, viz., that for the incorporation of the Medical Profession as the College of Physicians and Surgeons of Upper Canada. Dr. Parker's Bill established a Council of Medical Education and Registration for the Province, consisting of twelve elected territorial members, and one representative chosen by each graduating or teaching Medical body then existing or hereafter to be organized. All persons licensed under Upper or Lower Canada Acts at the time it was passed, were entitled to registration. The duty of the Council was to lay down the Medical curriculum for the Medical Colleges, the graduates of which would be entitled to registration. Candidates who had not attended Canadian Colleges had to show that they had completed the curriculum as ordered, and to be examined by a Board appointed by the Council.

But this Bill left the Homœopathic and Eclectic Examining Boards untouched and free to continue their work of examining candidates periodically. This circumstance alone, gave Upper Canada three licensing bodies where one only would, it was believed, give a much better guarantee to the Profession, and to the public, of the fitness of those passing it. In some other respects this Bill of 1866 was unsatisfactory. In 1869 it was repealed, and "The Ontario Medical Act" was passed. Under this Act the great change was made of giving the Homœopathic and Eclectic bodies representation on the Council.

The several Universities and Medical teaching Colleges also, in consideration of each having one representative on the Council, agreed to give up their licensing power. The great aim of making a Central Medical Board appointed by the Council possible, had thus been attained, and a good uniform curriculum might reasonably be expected as the result. It was clearly understood, and in some cases provided by law, that the teaching Colleges would be represented on the Board, and that provision would be made for the examination of Homœopathic candidates by a special Examiner on the few subjects wherein this was thought necessary. By the amendments introduced into the Act in 1874, the Eclectic body was merged in the general profession and its special representation on the Council and Board of Examiners was no longer called for. The Act was still further amended in 1887, 1891 and in 1893. It now regulates all Medical educational matters as regards the curriculum to be followed by students who intend to live and practice in Ontario—from matriculation to the end of the course of study.

The entrance or matriculation examination of the Council has been gradually raised until a certificate is now required to be presented to the Registrar for each candidate for registration as a Medical student, showing that the examination conducted by the Education Department on the course presented for matriculation in Arts, which must in all cases include Physics and Chemistry, has been passed. Graduates in Arts are exempt from this requirement under the Statute. A certificate of having attended one course in Arts in a British or Canadian University, and of having passed the examinations required at its close, entitles to registration.

The Medical curriculum extends now over a period of five years. Four winter sessions of eight months each, with the usual twenty-four months of Hospital attendance, etc., etc., are required. The fifth year must be spent either all in Hospital and practical work and study, or six months of it with a Medical man, and the other six at College or practical Chemical and Hospital work. The Ontario Medical Council's Examining Board examines candidates in Toronto and in Kingston twice a year, in the spring and in the autumn.

IN QUEBEC.

THE COLLEGE OF PHYSICIANS AND SURGEONS OF QUEBEC is an incorporated Board with somewhat similar though not such extensive powers as those possessed by the Ontario College. The preliminary requirement is an examination in English, French, Latin, geography, literature, botany,

chemistry, natural and moral philosophy. The curriculum extends over four years, and includes four winter courses of lectures at a recognized Medical College, and the examination of candidates in the subjects, primary and final, as laid down in the curriculum. Assessors are appointed by the Provincial Board to attend the examinations of the various Colleges and to report to the Board the character of these examinations. These Assessors are not appointed from the Professors in any one of the Universities or Incorporated Medical Schools. An unfavourable report regarding the examinations of any teaching or examining body may lead to the refusal of license and registration for its degrees or diplomas until the examinations have been amended.

IN MANITOBA.

The Medical profession was first incorporated in Manitoba in 1871. The Act was amended in 1877, and again in 1886, in which latter year the executive body was called "The Council of the College of Physicians and Surgeons." The Act was further amended in 1889 and 1890. There are eleven territorial members. Manitoba College has three, and the Homeopathic body one. Any Medical College in Manitoba in affiliation with the University of Manitoba, or which may hereafter be organized, is entitled to two representatives. The University of Manitoba is, under the Act, the sole examining body for registration in the Province. As educational institutions multiply with the increase of population the examining body will probably be modified, but at present the examining power is in the hands of the one University in the Province, under the Manitoba Act. A full curriculum is laid down by the examiners which all candidates must have completed.

IN BRITISH COLUMBIA.

The British Columbia Medical Council was organized by a Medical Act passed in 1886. This council registers any one from any medical school or college, and requires a four years' course of study to have been pursued, the holder of a certificate being required to identify himself as the person named in it, and to undergo before the members of the council a satisfactory examination. The Act was amended in 1893 in regard to the registration of persons registered under the Medical Act of Great Britain. The examinations embrace the ordinary branches of medical science.

IN THE NORTH WEST TERRITORIES.

The first legislation affecting the medical profession in the North-west Territories was passed in 1885, and the profession was incorporated as the Council of Physicians and Surgeons of the North-west Territories in 1888. The Act was amended in 1890-91-92-94. The requirements for registration are somewhat similar to those of the British Columbia Medical Act. The Act recognized only diplomas obtained after a four years' course of study in recognized colleges or medical schools, and required identification in each case of the party as the one named in the diploma, and the passing

of a satisfactory examination. Appended to the North-west Territories' Medical Register is an excellent code of medical ethics—an addition which would be a great advantage to every register.

IN NOVA SCOTIA.

The first Medical Act in Nova Scotia was passed in 1828, and from that year to 1856 the legal requirements of a medical practitioner were the possession of a regular diploma or other recognized equivalent certificate of qualification, or securing after examination a license from the Governor of the Province. This is known as the "Old Provincial License." Military and naval surgeons, and persons in practice prior to 1821 were exempt from the provisions of the various medical Acts. From 1856 to 1872 the above qualifications had to be only registered, by being compared with a register kept in the office of the Provincial Secretary. Licenses given without examination, or to those who were examined, were also registered. And there was a penalty of £5 exacted for practising without registration. Even up to this time registration was in charge of a layman, and occasionally from this cause, fraudulent diplomas were registered without their character being known. Instances in point are those issued by the notorious Buchanan of Philadelphia.

From 1872 to 1897 an Examining Medical Board was in operation, and a Medical man appointed registrar and secretary. In 1884 this Medical Board which had consisted of only nine members was increased to thirteen, and in 1885 prosecutors were appointed to carry out the penal clauses of the Act against unqualified practitioners. Matriculation or preliminary examinations are held twice a year at various places in the Province simultaneously, and the papers are valued by the Examiners of the Board. Professional examinations are held by the Board only where the qualifications presented by the candidate are considered defective. The successful candidates receive what is now known as the License of the Provincial Medical Board. To Dr. Lindsay, of Halifax, the able Secretary of the Medical Board of Nova Scotia, I am indebted for a very full account of the history of Medical legislation in his Province, of which the space at my disposal only admits of my giving this very condensed synopsis, but it may be full enough to show that in Nova Scotia, as in the other Provinces, very creditable progress has been, and is continually, being made in Medical education.

IN NEW BRUNSWICK.

The New Brunswick Medical Act was passed in 1881, and amended in 1882, 1884 and 1895. To be included in the Register of the Council of New Brunswick, the Council must be satisfied that the applicant has duly passed the matriculation examination and that he has afterwards spent four years at a University, College or Incorporated Medical School. These courses must have included the usual curriculum of primary and final studies, Hospital attendance, etc., by the student, and prior to his receiving his diploma or his degree—which he is required to personally present and to identify himself as the person named in it—he must have passed satisfactory examinations requiring attendance at a four years'

graduated course before the examinations can be fully taken. He may, if he has taken the required course without graduating, undergo examination before Examiners appointed by the Council.

IN PRINCE EDWARD ISLAND.

The Medical Council of Prince Edward Island was created by the Medical Act of the Province passed in 1892. The Act prescribes a good matriculation examination to be undergone by all persons who are neither matriculants, graduates in Arts, nor holders of license as first class teachers. The Medical course required is four years, and is essentially similar to the requirements in New Brunswick. An examination has to be undergone before the Council to test the candidate's fitness to practise his profession.

The question is now being discussed at meetings of some of the great Medical Societies in the older Provinces, and notably by the "The Canada Medical Association," whether the time has not arrived when a general standard of Medical examination may be laid down and accepted by all the Provinces, so that passing and registration in one Province of the Dominion may entitle to registration in any other in which a Medical man may desire to settle. As yet, however, discussion of the subject is not yet finished. It is sure to be considered fully in the near future. It will be seen by the foregoing sketch, which might have been greatly extended, did space permit, that Medical education has made great progress in every part of the Dominion, from comparatively small beginnings. During the last fifty years in the vast territory now known as the Dominion of Canada, it is creditable to find that even in its most recently organized Provinces and Territories regulations are laid down and carried out enforcing such a Medical education as secures for the public, as far as any law can do so, a sufficient supply of well-educated physicians. This is an advantage which can be best appreciated by comparing localities thus favoured with others where no such provisions exist; and this sketch may very well close by expressing the writer's gratification at being able to record the present high position of the Medical profession in Canada as being something of which the entire Dominion may be justly proud. I have to acknowledge with thanks the indebtedness for some of the facts given in this short sketch to Dr. Canniff's work on "The Medical Profession in Upper Canada." Also to several of the Deans and Secretaries of Medical Colleges, and Registrars of Medical Councils and Boards, etc., for information bearing on Medical education in different sections of the Dominion.

ANEURISM OF THE DESCENDING PORTION OF THE ARCH OF THE AORTA—RUPTURE.

HAROLD C. PARSONS, B.A., M.D., M.R.C.S., Eng., L.R.C.P., Lond.

I was recently asked to investigate the cause of death in a man who had died suddenly without apparent reason. He had enjoyed comparatively good health and no serious condition had been suspected during life. Examination revealed a thoracic aneurism which had ruptured into the posterior mediastinum. The case presents several points of interest. It is one more to be added to an already long list of unrecognized thoracic aneurisms. The fatal syncope being associated with an attack of vomiting, gave rise to suspicion of poisoning, and it became a medico-legal case.

As will be seen, however, the most striking feature is the course taken by the extravasated blood. It has been tersely said that aneurisms of the ascending portion of the aorta arch are the aneurisms of physical signs, those of the transverse portion are the ones of symptoms, whereas those of the descending thoracic aorta are the aneurisms of neither signs nor symptoms. This same idea as applied to the last group has justified the term "latent aneurisms." The case we present, however, can hardly be placed in this category, as it did give rise to symptoms, however vague they may have been, but as to physical signs we have no record.

The patient was a man of 50 years of age, full blooded and well nourished. There was a history of syphilis and of alcoholism, but beyond that I am unable to obtain facts of his previous history. His physicians tell me that for some months he had suffered from constant pain in the lumbar region causing him to walk in a stooping position with his hands pressed against his back and that on exertion there was dyspnoea but not marked at any time.

The evening before his death he retired in his usual health. About midnight he was seized with an attack of vomiting and died in a few minutes. There is no record of his having vomited blood.

POSTMORTEM REPORT.

The body is that of a well developed, well nourished man, apparently 50 years of age. No scars and no marks of violence to be found.

Pupils slightly dilated and equal, with gums and lips normal in appearance. About the umbilicus and in the right groin are punctures made by the undertaker in embalming the body. Subcutaneous fat abundant, and bright yellow in color.

On opening the abdomen, old, firm adhesions are found between the omentum and anterior abdominal wall to the right of the middle line, at the level of the umbilicus. The cavity contains about two pints of brownish fluid (injection fluid). Upon the anterior surface of the stomach two

blood clots, dark red in color, each 3x1 inch, are found; otherwise no free blood in the cavity.

Above the stomach and behind the peritoneum is a large, soft, blood-red mass, limited below by the lesser curvature of the stomach and extending upward to the diaphragm. Between the layers of the mesentery at its upper part, the same condition is found, and extending from this point outward to the left over the region of the kidney, and along the line of the descending colon.

Thorax. Extensive adhesions practically obliterate both pleural cavities. No excess of fluid in the pericardial cavity. *Heart*, normal in size; *right side*, valves normal; muscular wall pale, but firm. *Left side*, the *aortic segment* of the mitral valve normal; the opposing valve is shortened to be about $\frac{1}{3}$ of an inch from the attached to the free margin, but no thickening is present nor is there sign of recent disease in either valve.

One cusp, of the aortic valve shows a perforation near the free edge, $\frac{1}{8}$ inch in diameter, the outline of the valve, however, is preserved intact by a thin fibrous band passing across on the free edge and forming the outer boundary of the perforation. The margins of this opening are smooth, rounded and firm. There is no sign of recent disease. The muscular wall is brownish-red in color and firm. The aorta above the valves shows an advanced grade of atheroma.

Coronary arteries. *Right*, at the orifice there is a slight thickening, but the opening is not materially narrowed. The vessel in its course is soft and the calibre large, except at one point, where there is a patch of yellow thickening $\frac{1}{8}$ inch in diameter. The left shows no change.

Lungs. *Left*, the pleural cavity is obliterated by dense adhesions except at a small area posteriorly where there is a small space containing about one ounce of thin brownish fluid.

The lower lobe and lower portion of the upper lobe are airless and leathery, and on section is dry and collapsed, and dark reddish brown in color.

The apex of the upper lobe is crepitant. No areas of consolidation are present. To the inner side the lung is firmly adherent to a large solid mass lying upon and to the left of the spinal column.

Right, adhesions obliterate the pleural cavity. The lung is voluminous, everywhere crepitant, the lower lobe being slightly more resistant than the others. On section of lower lobe a large amount of bloody, frothy fluid escapes, the upper and middle lobes are drier, and collapse more readily.

Thoracic aorta. From the left extremity of the transverse portion of the aortic arch and extending downwards 7 inches, is an irregular dilatation of the vessel. It forms a large, rather firm mass containing firm bodies within it which may be moved about under the finger.

The greatest enlargement is to the left where it encroaches upon the lung, compressing it as already described, and to which it is firmly adherent. The right margin is slightly concave.

The measurements are—vertical, 7 inches; transverse $3\frac{1}{2}$ inches; antero-posterior $2\frac{1}{4}$ inches. Posteriorly the sac is firmly adherent to the spinal column at the level of the 5th and 6th dorsal vertebrae.

On removal an opening is found at this point $2 \times 1\frac{1}{4}$ inches, the long diameter being vertical. The left and anterior portions of the bodies of the 5th and 6th vertebrae and the intervening disc of cartilage are eroded, in the deepest part to $\frac{3}{4}$ inch in extent.

The course of the œsophagus is much altered. It is first drawn to the left and then backward for the extent of about $1\frac{1}{2}$ inches, and for the $2\frac{1}{2}$ inches below, is drawn to the right and forward forming a sharp angle.

Between the œsophagus and sac—at the junction of the middle and lower thirds of the sac—and extending downwards in the posterior mediastinum is an extensive extravasation of blood passing to the diaphragm and along the course of the vessels and appearing retro-peritoneally, above and behind the stomach, over the pancreas, between the folds of the mesentery as previously described.

On opening the sac along the anterior surface, the cavity is found to contain a large quantity of granular, brownish, laminated clot. Corresponding to the point of adhesion to and erosion of the vertebrae, there is an irregular oval mass of clot, very firm, brown in color, and on section dense and laminated measuring $2\frac{1}{2} \times 2\frac{1}{4} \times 2$ inches. The wall shows an advanced grade of atheroma, rough and uneven, mottled yellow and brown, with here and there a calcareous plate.

In the posterior wall two inches below the point of adhesion to the spine, and toward the right side, is a ragged V-shaped tear in a part where atheroma is marked. The arms of the V are $1\frac{1}{2}$ inches in length. This opening can be traced through the entire wall and emerges at the seat of the blood clot, previously described, between the œsophagus and the sac, the external orifice being irregularly circular with a diameter of one inch.

Abdomen. Peritoneum smooth and normal in appearance, except for the blood staining in parts as described.

Spleen. Slightly enlarged, purple in color, capsule wrinkled. On section tissue is reddish-brown in color and normal in consistence.

Kidneys. About normal in size, surface slightly irregular, capsules slightly adherent. On section, cortex pale and mottled and rather increased in thickness. Striae of pyramids not well seen. Both kidneys are alike.

Intestines. Nothing abnormal found.

Stomach. Contains 3 ounces of a greenish-yellow, sour smelling fluid. Stomach wall smooth and free from disease.

Pancreas. Blood staining over the surface—otherwise normal.

Liver. Normal in size, surface smooth, consistence normal. On section, the appearance is that of chronic passive congestion.

Genito-urinary system—negative. Throughout the posterior position of the abdominal cavity, behind the peritoneum, in the middle line and to the left, is an extensive effusion of blood, which covers the pancreas and large vessels and extends to the left over the kidney, and to a lesser extent along the line of the descending colon.

A series of cases reported from the pathological department of the Manchester Royal Infirmary gives a general idea of the frequency.

character and termination of aneurisms of the thoracic aorta. In 4593 cases coming to autopsy rupture of thoracic aneurism was found in 32. The portion of the vessel involved was, the ascending portion of the arch in 12, transverse in 11, descending part of arch in 4, and the descending aorta apart from the arch in 5.

The extravasation of blood in these cases was as follows: into the pericardium 13; into left pleura 7; right pleura 1; left lung 1; œsophagus 3; externally 3; trachea 2; right bronchus 1; superior vena cava 1.

It is interesting to note that of these 32 cases 6 were medico-legal cases by reason of the sudden death.

In the majority of cases death is sudden, may be instantaneous with the rupture of the sac, but several hours may elapse, and even 9 days as recorded by Uissim (Bull de la Soc. Anat, Paris, Oct. '94).

The course of the extravasation of blood in the case here reported is apparently quite unusual. I am unable to find records of a similar condition in the literature at my disposal.

In a general way Coates speaks of abdominal aneurisms opening into the posterior mediastinum. Aneurisms of the thoracic aorta, in its descending portion, usually burst into the left pleural cavity, as the opening is more frequent on the convexity of the sac. The opening in the case was posterior and somewhat to the right and opening as it does directly into the connective tissue of the posterior mediastinum between the sac and the œsophagus, the course of extravasation is in part explained. Add to this however the almost complete obliteration of the pleural cavities by adhesions and it is further accounted for.

When the hemorrhage is into the pericardial cavity, death is supposed to result from interference with the heart's action rather from actual loss of blood. When into a large serous cavity the blood lost brings about the fatal result. In this connection strange instances are recorded. One with a loss of two and one-half quarts of blood into the left pleural cavity the patient lived 9 days after the rupture of the sac. (Uissim).

In the case here recorded the extravasation was certainly extensive, but considering the vital regions invaded, shock probably played an important part.

The erosion of the vertebrae explains the pain in the back, the only symptom complained of.

The patient as far as can be ascertained had no dysphagia which is remarkable considering the sharp kink found by the œsophagus at the level of the aneurism.

REPORT OF A CASE OF ISCHIO-SCROTAL ECZEMA MADIDANS RUBRUM.

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No malady save psoriasis tasks so much the ingenuity of the physician as the above mentioned affection. Its infrequent occurrence, the difficulty attending its proper recognition, the oscillatory results from treatment adopted towards its abatement, places it within the domain of unmanageable and protracted cutaneous diseases. It is an affection resisting every therapeutic measure, mocking all our efforts until we are compelled to give up the case as a hopeless one despairing of ever attaining the desired end, viz., amelioration and final eradication.

I have witnessed but six cases of this singular variety of eczema. The following case came recently under my observation.

R. R., aet., 12, American, schoolboy, white, appeared in my clinic for treatment. His family history suggested a so-called "darthic or cutaneous diathesis": his mother's father and brothers having suffered from some form of skin disease (if reliance could be placed in the statements of Mrs. R.) She herself is afflicted with a psoriasis guttata of about 15 years' standing, irregularly distributed over the entire back and extensor surfaces of the elbows, thighs and legs. A sister of the patient 7 years of age—has had acute eczema of the ears and auditory canal two years ago, and has been treated for it in this clinic.

The previous history of the boy reveals an attack of some of the acute exanthemata. This occurred when he was six years of age, and has left behind as a sequela a train of symptoms a clinical picture which may be outlined as follows:

The lesions were situated upon the gluteal areas, ischio-gluteal spaces, perineum, scrotum and hypogastric region, and consisted of three distinct forms;

(a) Macular lesions, bright red in color, unaccompanied by any subjective symptoms, but possessing a great deal of marginal induration, which were located upon the perineum.

(b) Papulo-vesicular lesions, with a considerable degree of moisture, accompanied by subjective symptoms, as smarting, burning and itching. This variety was confined to the gluteal regions.

(c) Squamous lesions and fissures distributed over the scrotum and hypogastrium, consisted of extensive confluent crusts glossy in appearance, somewhat pinkish in color and of about one-sixth of an inch in thickness; these crusts exhibited cracks or fissures, exposing the delicate corium. Beneath these crusts the base was indurated, reddened and shining. Subjective symptoms were marked and caused a great deal of discomfort especially at night.

There were few faint mixed lesions on the inner surfaces of the thighs; they were, however, so insignificant, that they deserve but a passing consideration.

The general condition of the patient was good; food was properly digested and assimilated; the excretions were normal. The lesions themselves, exhibited a chronicity and were stationary in character as regards their form, for no alteration or modification whatsoever has been observed for the last five years, except an exacerbation now and then. The patient has been under treatment since the first manifestation of the malady, but without avail, for so far it has proved rebellious to the means employed.

Diagnosis. It was not easy to diagnose this case as eczema madidans, for there were several factors which were misleading. Psoriasis for one, bears a resemblance to this disease, although not marked and wanting many of its specific symptoms. Lichen cruralis possesses features in common with eczema madidans, those on the gluteal regions strongly suggesting lichen planus. Dermatitis multiforme is a disease, simulating the one under consideration so closely that a proper recognition is not always possible. Still, the symptoms pointing to eczema madidans are in preponderance. Furthermore, my experience of previous cases of a similar character, corroborated the present diagnosis.

The nature of the disease was fully disclosed to patient's mother and the prognosis given was rather unfavorable, expressing hopes, however, that at best it will disappear spontaneously, after the boy will have attained full adolescence.

Treatment. The usual remedies recommended for this dermatosis were described but proved futile. The lesions, for a while, seemed to be on a proper road towards abatement, undergoing retrogression, to re-appear, however, with renewed efflorescence and acuteness. The scales and crusts would re-accumulate as quick as their removal was effected. For a time the inflammatory and exudative features of the disease gave fair hope to decline, but soon returned with an augmented marginal induration and the formation of vesicles; the latter, after rupturing were attended by the discharge of a viscid, yellowish brown material, which in its turn was followed by dirty brown scabs. To dissolve and remove the latter and simultaneously exert a mild stimulating action upon the hardened structures beneath them, without allowing the crusts to reform and without causing undue irritation of the lesions under temporary exacerbation, were the chief indications for treatment. In search of a remedy, fulfilling these indications, glycozone suggested itself to me as the agent likely to accomplish the desired result and I decided to give it a fair trial. Pledgets of lint, saturated with glycozone were applied to the eruption over the scrotum, perineum and hypogastrium and held snugly in situ by a specia-bandage. This was removed the following morning and an ointment, composed of zinc oxid and ichthyol was substituted, which in its turn was succeeded again by the glycozone dressing mentioned above. This treatment was continued uninterruptedly for about four weeks, with very short intermissions. Meanwhile systemic treatment, consisting of an emulsion of cod liver oil with the syrup of hypophosphites and fer-

rous iodide were also administered. Under this regime, with plenty of fresh air and out-door exercise, with wholesome, nutritious and easily digestible food, the eruption began to manifest signs of considerable improvement. The crusts greatly diminished in thickness and their re-accumulation was not as marked as heretofore. The underlying indurated, reddened, and glossy base assumed a pinkish tint, and had a softer—almost velvety feel. The papules, vesicles, and fissures lost their prominence and acuteness, and no discharge whatsoever was observed at the end of five weeks. After this the zinc oxide and ichthyol ointment was discarded, but the glycozone dressings were continued thrice weekly for three more weeks. At the expiration of this time all the lesions had vanished, except a small patch in the upper gluteal region which bids fair to disappear under the same medication. The integument over the scrotum, perineum and glutei has its normal color and consistency.

Eight months have elapsed since and no return of the malady has been noticed, the boy remaining in perfect health. I attribute the eradication of this rare and obstinate cutaneous affection to the dehydrating, stimulating, detergent and protective properties of glycozone.

SELECTED ARTICLES.

PROGNOSIS AND TREATMENT IN PULMONARY TUBERCULOSIS.

By ROBERT MAGUIRE, M.D., F.R.C.P., Lond.

Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, and Physician to Out-patients, St. Mary's Hospital.

(Delivered before the Harveian Society, of London on November 15, 1900.)

MR. PRESIDENT AND GENTLEMEN: In the previous lectures I asked you to think of the tubercle bacillus in its progress, of how we can estimate its influence upon the lung tissue and the general system, the extent of its progress and the likelihood of its further action. Now I come to the question of how we can prevent its action and progress and remedy the results of its action. Once more I ask you to think of pathology, for in a perfect knowledge of that must consist not only our prognosis, as heretofore discussed, but also our rational treatment. We must consider (a) how we can increase the resistance of the tissues (normally present) to the influence of the bacillus tuberculosis and its congeners; (b) how we can hinder the action of the bacillus by destroying its congeners, the staphylococcus pyogenes and the pneumococcus; (c) how we can hinder the action of the bacillus by interfering somewhat with its own vitality, and, finally, (d) what means can we adopt to kill the bacillus *in situ*?

(a) We can obtain increase of the resistance of the tissues by adding to their vital power, and this can be done and has been done since the disease was first known by over-feeding, fresh air and adjuvant measures. Before recent agitation we had been doing all this, and I show you here a record from my in-patient department at the Hospital for Consumption and Diseases of the Chest at Brompton of a case, treated on just simply the old lines of care, supervision, good feeding, and especially discipline of habits under a competent sister of the ward. The patient gained in weight 21 pounds in a fortnight, and he is not a very unusual example. Others show similar improvement, and that without other treatment which need be considered. The "Open-air Treatment" is, of course, good as adding to the vitality of the patient and increasing the resistance of his tissues. We have practiced this, more or less, not only in pulmonary tuberculosis but in other diseases also long before it was brought before the public so prominently as has been done recently. Debove first advanced the idea of forced feeding. Many had recommended open air in phthisis, and yet let us give honor to the men who systematized the methods. But, like all enthusiasts, they were, I think, somewhat wrong. It is right to stimulate the absorptive powers and to encourage them to deal with cod-liver oil, maltine, excessive food, and so on. It is right to make the patient breathe pure air, cold air (if needs be), and again to harden himself to exposure—if he can do so. But I would like to give you a word of warning. The profession seems to have gone mad on this matter.

Remember what Wilkie said about *his* methods. Someone asked him how he mixed his colors so as to get such wonderful effects and he replied, "Just wi' brains." Mix your prescription of open-air treatment (so-called) with a little common sense. Now, is it common sense to make a patient sit down and try to eat another mutton cutlet when he has previously vomited two? Yet I am told that this has been done in a well-known sanatorium and the patient commended for his perseverance. Surely his digestive organs required a little more consideration. And when we know a certain patient to be very liable to the effect of slight chills and also to inflammation as the result of such chills, is it necessary to put him into the open air, covered as it may be from the external atmosphere, but inhaling the cold air into his bronchi, in order to "harden" him? We sometimes cry down the methods of the bone-setters, rightly or wrongly; but surely what I have described savors of them, and I say at once that this idea is wrong. You must mix the open-air treatment and also the treatment in sanatoria "wi' brains" or else leave them alone. But let it not be supposed that I cry down the open-air treatment. I have seen what good it may do with and without the discipline of a sanatorium. I have known what good may be got by it in the best of circumstances; also in such open air as we can obtain in the Brompton Hospital, there, too, with discipline and good feeding; and I have known one patient (whom I saw with Dr. C. F. Knight) to do surprisingly well when dwelling in a tent erected in a back garden in Fulham. But we must remember that all these are only methods of bolstering up the tissues against the bacillary invasion.

Drugs of all kinds have the same effect. So, too, have other remedies which will be mentioned later, though their advocates may possibly take a different view of their action. I have used arsenic for many years as a hæmic stimulant in pulmonary tuberculosis, and for the reason that, from some cause or other, iron is not well borne by phthisical patients. I have seen good come from its use, and I refer to the matter here because of what has been recently said as to cacodylate of sodium being a cure for tuberculosis of the lungs. I have used it, and it is useful. It is a good alternative when arsenic by the mouth is not tolerated, and when one wishes to give the same or even an increased dose of the drug by the skin. I have prescribed it in blood diseases, and rarely with ill effect; but it acts only as a stimulant to the formation of red-blood corpuscles, and therefore can only have a very indirect effect upon the tubercle bacillus. It is a useful tonic remedy, and that is all.

Under this heading there may be mentioned my colleague, Dr. S. H. Habershon's treatment by the subcutaneous injection of glycogen, and that of De Backer by the administration of special preparations of yeast, though the consideration of the latter more properly belongs to a later section. Of these methods I have no personal knowledge and will say little. Dr. Habershon's idea is to increase the phagocytal power of the leucocytes by supplying them with glycogen as a stimulating food, and I hear from him that he has had some encouraging results. He has not yet completed his work, but allows me to mention it here. De Backer holds the view that the yeast cells may act as additional phagocytes and

absolutely destroy the tubercle bacillus. Allied to Dr. Habershon's method is that of subcutaneous injection of nuclein, which will be more conveniently described below.

I cannot within the limits of the lectures discuss with you all the methods of treatment which have been adopted, and most of them discarded, in modern times. I wish to devote the remainder of this lecture to a description of a method of treatment of pulmonary tuberculosis, and also of other disorders of the lungs which I have been working at for some time, which is on absolutely new lines, and which I have reason for saying is likely to be successful. I give it now to you for the first time in order that my professional brethren may form an opinion upon it. Its object is to fulfill the indications mentioned under the sections (b), (c) and (d). We would like to kill the tubercle bacillus *in situ* as mentioned in (d). But failing that, we may do good by weakening its action (c) and so enable the body powers to deal with it more advantageously, and finally, if we can produce no good action upon this very resistant tubercle bacillus, we may be able to destroy the more vulnerable assistant germs, the staphylococcus and pneumococcus. What follows I must ask you to consider as a preliminary communication to which details will hereafter be added elsewhere, and I will style the subject.

ASEPSIS OF THE LUNG.

It appeared to me that the anatomy of the lung-circulation lent itself to a special mode of treatment. We have seen how successful, and at times unsuccessful, may be the effort to increase the vitality of the lung by excessive feeding, open-air, and so on. No pronounced effect is produced on the disease by inhalations of antiseptic vapors, for these cannot be administered so as to pass the glottis in any such strength as could produce effect upon germs, even if the inhalations ever reached the lungs. They do not reach the lungs, for we have reason to believe that they never go much beyond the bifurcation of the bronchi in any appreciable strength. We know only too well, however we may appreciate our successes, that by all these methods we have a lamentable number of failures. The same, I am afraid, must be said of many other methods of treatment which have been put forward at various times, and this view I mention with every due respect to the authors of those methods and to the immense amount of work which they have given to the subject. Undoubtedly the rational cure for pulmonary, as for all tuberculosis, is the administration of an antitoxin derived from the tubercle bacillus itself, as was designed by Koch. But, as you are well aware, this has hitherto proved useless and worse than useless. So we must still say of the further attempts in the same line by modification of his methods. Some day, though probably not in our time, the end thus aimed at will be attained, and then we shall have a perfect cure. But before this result is reached we must still go on treating our patients and trying to cure them. Again, attempts have been made to obtain an antitoxin from the growth of the tubercle bacillus, not on our laboratory cultivations, as was done by Koch, but in the living bodies of such animals as the ox, the ass, and the horse. I allude here to the so-called anti-tuberculous serums, all of which have

proved to be practically useless. It has appeared to me at times that, seeing how tuberculous patients who suffer from pleural effusion seem to be much better when the effusion is allowed to be absorbed naturally and is treated by paracentesis—and this, you will remember, I alluded to in my former lecture—that the good result might be due to the re-absorption of an anti-tuberculous serum grown on human soil. It is not easy to get such serum without doing an injustice to the patient, for, as I have stated, the effusion is best left alone. Yet occasionally it happens that an effusion is so great as to by its actual presence endanger the life of the patient. Such a case occurred to me a little time ago at St. Mary's Hospital, and I determined, on removing the effusion, to ascertain whether it possessed any property which was antitoxic to the bacillus. But before using such a serum for experiment it is absolutely necessary to remove from it all active tubercle bacilli, and I could not conceive of any other method of doing this than by passing it through a Pasteur's filter under pressure. But the solution could not by any means be made to pass through the filter, and so the experiment had to be abandoned. Possibly another chance of which I can take advantage may offer itself in the future. (It may be interesting to record the later history of this case in connection with the danger from hemorrhage to which the patient is liable in the third stage, and to which I referred at the close of my last lecture. The patient, a youth, aged 18 years, was taken into the hospital because of his effusion, and I aspirated his chest, though I knew that he had phthisis in the third stage. After a few days he had recovered from his effusion and his phthisis being quiescent I allowed him to leave. He walked from the hospital down Praed street, was overtaken by copious hæmoptysis before reaching the Great Western station and was brought back to the hospital dead. I was very thankful that his hæmoptysis did not occur during my aspiration.

I have mentioned the methods of Dr. Habershon and De Backer by which it has been thought possible to inject underneath the skin substances which may reinforce the lung tissue in its fight against the bacillus—namely, glycogen and yeast respectively. Dr. Habershon's work is not yet completed, and I am afraid that De Backer's results must be said to be unsatisfactory. Others, too, have attempted to administer antiseptics by means of the skin—that is, subcutaneously—and without any success. Nor is this to be wondered at when we think that any remedy placed under the skin must be diluted with all the fluids of the body before it reaches the lungs, and then cannot fail to be powerless. For many years antiseptics, like creosote and its essence guaiacol, have been given by this method in so dilute a form, to begin with, as to be useless, even if applied directly to the bacillus. Yet they are still further diluted in the stomach, and more or less altered in their passage through the liver and other digestive organs so as not to have the slightest effect for our purpose when they reach the lungs. It is true that by reason of direct absorption through the blood-vessels of the stomach these drugs—especially creosote, guaiacol, iodoform and naphthalene, all of which I have used—reach the lung unaltered and can be detected in the expired air. It is true also that these expired vapors are of some slight use in pre-

venting the decomposition of the secreta in the lung. All of these points I have observed and willingly admit. But they have not the faintest direct effect upon the progress of pulmonary tuberculosis; in fact, they are almost useless. It has again been suggested by the followers of De Backer that the yeast cells, and again other reagents, should be injected directly into the infected parts of the lung; and once more I admit that good results have ensued. But remember, however, that such injections cannot reach very far into the tissues, and they must be very numerous, therefore painful and frequently repeated, if they are to touch even the recognized foci of disease. But what about the unrecognized foci? For surely none of us, however experienced, will venture to say that he can detect by physical examination every spot of the lung affected by an attack of tuberculosis. And what about the patches which, recognized or suspected, are beyond the reach of any injection syringe? Surely there will always remain such spots, inaccessible to all such treatment and ready to spread to neighboring and other parts of the lung. Such treatment cannot possibly be really curative. And as to the more surgical procedure of removing affected parts of the lung—and this has been done—well, the less said the better, for fear that the mere mention of it may encourage an unduly bold surgeon to practice it.

But let us come back to what I have mentioned above—that the anatomy of the lung-circulation lends itself to our treatment. This has been impressed upon me for some time, for it must be obvious that anything introduced into the veins must necessarily pass directly through the lungs by way of the right side of the heart, and without dilution of other fluids of the body than the amount of blood contained in the right ventricle at the time when the injected fluid reaches that cavity. I determined to try this method, and with much trepidation when I thought of the manifest dangers involved in the introduction of a foreign substance into the blood-stream. But I was encouraged to pursue the investigation by hearing that my colleague, Mr. Ernest Lane, had been treating syphilis by injecting 2-per cent. solution of cyanide of mercury into the veins, and by seeing the beneficial effects upon one patient of mine at St. Mary's Hospital, whom he treated for virulent syphilis. I went to the Lock Hospital to see Mr. Lane's method, and seeing what he had done I thought that if he could inject cyanide of mercury with impunity—for he had done it some 3,000 times without other mishap than the occasional missing of the vein by the needle—and seeing, too, that cyanide of mercury was not only anti-syphilitic, but also a powerful germicide, I also might safely use the same on tuberculous patients. Mr. Lane was in the habit of injecting 20 minims of a 2-per cent. solution, but I injected 30 minims of the same solution into the veins of two patients at the Brompton Hospital. But as that strength would be useless for my purpose, and wishing to use the drug in stronger solution I asked my colleague, Mr. Plimmer, to inject a solution of 5 per cent into the ear-vein of the rabbit. The rabbit died before the injection could be completed, and, as we found, from coagulation of blood in the right side of the heart. I immediately hurried, as you may readily understand, to see what had been the effect of the weaker injection upon my tubercu-

lous patients and found that both of them had become very collapsed and had suffered from painless diarrhoeal flux. It was obvious that what might be safe enough for Mr. Lane's otherwise strong men suffering from syphilis would not do for my weakly tuberculous patients. Moreover, it seemed probable, though I offer this only as a suggestion, that the mercury of the cyanide combined with the albumin of the blood, causing coagulation and liberated cyanogen and the latter, combining with water, produced a considerable amount of hydrocyanic acid, the effects of which would be to cause vaso-motor collapse and the diarrhoea which was observed.

Let me here say that before using any other remedies and those in any particular strength I was always careful before applying them to patients to test their safety upon rabbits—and later on myself. Rabbits and monkeys are the only animals, except man, which offer suitable subjects for such trials, since their superficial veins can be easily reached without incision of the skin. Obviously, if the intravenous method is to be practiced frequently, as it must be for therapeutic purposes, section of the skin by the knife is out of the question, and, indeed, I would incidentally commend to the surgeons the results of technique which I have arrived at in various ways as being improvements upon the methods hitherto adopted for intravenous injection when employed for other purposes. Again, let me remark that all these trials upon animals were performed by Mr. Plimmer, who possesses—as I do not—the requisite legal permit. Rabbits were used as being cheaper and more easily obtainable than monkeys. Further, before any advance of method was attempted, we tried to inject about 10 cubic centimeters into the ear vein of a rabbit, that is, five times the quantity I wished at that time to inject into a man, and weight for weight an enormous dose. This having been done with safety, I concluded that I was justified in applying this method to man.

To conclude this part of the subject I must here refer to an objection which may possibly be raised in reference to experiments on animals. It may be asked, why did I limit myself to merely testing the safety of the various solutions to be mentioned and did not first produce tuberculosis of lungs in the animals and attempt to cure by injection? Here are my reasons: Rabbits and monkeys were the only animals available for this particular purpose, and they are very liable to tuberculosis. But it is by no means so easy as you would otherwise suppose to artificially give them tuberculosis of the lungs with certainty. Tuberculosis of any other organ would be of no use for my purpose, for it is only the lungs which are supplied directly with blood from the external venous circulation. Now it is possible to infect a rabbit's lungs with tuberculosis by injecting an emulsion of a culture of tubercle bacillus into the ear vein. Mr. Plimmer has occasionally done this, but never with certainty. The emulsion is prone to coagulate and block the vein, and it is very difficult to determine whether a given culture is toxic or not at the moment of injection. I tried to get tuberculous monkeys from the Zoological Gardens, wishing to attempt to cure them; this would, I think, be an experiment permissible by the law. But the authorities of the Gardens, who were most courteous

to me, naturally did not wish to part with their monkeys until they were practically moribund and useless for any therapeutic effort. Rabbits can be made to suffer from tuberculosis of the lungs by subjecting them to the inhalation of dust containing tubercle bacilli, as has been shown by Cornet. But such infection cannot be done without some risk to other persons than the experimenter. For instance, Cornet himself found that when he entered the room in which the rabbits lived, in order to stir up the dust, and in spite of taking such precautions as plugging his nostrils with cotton wool, nevertheless found afterwards tubercle bacilli in the mucous secretions of his nose. Further, such a series of results obtained in this way would require an almost endless time and far more continuous observations than I could possibly give to them. But, of still more importance to a practicing physician, there seemed this objection, that the animals could not tell one how they felt, and in human beings we have to consider not only pathological anatomy, but many other points in the well-being or ill-being which cannot easily be ascertained from animals. Therefore, I contented myself with ascertaining the safety of such remedies as I wished to apply—from observation on animals and myself—trusting for further results to actual trials upon patients.

Having failed, then, with cyanide of mercury I cast about for some other germicide. Perchloride of mercury, carbolic acid, and other well-known antiseptics would obviously be useless because of their destructive action upon the blood. I tried, however, upon a rabbit the effect of the potassic iodide of mercury in the way described, for the salt is said not to cause coagulation of the blood. The result, however, was that the rabbit died in about an hour, not from intravascular coagulation like the former one, but from simple poisoning and stupor. Thus far the trials for an intravenous germicide seemed to be futile. I heard, however, from Mr. Wallace, the pharmacist, that diastase had been found to digest cellulose. Now it has been observed that the tubercle bacillus contains grains of cellulose, and it is probable that its envelope consists of some form of cellulose. From rough experiments which I made it seemed that diastase had really some power of destroying the tubercle bacillus as it exists in the sputum. This was almost a forlorn hope, but I determined to try the effect of a solution of diastase used intravenously. It was by no means easy to do, for diastase forms a very mucilaginous solution, totally unfit for such injection. Ordinary diastase I found to be quite useless, but it is possible to get a solution of taka-diastase of 5 per cent.—that is, the product known by that name and discovered by Takamine—by growth of germs upon bran. The substance has some undetermined composition, it is certainly mucilaginous and has a diastasic power. It is of great use, as probably you know, in the treatment of flatulent dyspepsia by helping to digest the starches. It forms with water a thin mucilage which, after standing for a while, deposits something which looks like a celluloid form of some crystalline substance. After a while however, a brown translucent fluid is obtained lying over the deposit; this is stable for a few hours, and undoubtedly possesses diastasic properties. But before using this as an intravenous injection, it was above all things necessary to make the solution sterile of germs. For this

purpose heat could not be employed, for it would destroy the diastasic ferment. The solution was too unstable and too mucilaginous to pass through a Pasteur's clay filter, and besides, this process would require to be repeated immediately before each injection, which would be impracticable for clinical use. I tried the addition to the solution of such a small amount of perchloride of mercury as would probably act as a germicide. This precipitated the diastase in a few hours, but adding it shortly before the injection I managed to get a solution which would keep for a short time in the fluid condition, and this I tried without ill effects upon rabbits. Later, Messrs. Squire & Sons prepared for me a fairly permanent solution of taka-diastase made with tri-cresol as the antiseptic, and afterwards with formic aldehyde in the strength of 1 to 250,000. This I tried upon patients with a view of therapeutics which I have mentioned. I injected 30 minims—that is, 2 cubic centimeters—at intervals of four days. But the immediate result of the infection (a result which appeared in about half an hour afterwards) was rigor, pyrexia, and sweating; in fact an exact imitation of an ague attack. The pyrexia reached to the height of about 102° or 103° F., and afterwards the patients felt much better; certainly they took food more freely, and there could be no doubt of some improvement in the condition both generally and as judged by the physical signs of the chest. Yet there was not so great an improvement as to encourage me to pursue the treatment. Mr. Horace Brown, F.R.S., so well known for his researches on diastasic zymes, very kindly gave me his advice on the question under discussion and suggested that I should try the effect of cytase, such as he had obtained from freshly cut oats. He has shown, and has described in his published papers, that this substance is very powerful in digesting the cellulose envelope of cereals. I show you here a solution of cytase which has been prepared for me by Mr. Peter Squire in a form which might be used for intravenous injection, and the solution I have found to have a very definite solvent action even upon cotton wool. Again, you see under the microscope two sections of barley. One has been treated with a solution of formic aldehyde alone—that is, with an antiseptic; the other with the same reagent, but also with cytase, and the latter specimen shows a marked solution of the cellulose envelope the grain, while the former appears to be intact. We would like to get the same solution of the tubercle bacillus in the lung, but, unfortunately, the reaction is very slow and is likely to be greatly interfered with by dilution in the process of intravenous injection. I have obtained the solution of cytase which I show you only within the last few days. I will certainly try its effects, for possibly one may be able to hasten its action.

In the last lecture I mentioned the surprising effects which I had obtained by administering nuclein by the mouth in the treatment of such tuberculous glands as could not be removed by operation. I tried nuclein given thus, upon patients suffering from tuberculosis of the lungs, and without the slightest effect. The idea, of course, is that the nuclein will so strengthen the leucocytes as better to enable them to fight the bacillus. But it seemed to me desirable to ascertain what effect the same substance might have when used intravenously. For this purpose I employed the

Liquor Nucleinicus of Messrs. Squire & Sons, a sterilized solution of the nucleinate of soda (which I show you), and I injected two cubic centimeters on each occasion. The results were exactly the same as in the case of the diastase solution, a distinct febrile reaction and afterwards some improvement in the condition of the patient, but the results were not encouraging, nor do I think it desirable to use a remedy on a tuberculous patient which, like diastase, nuclein, or the tuberculin of Koch, increases, if only for a time, the already existent pyrexia. Yet I think this matter may very well be a subject for future investigation.

The pyrexial reaction after the use of such prospective remedies is very curious and interesting. I may say here, with Dr. Habershon's permission, that in his experiments on the subcutaneous injection of glycogen, he found that the same febrile reaction occurred when the glycogen employed was not entirely freed from nitrogenous matter and did not appear when this matter had been previously removed. Again, during the last few months I have treated four cases of aneurism of the aorta by the intravascular injections of sterilized solutions of gelatin, following, with some little modifications, Lanceraux's method. After each injection I observed a distinct febrile reaction, the temperature on one occasion rising to 104° F., but always (in these cases) without any inconvenience to the patient. Putting all the results together, one is led to the idea that the fever is dependent upon the introduction into the system, by any method whatever, of some albumin.

But in the course of the above-mentioned experiments the question of antiseptics became, as I have hinted, very important, and I thought that one ought to ascertain whether the results had been produced by the diastase or the nuclein, or by the antiseptic used to sterilize the solution. Mr. Squire told me that he found 1 in 250,000 of formic aldehyde a sufficient antiseptic, and this, and afterwards 1 in 100,000, I tried on rabbits, and afterwards on patients. I need not give you further details, but let it suffice to say that I at last reached a solution of 1 in 2000 of the pure formic aldehyde gas, that is, 120 times stronger than I had at first used. In my earlier trials I found that I could inject two cubic centimeters of solution in the space of five heart beats, but by later improvements in the technique I could admit into the veins at least one cubic centimeter for each heart beat, and frequently double or treble this proportion if the patient could be kept quiet. The reason for measuring the rapidity of injection by heart beats and not by seconds you will see in a few moments. We can calculate with fair accuracy what is the strength of such a germicide solution passing through the lungs when injected into the veins. Using for the purpose of injection the syringe ordinarily employed with anti-tetanic serum, I at first found, as I have mentioned, that I could inject two cubic centimeters in the average course of five heart beats, meaning that two-fifths (or 0.4) of a cubic centimeter were injected with each heart beat, and therefore mingled with each one filling of the right ventricle. The right ventricle of a man who weighs about 10st. 7 lb. is believed to hold approximately 100 cubic centimeters, the solution used is of a strength of 1 in 2000, therefore the strength of the solution in the right ventricle will be $\frac{2}{5} \times \frac{1}{100} \times \frac{1}{2000} = 1$ in 500,000. Not a great strength

it is true, but probably of some efficacy seeing that a certain amount of the reagent will remain in the lung to be added to by future heart beats. Moreover, as I will shortly show you, it is possible by other methods to inject quite easily one cubic centimeter for each beat, and even twice or thrice that amount. But with the one cubic centimeter for each heart beat we reach a strength in the right ventricle of 1 in 200,000, which is of formic aldehyde a strength which has been proved to be a very efficient germicide. To anticipate, I may say that I have been able to inject 50 cubic centimeters in the space of 25 seconds, when the pulse was beating at only 60 per minute, and even this rate may at times be exceeded. But this speed means two cubic centimeters for each heart beat of a 1 in 2000 solution of formic aldehyde, which is added to each filling of the right ventricle, making a solution of 1 in 100,000, which will sluice out the lung for the space of about 30 heart beats. This certainly must be a powerful germicide, even for the tubercle bacillus, let alone its more easily attackable congeners, the staphylococcus pyogenes and the pneumococcus. Therefore, I determined to use such a solution in the treatment of pulmonary tuberculosis. At first I did not venture to inject more than two cubic centimeters at one time, but becoming bolder I increased the quantity, and at the same time the strength of the solution until, by means of the syringe used for diphtheretic antitoxin, I could inject 10 cubic centimeters of a 1 in 2000 solution of pure formic aldehyde gas at one time. Wishing to go still further I thought it desirable to make the solution of the gas, not with plain water, but with normal saline solution, so as to prevent any destruction of the red corpuscles, and it is this solution which I show you now, as prepared by Messrs. Squire & Sons, by their own methods of sterilization, and called for convenience "Hæmasepsin."

It will be convenient now to describe the method of injection. It seems an easy thing to pierce a vein with a needle and to inject a solution into its interior. In practice it is anything but easy to do so. The vein rolls under the needle and presents great resistance to the piercing. Again, the needle, in spite of all care, will often transfix the vein or at least puncture the opposite wall. In either case not only does the injection fail, but the solution is deposited in the circumvenous tissue and causes great pain. It is only after considerable experience and with a certain amount of technical skill that the injection can be properly given, and in view of the manifest danger no one should lightly undertake it. I find it best to ligature the arm above the elbow so as to make the veins prominent, and then plunge the needle boldly into one of the large veins on the front of the elbow. The ligature of the arm should now be loosened and the injection proceeded with, careful watching for any swelling which would indicate escape of the fluid into the circumvenous tissue. I have tried to use a needle on the principle of the Southey's trocar, hoping that on the withdrawal of the point one might easily introduce the canula farther into the vein without risk of repiercing the wall. This, however, I have not found feasible. Again, I have tried what one might call valvular puncture—viz: perforating the skin first and afterwards piercing the vein at a higher point. This, however, is difficult to do because of the rolling of the vein—and it must be remembered that any attempt

to steady the vein leads to its collapse—and, moreover, there is considerable risk of causing a troublesome hæmatoma, in the subcutaneous tissue. For these reasons it is best, I find, to plunge boldly into the vein through the skin, first anointing the skin with carbolic vaseline, 1 in 12. Naturally the needle and skin must be rendered perfectly aseptic and if the patient be very nervous the skin may be sprayed with a solution of cocain to anesthetize it, though this is really unnecessary.

So far, however, the limit of an ordinary syringe—10 cubic centimeters was reached, and to give larger amounts with one puncture required special apparatus. I therefore devised and had made for me by Messrs. Squire & Co. a syringe. It is really a miniature stomach pump, the tube of which holds a few cubic centimeters and can be replenished from the bottle without removing the needle from the vein. But this instrument must be used with the greatest care, since the mere movement of turning the stopcock and reversing the piston is frequently just enough to cause the needle to transfix the vein and ruin the injection. Because of this I have employed mere hydrostatic pressure, using an ordinary 100 cubic centimeter burette of narrow calibre, so as to get as high a head of fluid as possible, and I connected this by an india rubber tube with a rather wide-bore needle. The burette is furnished with a stopcock, and the needle being rendered aseptic, a certain amount of fluid is run through it so as to fill the whole apparatus with the reagent. I may say here, however, that no fear need be entertained from the entrance of a small amount of air into the veins. This is an old-fashioned surgical fallacy. For ordinary use the burette is the more convenient instrument, though somewhat cumbersome to carry, but occasionally it happens that the venous pressure is so great that the syringe is useful. It was by means of the simple burette and of a large bore needle that I was able to inject one cubic centimeter of the hæmasepsin during each heart beat. Later, however, I have used in addition to the burette the hand-pump you see here, which enables one to make a much more rapid injection. After the injection the needle is withdrawn. A little bleeding may occur, and it may sometimes be necessary to cover the puncture with a few threads of alembroth wool and collodion, but commonly the pressure of the finger upon the puncture for a moment or two is enough to stop all oozing. The part is triflingly tender on the next day, but no further ill-effect is usually seen. The slow injection of the solution at ordinary room temperature is accompanied by a curious cramp-like pain in the fingers and up the arm as far as the axilla. This I have observed on myself. The pain can be prevented by warming the solution to blood-heat, but I have grave doubts whether this is desirable. The heating may possibly be done with due precautions without destroying the effect of the remedy, but it must be remembered that formic aldehyde is a very volatile substance, and the heating of its solution may cause the gas to be driven away. The pain is not great and can really be very easily borne up to the injection of 50 cubic centimeters, so I think it better to give the solution cold; moreover, rapidity of injection almost minimizes the pain.

In this way by one or other instrument I succeeded in giving daily injections of 50 cubic centimeters without any bad or unduly unpleasant

effect. This means, as stated above, that for at least 50 heart beats the lung was sluiced out with a solution of formic aldehyde of a strength of 1 is 200,000 or more. The stronger the solution and the more prolonged its contact with the lung tissue, the more powerful would be its action as a noxious agent on the germs contained in the lung. It was, therefore, desirable to ascertain the danger limit of such injection. This could not be found by experiments upon animals—it was scarcely fair to submit a patient to the risk—so I had the trial made upon myself. One morning at about 11 o'clock I asked my house physician, Dr. van Praagh, to inject 100 cubic centimeters of a 1 in 2,000 solution of formic aldehyde into a vein of my arm. I wished to ascertain whether the aldehyde passed out of the kidneys as such, and in about an hour it was detected in the urine by the rosanilin test. Incidentally, however, it appeared that albumen was present, but no blood-coloring matter, and that the urine was very acid. Now, at that time of the day the urine of an ordinary man is usually alkaline, and my own is generally so alkaline—as I have frequently observed—as to deposit phosphates at the time of micturition. The ascertained acidity of the urine was, therefore, abnormal, and was probably due to the presence of formic acid, though I had no means at hand for testing this. In about another hour all these conditions had disappeared. A few days later Dr. van Praagh injected into my arm, and at a somewhat quick rate, 263 cubic centimeters of a 1 in 2,000 solution. We only stopped the injection because our stock of solution was exhausted, though I certainly experienced a good deal of cramp-like pain in the arm and a curious nervous uneasiness in the thorax, and especially in the cardiac area. Immediately I passed urine which was copiously loaded with blood. Many red corpuscles were found in the urine, but not so many as would be expected from the amount of blood-coloring matter present. An hour later the urine was still more bloody. Then for about four hours it happened to be inconvenient for me to micturate, but on doing so it was obvious that the blood had formed small clots in the bladder, which were expelled only with some straining, and for some little time there was considerable irritation of the bladder. Still later the urine was of a brownish tint, containing no albumen or ordinary blood-coloring matter, but I had no means at hand to collect it or to further ascertain its composition. On the next day all urinary changes had disappeared, but I was very dusky and yellowish as regards the subconjunctival tissue. During this period, too, I had a certain amount of bronchial catarrh and was conscious too of being unduly irritable in temper. It was here a question as to whether the bad results were due to the formic aldehyde or to the volume of fluid injected, so four days later I determined to have injected a solution of 1 in 1,000. This is really (as I found afterwards) a caustic solution, and I could not bear the injection of more than 63 cubic centimeters. The injection was stopped because of the extreme cramp-like pain and faintness. Very shortly afterwards I suffered from severe bronchial catarrh, accompanied by much wheezing in the chest and the expectoration of considerable quantities of frothy white mucus. Soon (but subsequently) there occurred catarrh of nearly all the mucous membranes, except, as far as

one could ascertain, that of the stomach. There was much running from the nose and conjunctivæ, there was great irritability of the bladder, but no urinary change, and a mild but troublesome dysentery, the bowel pouring forth much clear mucus. On the next morning, too, there was a thrombus in the injected vein of about three inches in length, surrounded by an inflammatory zone and very painful. The thrombus has now become smaller and less painful, but it has not entirely disappeared. This was an unpleasant experience, but it served its purpose and showed that the maximum strength of solution to be employed in its then form must not exceed 1 in 2,000, and the maximum injection must not be more than 50 cubic centimeters for an adult.

The experiments showed more. They are imperfect scientifically, for I was not prepared for the result, and had not means at hand for its proper investigation. They are sufficient, however, for therapeutic purposes, and naturally I do not care to repeat them on my own person. They show that formic aldehyde is an irritant to the mucous membrane of the lungs, and that even after passing through the lungs its solution may be of sufficient strength to irritate the mucous membrane connected by circulation with the left side of the heart. I have already mentioned what strength of solution we may expect in the right side of the heart from the injection into the veins of a 1 in 2000 solution of formic aldehyde. Naturally this will be enormously diluted by the time it reaches the general circulation, and it is difficult to estimate this dilution. But let it be remembered that a dilution insufficient to kill the tubercle bacillus may nevertheless weaken its action, and may still kill other minor germs, such as the staphylococcus pyogenes or the pneumococcus, the presence of which favors the growth of the tubercle bacillus. Experiments are in progress to ascertain the effect of various weak solutions of formic aldehyde on the growth and action of these germs; the results of such experiments I will publish later. Again, let me call attention to the fact that the aldehyde in strong solution caused bronchial catarrh. Below I shall have to mention that cough is not only unrelieved but often increased during the treatment of patients by this method. Possibly such mild irritation may be beneficial as a counter-irritant to the lung tissue, stimulating it to more healthy action, but its existence warns one that the treatment must be pursued with caution and frequent inspection. In fact, I have sometimes found, as I will describe, that improvement only appeared when the treatment had been suspended for a few days.

Again, to prevent disappointment, one ought to remember that the pulmonary artery—the only vessel directly affected by the intravenous injection—is not the only artery which goes to the lungs. As I have elsewhere explained it is the “functional” vessel of the lungs, while the bronchial arteries coming from the aorta are the “nutrient” vessels of the lungs and are not primarily touched by the injection. Nevertheless, I have not found great need for such warning in practice, so great is the diffusion through the pulmonary capillaries.

In estimating the result of such a method of treatment upon the human subject it is of all importance to take care not to deceive oneself. Of, say, 100 cases of early tuberculosis of the lungs probably 90 will show

good results with no other treatment than improved hygiene and feeding. If any new treatment were applied to such cases one could easily be persuaded that it was successful. Naturally one would always wish to carry on a treatment in an early stage, but judgment of the effect of such treatment would be futile. For this reason I have only tested the treatment on severe and even desperate cases, thinking it better to meet with some failures if only one could get good results in a few cases where other remedies might have probably been useless. I append a few of such results, to be followed by a further series shortly. The test points are the steadying and reduction of hectic temperature, the quieting of the circulation, the diminution of the amount of sputum, the disappearance therefrom of pus and of the tubercle bacillus and other germs, and the abolition of such physical signs as indicate active tuberculous mischief.

I will tell you, here, the method which I have pursued in testing for such results. In hospital and elsewhere I have treated thus some fifty persons. Some of them were at the Brompton Hospital, with surroundings, feeding and discipline specially designed for their complaint. Others were treated at St. Mary's Hospital with the ordinary course of diet, etc., pursued in a general hospital. And not all of these had the intensive treatment which of late I have adopted. Dr. R. G. Reid, of Lambeth, has in consultation with me treated some twenty patients who might be considered equivalent to those at the Brompton Hospital, but with their own home surroundings. Dr. A. Findlater, of Edgware, who is in charge of the Hendon Workhouse Infirmary, has similarly treated seven cases with practical home surroundings, but also in a country atmosphere, or as near that as one could obtain within easy reach of supervision from London. I must not here give you details of these cases but merely the summary of the results. Almost every case has shown some improvement, and in some this has been very marked. Most usually in my own cases the physical signs have diminished in amount as the earliest indication of improvement; appetite and general condition have been better after injection, and in nearly every case the patient has gained weight. The sputum became more frothy and less purulent, and in a few cases tubercle bacilli and other germs have already disappeared. I show you here one such patient. He came under my charge at St. Mary's Hospital in the autumn, suffering from a very marked outbreak of the multiple pleuritic form of tuberculosis. His temperature, as you see, showed a rapid decrease, his physical signs diminished, tubercle bacilli disappeared from his sputum, and now he seems to be perfectly well. If you will examine his chest you will find nothing but some thickening of pleura in patches on the left side. Dr. Reid's cases have shown similar results in spite of the somewhat hard circumstances under which the patients were placed. Dr. Findlater, who is here to-night, will tell you himself of his results, one in particular being extraordinary.

The patients should be carefully watched during the treatment, for you have heard how I myself suffered from the effects of an overdose of the injection. If the injection be pursued too long the for-

mic aldehyde will unduly irritate the lung tissue and increase the symptoms. It is only practice and experience which can tell one when to suspend the treatment, but, as a general rule, I should think it desirable to give up the injections for a few days when the temperature has fallen, when the sputum has become mucous and frothy, when the cough is unduly troublesome. With regard to the latter symptom I do not see the same objection to treating it by opium as obtains in ordinary coughs. This cough is due to irritation of the pulmonary mucous membrane, and the same irritation causes the excessive secretion of mucus. An opiate will relieve both, and is not, I think, counter-indicated.

Though it is somewhat outside our present subject, I may here mention the results of the treatment on bronchiectasis. As you know, scarcely anything can have a fouler smell than the sputum from this complaint, and at times so bad is this symptom as to incapacitate the patient from intercourse with his fellows. A patient came under my care at Brompton who had been supposed to be suffering from this, though I found that he really had a tuberculous cavity at the base of the lung with pleural adhesions, which kept the walls of the cavity constantly stretched. This was a similitude of bronchiectasis. His sputum was very offensive, so much so as to render it undesirable to keep him in the same ward with other patients. It separated on standing into the three usual layers. At this time I had not given a greater injection than two cubic centimeters, and that by the syringe. After even the first injection distinct improvement was observed in the condition of the sputum. It became almost devoid of odor, less purulent and much less copious. He left the hospital much improved. I have treated a few typical cases of bronchiectasis similarly, and with like, though not such immediate results. My last case requires special mention. My colleague, Dr. Percy Kidd, asked me to apply the method to one of his patients at the Brompton Hospital. The patient was a country policeman whose bronchiectasis and accompanying condition were so bad that he had been warned to leave the force if he could not get better. He was really unfit to associate with his fellow men. He had been treated by inoculation in our "guaiacol room," but when I saw him was in a wretched condition, although he had showed some slight improvement. At this time he was coughing up much more than a pint per day of very foul sputum. I began with the two cubic centimeters of injection on each day and afterwards administered 50 cubic centimeters of injection by means of the burette. He rapidly improved, and when I last saw him he was expectorating only three ounces of matter, which had only a faint odor. He then had to leave the hospital in order to report himself so as not to lose his pension; but I have little doubt that he could have been permanently cured.

[Since delivering the lectures I have tried, by modifying the vehicle, to use a greater strength of the formic aldehyde solution. At present I will not give details, but I think the result can be accomplished. I purpose bringing the whole matter before one of our societies at an early date in order that it may be adequately discussed.]

APPENDICITIS.*

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In the preparation of this paper it is my intention to give a brief practical exposition of one of the living issues of the day—that veritable death-trap, the appendix vermiformis. The controversy between surgeons who advocate operations on all cases of appendicitis and those who believe that operation should only be resorted to in a wisely (?) selected few has never been warmer than at the present time. To the rising young surgeon and the busy medical practitioner the controversy must be perplexing, and is, no doubt, responsible for many fatal issues; but when we look back it is our common experience that contradiction has been the fate of all original observations. Most medical men concede that appendicitis is a surgical disease, and no higher authority can be quoted in support of this statement than Osler, who writes: "So impressed am I by the fact that we physicians lose lives by temporizing with certain cases of appendicitis, that I prefer, in hospital work, to have the suspected cases admitted directly to the surgical side. The general practitioner does well to remember, whether his leaning be toward the conservative or the radical methods of treatment, that the surgeon is often called too late, and never too early. There is no medicinal treatment for appendicitis."

Medical men wisely turn to the surgeons only to find them widely differing in their opinions of the appropriate line of treatment to be followed in each individual case. A number of eminent surgeons at the present time are unconsciously leading an army of rising young physicians and surgeons into the field of the appendix, and they are then advised to hesitate and await developments. The greater the man, the wider his influence for good or bad, and he ought to realize that he is not only misleading many worthy men, but a multitude of incompetents, who have always advised against operation, because they are not operators, and are finding an immense amount of satisfaction in it because their favorite professor is advocating what they consider good surgery. I pursued a conservative course for several years. I thought a few men like Murphy, Deaver, Morris, Price and Bernays were entirely too hasty, and that the time was not far distant when they would be glad to modify a few of their radical utterances. But close application, careful research, and sober judgment based on experience, has caused me to adopt the radical doctrine, and I have practiced it for the past three years with the utmost satisfaction. I shall briefly give my reasons for abandoning the conservative plan in surgery of the appendix.

The anatomical construction of the appendix predisposes to a series of pathological alterations second to none in the domain of surgery.

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Springing from the inner and back part of the lower end of the cecum is a thick, hollow tube, blind and blunt at its extremity, its cavity communicating with that of the cecum by a small orifice imperfectly guarded by a valvular fold of mucous membrane. Its wall is largely made up of lymphoid tissue, resembling the tonsils in structure, protected from the cavity of the cecum, which always contains septic material, by a delicate layer of epithelium, which, if displaced by injury or disease, leaves an open door for bacterial infection.

Without even a displacement of the protecting epithelium, Keen and DaCosta refer to this lymphoid tissue, this tissue of lessened resistance, as peculiarly liable to influenzal infection, and Goluboff claims its epidemic character is analogous to epidemics of tonsillitis. The only structure separating this tissue from the thin peritoneal investment, a part of the general peritoneal cavity, is the imperfectly developed muscular layer, which is an exciting and contributory factor, inasmuch as its contraction causes a constriction of the appendicular artery and its branches, permitting bacterial invasion and favoring ulceration of the mucosa and interstitial supperation in the wall. The branches of the superior mesenteric plexus of the sympathetic are pressed upon; and this explains why it is that pain may be referred to any or all parts of the abdomen. Its contraction permits no period of rest for reparative changes. This organ of low vitality, in the process of evolutionary extinction, is supplied by a single artery, a remote and terminal branch of the superior mesenteric, holding no collateral communication with any other vessel, and often passing to the tip of the appendix before giving off its supply branches. The inconstancy in the length of the meso-appendix is in keeping with its other imperfections. If too short, it will throw the appendix into kinks and curves, interfering with drainage and with escape of any material lodged within.

Let us now depart from the purely anatomical. We admit that under ordinary circumstances the appendix is able to take care of itself, and may be successful by means of its musculature and secretions in driving away foreign bodies, such as grape-seeds, cherry stones, etc. It must be remembered, however, that it has imprisoned within its walls the bacillus coli communis, innocent as long as the prison wall is unbroken, but if by abrasion, contusion or inherent weakness its integrity is impaired, this organism will pass into and often through it, and is then liable to become instantly virulent, producing a suppurative inflammation or even necrosis. Indeed, it is the most common cause of acute suppurative peritonitis, and is mainly responsible for the formation of abscesses. This innocent and trusted inhabitant of the colony fortunately does not at all times exert its virulency; but can our conservative friend sit at the bedside and determine whether the bacilli contained in the appendix are of the virulent type or not? Can he tell when the colon bacillus is alone, and when it is associated with other pyogenic organisms, such as the streptococcus pyogenes, which shows a strong predilection for lymphatic tissue, lymph-vessels and lymph-spaces, through which it spreads with alarming rapidity? Again, we have the staphylococci, and their potent chemical products find congenial association, and like the others are not always, but usually, bad.

With this array of anatomical and bacteriological conditions, can any one dispute the propriety of a radical procedure at the earliest possible moment after the recognition of the disease? Nearly a century and a half ago, Mestivier accurately described appendicitis, while we failed to recognize it until a comparatively recent period. The diagnosis is no longer doubtful or difficult, and yet the majority of medical men are still undecided which course to pursue. Comparatively few hold positive convictions, and their position is a most anxious one whenever they are called upon to outline the course of treatment, because they cannot foretell with even approximate certainty the outcome of the case.

The surgeon who operates during the first twenty-four hours, will tell you that 98 to 99 per cent. will recover—a mortality of one or two per cent. Can those who advocate delay even approximate as favorable a record? Recovery without operation means recurrence in a large percentage of cases, and there are many surgeons to-day waiting in anxious expectancy and uncertainty for the opportunity to operate between attacks. The grape-seed and the cherry-stone of early writers have been displaced by recent bacteriological research, yet the writer found a shoe-button in the appendix of a shoe-dealer, and an overdone bean in the appendix of a bean-baker. No doubt foreign bodies, including the commonest, the fecal concretion, sometimes cause a displacement of epithelium thus forming an infection atrium. Appendicitis, however—the acute, infective variety, of which this paper treats—is due to the invasion of the histologic layers of the appendix by pathogenic bacteria. Many surgeons educated in pre-antiseptic days find great difficulty in applying recent methods. This is especially true concerning the greatest discovery of the century—“antiseptis.”

Appendicitis has only recently been regarded as a surgical disease by medical men, and does it seem strange to you that our older friends, who were brought up in pre-operative days, still cling to a natural conservation? Pain is the leading symptom, and is relief sought for from the surgeon? No. Because the laity is educated to believe that the surgeon is the man above all others who inflicts more pain, and so it is the family physician who first treats these cases, and to whom they look for relief and guidance. Are you prepared to risk your reputation as a good doctor and safe adviser by depending on rest in bed, abstinence from food, internal antiseptics, external applications, and anodynes, to prevent the entrance of pathogenic organisms into and through the walls of the appendix? This, in brief, is the medical treatment.

You may say that the bacilli contained within the intestinal canal are not at all times virulent. I admit this to be true. We are only doctors and have no desire to be classed as prophets. It is absolutely certain that in ninety-nine per cent. of the cases this bacterial infection is limited to the wall of the appendix for the first twenty-four hours, and that ninety-eight per cent. will recover if operated on at this time. I have never lost a patient operated on during this period, and from my score of friends and acquaintances among operators I have never heard of a death.

Can we diagnose appendicitis positively during the first twenty-four hours? Yes, better than at any other time, because it is a disease having

no insidious prodromes. It is sudden in its onset, with pain as the initial symptom. Tenderness in the right lower abdomen, rigid muscles, characteristic position of body in bed, and altered facial expression, are sufficient to establish a diagnosis, and operation should follow as soon as suitable preparations can be made. After twenty-four hours that dreadful element of uncertainty creeps in. We no longer feel confident that we have the micro organisms enclosed in definite walls; we cannot tell when and where perforation is about to take place. In other words, nothing short of an incision can give any idea as to the extent of the pathologic alterations. After twenty-four hours the diagnosis is rendered more difficult, the prognosis impossible, and the danger of operation greatly increased. If at the expiration of twenty four hours the pain is lessened, the tenderness has almost subsided, the abdominal muscles are no longer so rigid, the flexed thigh can be laid flat on the bed, with a temperature of 99° and a pulse of 85° , shall we operate? Yes, because the pathologic changes in the appendix cannot be determined without inspection.

The following cases will illustrate the necessity for operation under these conditions:

Case 1. H. E. W., aged 27, switchman. About 3 a.m., March 3, 1898, he was seized with intense pain in the abdomen and vomiting. I reached him about 8 a.m., and found him suffering from intense pain with vomiting. The right lower abdomen was tense and tender; the temperature 101.2° ; the pulse 110. He gave a history of a mild attack two months before. Diagnosis, appendicitis. I advised immediate operation, which was refused. He agreed to go to the West Side Hospital, and was admitted at 9.15 a.m. Another patient in the same ward, on whom I had operated for appendicitis, and who was convalescing, induced him to be operated. The following morning I was telephoned his decision, and at once ordered him prepared for operation. His condition at 9 a.m.—one hour before operation—was as follows: Temperature 98.6° ; pulse 72; bowels had moved; no distention; no pain; slight tenderness; good expression. He felt well enough to go home, but wanted it out, as this was the second attack. Operation, 10 a.m. I found the appendix enlarged and entirely gangrenous free in the abdominal cavity; no adhesions. It was removed at the cecum, the opening being closed by Lembert sutures. Recovery was uninterrupted, and the patient was at work in one month after operation.

Case 2. The brother of the patient in Case 1, C. W., aged 33, also a switchman, sent for me May 17, 1899, with the following history: In the early morning of May 14, he was seized with an intense radiating pain all over the abdomen, most intense in the lower right side, accompanied by a chill and vomiting. On comparing it with his brother's attack he decided it must be appendicitis. He objected to send for me on the ground that I would advise immediate operation. Therefore he summoned a physician who treated him along medical lines. At the completion of the third day he was suddenly seized with diffuse pain and other evidences of shock. They sent for me, giving the details in the case, and expressed their determination to have an operation. I immediately sent him to the West Side Hospital, where I found that shock was so intense that opera-

tion was entirely out of the question. The abscess had evidently ruptured into the free peritoneal cavity; sepsis was marked. The abdomen was tympanitic, with but little pain, no fever, and a pulse of 129 to 140. The distention became so great and distressing that I opened the abdomen the third day after admission, to establish a relief opening for the escape of gas, and found the peritoneal cavity filled with foul pus. He died on the tenth day of the disease.

Analysis of these two cases would be superfluous. It suffices to say that one had the advantage of scientific progress and the other did not.

My experience in operating on appendicitis cases early in the disease has convinced me that all pain, vomiting, muscular rigidity and tenderness do not call for operation. I refer now to a mechanical difficulty—appendicular colic. It is not a disease because it has no pathology. Muscular contraction, in its efforts to expel a foreign body or fecal concretion, gives rise to intense pain similiar to the passage of gall-stones or renal calculi. These cases cannot always be differentiated. It is my practice, however, to place these suspected cases on medical treatment for twelve hours. If nausea and pain disappear, the tenderness is not increased, the temperature is normal or not over 100° , the pulse is normal or not over 90, and the patient's expression is good, recovery without operation is probable. This rule is my guide in the management of cases of catarrhal appendicitis, which usually recover under medical treatment. I concede to the medical attendant the management of these and all other cases of appendicitis for the first twelve hours, but if improvement is not marked during the second twelve hours, he should loosen his grasp and summon surgical aid. The overworked and overburdened general practitioner cannot afford to be harrassed by unknown and unseen pathologic conditions.

The early application of modern surgical principles offers security to your patient, relieves your own mind by division of responsibility, and will crown your ever anxious moments with merited success.

MISCELLANEOUS.

SEBORRHEA.—Dr. J. F. Payne, in *Allbutt's System of Medicine*, says:—

There are many popular remedies for dandruff. Washing, alkalies, lime-water, borax, etc., have some efficacy in removing the scurfy condition for a time. And admitting that this condition is almost certainly due to the action of microbes, we treat it upon this supposition. Hence, first we shall disinfect the skin of the head as thoroughly as possible. For this purpose an antiseptic soap may be used; I prefer one containing biniodid of mercury. After washing with this a few times the scalp is to be brushed over with perchloride of mercury solution (1 to 1,000), either aqueous or alcoholic. But this treatment is not sufficient, and irritation is often produced by the antiseptic; we then have recourse to sulphur combined with carbolic acid or tar, as follows:

R. Sulph. præcip., gr. xv.
Acidi carbolici, m xv.
Olei amygd. amar., m iij.
Paraffin moll., $\bar{3}$ j.

M. Ft. unguent.

Coal-tar solution may be substituted for carbolic acid, and the ointment may be scented with an essential oil. Resorcin, either in a lotion—2 to 5 per cent.—or combined with sulphur in a ointment—the same proportions as given for carbolic acid—is also a very efficacious means. The ointment should be rubbed thoroughly into the roots of the hair once a day for a fortnight, and afterward used occasionally. Since patients will not tolerate greasy applications for very long, a lotion or hair wash must then be substituted. The following prescriptions are useful:—

R. Liq. carbon deterg., m iv. ad x.
Glycerin, $\bar{3}$ ss.
Aq. rosæ, ad $\bar{3}$ j.

M. Ft. lotio.

R. Glycerit. acidi tannici, $\bar{3}$ i-ij.
Acidi carbolici, m v.
Aq. rosæ, ad $\bar{3}$ j.

M. Ft. lotio.

R. Acet. cantharadis, $\bar{3}$ ss.
Hydrarg. bichoridi, gr. j.
Spir. camphoræ, m iij.
Aq. dest., $\bar{3}$ j.

M. Ft. lotio.

The latter is used only when there is an entire absence of inflammation, as a stimulent to hair growth.

Too frequent washing with insufficient drying greatly favors the production of dandruff, and must be avoided. Seborrhea of the body, if

not complicated with eczema, is easily gotten rid of by thorough washing followed by a sulphur ointment or lotion, or one of the other remedies recommended above for the scalp. In all affections of the head, brushes, combs, and other articles should be kept thoroughly disinfected with borax or carbolic acid.

Seborrhea Oleosa.—The first step here is thoroughly to remove the sebaceous crusts, for which purpose inunction with some oily substance—such as pure olive oil, carbolized oil, a mixture of equal parts olive oil and fresh lard, or others is necessary. These should be left on for twelve hours, and the head then washed with soap, or, if the skin is inflamed, with yolk of egg. The subsequent treatment is the same as for the other variety. Sulphur in some form is the most efficient remedy.

Internal Treatment of Seborrhea.—Generally speaking, no internal treatment is necessary, and from my own experience I believe that internal conditions have little to do with the production of seborrhea. But two points have to be considered. 1. Gastric dyspepsia though far from producing seborrhea of the scalp, may aggravate the condition when present, chiefly by producing irritation of the skin and consequent scratching. The same is true of constipation. It may then not be superfluous to correct morbid conditions of the stomach and bowels as far as possible. 2. The general nutrition of the skin may be bad, and consequently the seborrheic process gets firmer hold. Hence it may be advantageous to give a course of arsenic which has acquired a special reputation in the treatment of certain forms of seborrhea corporis.—*Jour. American Medical Association.*

CORNS.—

- R. Ext. cannabis indicæ, gr. 15.
 Acidi salicylici, ʒ 2½.
 Ol. terebinthinæ, m 75.
 Acidi glaciali. acetici.
 Cocainæ—alkaloidæ—aa gr. 30.
 Collodion, q. s. ad ʒ 3.

M. Sig. Apply a thin coat every night on top of preceding one.—*Ex.*

CAFFEIN TREATMENT OF HEART DISEASE.—In the *Nord Médical*, M. G. Lemoine states that for fifteen years he has given caffein every day to patients suffering from myocarditis, and he feels certain that this treatment has prolonged their lives by avoiding the various discomforts, attacks of oppression and temporary asystole to which they had formerly been subject.

M. Lemoine gives an account of a case in which, owing to the permanent and prolonged use of caffein, the patient enjoyed better health than she had for many years. The author refers to five similar cases, in the most recent of which this treatment has been employed for three years. One case was that of an emphysematous subject with cardiac degeneration, in whom this treatment had been instituted seven years ago, and, owing to the influence of the caffein, he had been enabled to resume his work.

M. Lemoine states that it is not necessary to employ large doses of caffein in order to obtain these results; on the contrary he recommends

weak doses, and as much as possible doses that vary more or less from day to day. This method has the great advantage of not accustoming the organism to the same dose always; consequently it is possible to continue the use of the drug without increasing the doses.

This method he considers the most logical, although, he says, it may be objected to, on the ground of accustoming the organism to a drug and of a physician's being obliged to gradually increase the doses until they become excessive. The author thinks, however, that he has answered this objection in presenting the facts themselves of the case referred to. He concludes that the caffeine treatment is indicated in patients who suffer from cardiac weakness due to a disturbance of the pulmonary circulation. He states that he has employed this treatment with admirable results in emphysematous subjects with weak heart disease.—*N. Y. Med. Jour.*

Care of the Mouth.

Perhaps no part of the body is so often neglected as the mouth; especially is this noticeable in the case of children. A mother, who will religiously bathe her child and keep its body sweet and clean, will often fail to clean its mouth. A new-born infant should have its mouth washed after each feeding; a soft cloth wet in a weak solution of boracic acid should be used for this purpose. If this were always done we should rarely find a case of infantile sore mouth.

After the teeth come and the mouth is large enough, a small, soft brush should be used; the teeth and mouth should be thoroughly cleansed at least twice daily.

In illness, where sordes and mucus accumulate rapidly, and where the tongue and lips are parched and stiff, attention is needed every hour; the mouth should be kept moist, and the same treatment carried out through the night as through the day. Boracic acid solution, listerine, lemon juice, glycerine, and distilled water are all refreshing and soften the tissues; where the lips are chapped or fissures appear, a lubricant of cold cream or sterilized vaseline should be applied. Where the gums are spongy or soft and bleed rapidly a few drops of tincture of myrrh added to pure water will help to harden them. Small squares of old linen or soft gauze should be used instead of a brush where one is ill or weak. These should be immediately burned after use.

Every part of the mouth should be cleansed; behind the wisdom teeth, the roof of the mouth, and under the tongue; lemon juice and water will remove the fur from a thickly coated tongue. Where the teeth are sensitive, the water used should be slightly warm.—*South California Practitioner.*

Aphorisms for Children.

1. Animal food once a day and in small quantities, if the teeth can masticate, is necessary to a rapidly growing child.
2. Avoid a too nourishing diet in a violent-tempered child.

3. Avoid seasoned dishes and salt meats, pastry, uncooked vegetables, unripe food, wine and rich cake.
4. Never tempt the appetite when disinclined.
5. Insist on thorough chewing; a child who eats too fast eats too much.
6. Vary the food from day to day, but avoid variety at one meal.
7. Take care that the child's food is well cooked.
8. Wine, beer and confections should never be given to a young child.
9. Give no food between meals; the stomach requires rest, like any other organ than anything else.
10. Remember that over-feeding and the use of improper food kill more children of the body.
11. Give no laudanum, no paregoric, no soothing syrup, no teas
12. Remember that the summer complaint comes chiefly from over-feeding, and the use of improper food, but never from teething.
13. When children vomit and purge, give them nothing to eat for four or five hours.
14. Do not bring a child under three years of age to your table to eat.—*The Dietetic and Hygienic Gazette.*

On the Prognosis of Hysteria ; a Contribution to the Question of Fatal Hysteria.

The author deploras the ignorance with which hysteria is clothed. The theories are varied. As to prognosis, great relief is felt when the case has been diagnosed as hysteria. Most medical treatises either fail to mention the prognosis of hysteria in chapters devoted to the subject, or pass the subject by with a word, and it is very rarely suggested that it may become serious. He takes up the opinion of the majority of writers who believe that fatal hysteria is due either to spasm of the glottis, inanition following hysterical anorexia, or vomiting; or finally to direct or indirect suicide. Then the opinion of the minority that death is never due to genuine hysteria is considered. The author reports at length three cases of hysteria with a fatal termination seen by him during the past two years. Not having discovered an anatomic foundation we are not able to find a pathology. He states, first, that hysteria is as curable as syphillis or consumption; secondly, he believes that the brain or sympathetic nervous system should be held responsible for the disease; third, that hysteria is often fatal. The first case of fatal hysteria reported by the author was a woman 42 years of age. In this case there was no attributable cause for the onset. The second, a woman 43 years old with no attributable cause. The third likewise furnished no attributable cause. The three cases suffered from the disease nine, eight and twelve months respectively. In two autopsies failed to reveal any certain cause for the disease; in the other there was no autopsy. The two cases with autopsy each showed something pathologic; the first two small intramural fibro-

mata of the uterus and the other a cold abscess of very minute size on the left fourth rib. Inference is made that further experience may finally prove that most so called cases of fatal hysteria are the result of anatomic occurrences.—J. FRAENKEL in *St. Louis Medical Review*.

On the Pathology and Therapy of Angina Pectoris.

Dr. Theodor Schott, (*Lancet*, September 8, 1900) adheres to the Stokes-Parry theory of the causation of angina pectoris; *i. e.*, that it is due, not to an increase, but to a further reduction of the muscular energy of a heart already enfeebled. The associated pathological processes are sclerosis of the coronary vessels, alternations of the aortic valves, and ectasic aortitis, which latter has a special stenotic effect upon the origin of the coronary vessels. These conditions together with the resistance of the contracted arterial system, induce weakening of the heart. A moderate distention of the heart may lead to a temporary occlusion of the coronary vessels at the point of an already existing constrictions, and so bring on an attack of angina pectoris. In other cases, a thrombus or embolus may be the cause of the block.

In the treatment of the anginal fit itself, the writer prefers nitroglycerine to amylnitrite. External dry heat is often of service. For the treatment of the heart in the intervals between attacks the author recommends the Nauheim baths, as introduced by himself and his brother, but lays stress upon the fact that advanced sclerosis contraindicates this treatment.—*N. Y. Med. Journal*.

Five Boys at one Birth.

A remarkable birth is reported from Mary's Home, near Jefferson City, Mo., where Mrs. Henry Smith gave birth to five baby boys at one time. They are reported to be well and weigh a total of 30 pounds. Smith has been married less than seven years and is the father of sixteen children. Only one time has there been born a single baby. The others are two pair of twins, two pair of triplets, and the quintette.—*Philadelphia Med. Jour.*

Urotropin in the Treatment of Vesical Catarrh and its Complications.

Dr. E. Suppan (*Wien. Med. Blätt.*, No. 28, 1900) says that this drug is the best we possess for the internal treatment of vesical catarrh and its complications. He thinks that it should always be employed in every case of urosepsis of the aged, with prostatic hypertrophy, in all the non-acute and septic bladder and pelvic catarrhs which are the consequences and complications of this growth, as also in inflammatory conditions de-

pendent upon atrophy of the prostate, neoplasms and diverticulæ of the bladder, and stricture. By the use of this drug the fatal termination may be avoided in many otherwise hopeless cases, and in others its continuous administration may so influence threatening symptoms that the patient may live for many years thereafter without serious disturbance to his health.

The author concludes urotropin is a very efficacious remedy for the treatment of diseases of the urinary passages, being invaluable in certain forms, and there is no other drug in our armamentarium that will take its place.—*Medical Age*.

Chromic Acid for Buccal Lesions.

Jarre announces that local applications of chromic acid promptly cure all inflammatory and ulcerative lesions of the buccal mucous membrane. It should be applied in a concentrated solution and rinsed off at once to restrict its action to the superficial tissues.—*Int. Med. Congress*.

Resorcin in Rodent Ulcer.

Dr. H. Bowen Williams writes to the *British Medical Journal* for December 1st of the case of a woman, aged seventy years, suffering from a rodent ulcer on the left side of the nose for twelve years. He says: "The powdered resorcin was first applied daily, but, as this became painful, on alternate days. Soon an improvement took place. The sore gradually became more healthy-looking; portions of it sloughed; it became smaller and shallower; its shape from being irregular became circular; and finally it healed up entirely. This took place after the application had been in use for two months. It has now been apparently soundly healed for over a month, with, of course, some contraction of the tissues."

The Canada Lancet

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EDITORIAL.

THE MEDICAL ALLIANCE OF AMERICA.

This is a commercial concern, with a directorate of laymen, and an authorized capital of \$100,000, incorporated under charter from the Dominion Government, with the evident object of exploiting the medical profession. Membership in the Alliance is accorded on payment of one dollar for registration and fifteen cents weekly, in return for which the member is guaranteed medical attendance in sickness or accident, 15 per cent. discount on all medicines purchased and a sum in cash not exceeding \$100, payable in ten years from the date of certificate. The Alliance secures the membership of a number of physicians in various parts of the city, and in case of sickness the lay members are allowed to choose any of the Alliance doctors in his own district. The position and remuneration of the physician is stated as follows :

“ In the first place, all medical and surgical practitioners of good standing can become identified with the Alliance, and in return are entitled to share in the fund made up of a small weekly subscription from each subscriber, which is collected and paid out through the medium of

the Alliance. This fund is calculated to provide *as nearly as may be*, \$1.00 for every office call, and \$1.50 for each house visit paid. The fund will be distributed monthly among all practitioners connected with the Alliance in proportion to the amount of work done by each, but not in amounts exceeding the above fees. Any balance after payments made at the above rates will be carried forward to the next month, and any surplus outstanding at the end of the year will be entirely distributed among the practitioners."

"As above stated, *this fund will be made up of minimum weekly subscriptions collected by the Alliance from all subscribers.* . . ."

In other words, if the *minimum weekly subscription* does not suffice to pay the fees mentioned, the doctor will be the loser, not the Alliance.

It is claimed by the representatives of the Alliance that the physician stands to benefit directly by the organization, as he is guaranteed payment from a class of patients who ordinarily pay nothing. This statement is manifestly absurd, for that class of the community will certainly not join any organization to secure the doctor his fees.

The company further claims that their organization does away with the objectionable features of lodge practice, by paying the physician a fair fee for his services and allowing the patient to choose his own physician. This puts the matter before the physician in a very plausible light and to a certain extent it is true. But if the company has no motives other than those stated, why do they require Alliance doctors at all? They would have no difficulty in securing medical attendance on their members for the fees mentioned; they would not then limit the choice of the patient to a certain number of doctors, and the objections to the scheme from a medical point of view would largely disappear. Until more is known of this organization and its practices, the profession should be chary of giving it any countenance or support. We are naturally and rightly suspicious of the motives that prompt any set of capitalists to organize a business which comes in between the physician and his patients. The incentive in the movement is, no doubt, of the same benevolent character operating in the organization of trusts and combines in general.

The Toronto Clinical Society has the matter under consideration and the profession will await with interest the opinion which they will express at an early date.

CHRISTIAN SCIENTISTS HELD RESPONSIBLE.

In an investigation into a case of death from typhoid fever under treatment by Christian Scientists, a coroner's jury at Peterboro, Ont., on Oct. 30th returned a verdict as follows:—

“ Francis Emiline Dunlop came to her death from typhoid fever, and the jury are further of the opinion that if the deceased had had proper medical treatment by a physician she would have recovered, and the jury consider that the parents of the deceased were guilty of most inhuman conduct in allowing their daughter to die without making any intelligent effort to save her life, and they strongly condemn the Christian Scientists who professed to treat the deceased, as they had no knowledge whatever of the nature of the disease, and took no steps to ascertain its nature and showed utter ignorance of this or any other disease or any proper method of curing the same, on their own admission under oath.

The jury also wish to express their strongest detestation of the practice of those who ignorantly dare to treat thus lightly with human life, and we consider the practices of so-called Christian Scientists a danger to the community.

And the jurors further wish to express their opinion that for the safety of society some further legislation is necessary, dealing with these people, and we would humbly submit that it is full time that the Provincial Legislature should give this matter their careful consideration.”

Another strong verdict condemning the practices of Christian Scientists was rendered by a coroner's jury in Victoria, B.C., on Nov. 28th, on an inquiry into the death of a child from asphyxiation from laryngeal diphtheria. The verdict was rendered in the following words:—

“ That the said Claude Oliver Maltby did die upon the 21st day of November, 1900, at Victoria ; and that the said Eugene Brooks and Willie W. Maltby did unlawfully kill and slay the said Claude Oliver Maltby, against the peace of Our Sovereign Lady the Queen, her peace and dignity.”

These verdicts are healthy indications that the public are becoming aroused to the danger of too great toleration of Christian Scientists, when their practices result in the death of helpless or deluded victims from neglect, or endanger the health of the community from disregard of isolation in communicable diseases. Such cases as those cited with the opinions based on the evidence submitted, must awaken the authorities to the necessity of protecting human life by procuring legislation that will bring the guilty to justice. That the tenets of Christian Science are conscientiously held by certain deluded cranks and faddists is no excuse, in the face of such results from their practices, much as they may desire our pity. When the toleration allowed, however, as is too frequently the case, is taken advantage of by unscrupulous individuals for personal gain, no condemnation is too strong and no punishment too severe for such trafficking in human life.

The juries in question are to be commended for the action they have taken in attempting to suppress a dangerous nuisance.

PRIGGISHNESS IN SCIENCE.

The *Literary Digest* commenting in an article under the above heading in the *Engineering Magazine* alludes to some regrettable features of the inevitable specialism in modern scientific work. "The specialist is apt to lose sight of the whole field of knowledge outside his own speciality, in other words he becomes a narrower instead of a broader man."

The writer of the paper in *The Engineer* has to say on this: "A great deal of harm is done to technical progress in this country by scientific cant. . . . According to scientific cant nothing that is technical is scientific. Science is only concerned with phenomena, and not with their useful application. If you experiment with 37 grams of steel in a Berlin porcelain crucible, or especially in a tiny electrical furnace, with a standardized platinum pyrometer and a spectroscope, you are doing scientific work; but if you work with a ton in a converter, this is merely technical—though you will be patronizingly told that your work may throw some light on scientific questions.

"No scientific man will deny in words that the probable ultimate use to man is the criterion of value of a scientific discovery; but all the same the tacit assumption is that anything technical is unscientific. The common type of scientific man thinks his knowledge of necessity includes all technical knowledge; but he cannot believe for a moment the technologist's knowledge may include his. The result of this sort of scientific priggishness is that technology is discouraged, and made out to be less important than it is, while unimportant work is exaggerated as to its value. Pure science, as it is called, is considered something much higher than applied science."

Too much of the same scientific cant, assumption, and humbug that is here complained of, has of late become noticeable among a certain class of workers in the field of medicine. They would restrict the term "scientific medicine" to the work of the chemical, physiological and pathological laboratories, forgetful of the fact that no length of time spent in these places can ever fit the student, for what after all is the chief end of his calling—the prevention or cure of disease. No one is disposed to deny the great benefits modern medicine owes to workers in these branches, but we must be careful to value the work, so far as our profession is concerned, by the extent to which it is applicable in enabling us to cope with the problems of disease, either in the individual case at the bedside, or the wider field of preventive medicine. The priggishness that would attempt to separate the more purely scientific from the clinical departments of medicine cannot be too strongly condemned. The brilliant discoveries

that have shed such lustre on medical science in the 19th century—those of Lister, Koch, Pasteur, Jenner and others—have been made by practical men—not mere theorists, and their names are revered because the result of their labors has been to protect from disease or to bring relief to countless thousands, the study of the phenomena of disease in the human subject at the bedside or in the morgue is not necessarily less scientific than observations on mice or guinea pigs, the opinions of self-sufficient egotists, masquerading in the guise of science, to the contrary, notwithstanding. The training in the laboratories is invaluable, but only insofar as it makes a physician more capable and proficient in the active practice of his profession.

A MEDICAL DEFENCE UNION.

The St. Francis District Medical Association is to be commended for the action they have taken looking toward the establishment of a Medical Defence Union operative throughout the Dominion. The objects of the Union are stated as follows:—

I. To support and protect the character and interests of Medical Practitioners practising in the Dominion of Canada.

II. To promote honorable practice, and to suppress or prosecute unauthorized practitioners.

III. To advise and defend or assist in defending members of the Union in cases where proceedings involving questions of professional principle or otherwise are brought against them.

IV. To consider, originate, promote and support (so far as is legal) legislative measures likely to benefit the Medical Profession, and to oppose all measures calculated to injure it. And for the purposes aforesaid to petition Parliament and take such other steps and proceedings as may be deemed expedient.

The annual fee for membership is \$2.50 with a further guarantee up to \$5.00, if required for the purposes of the association, or life membership is accorded on payment of \$100. The provisional executive consists of the officers of the St. Francis District Medical Association. The Union is making application through Dr. T. G. Roddick for incorporation by the Dominion Parliament, and they are also seeking the endorsement of the scheme by The Canadian Medical Association. The formation of such an organization has been advocated by the *Lancet*, and that it is urgently needed there can be no doubt. We think it is a pity, however, that the matter was not taken up by the Dominion Medical Association. The support and influence of the national association would go far towards insuring the success of a movement which is of general interest to the profession.

INDIAN AND COLONIAL ADDENDUM TO THE BRITISH PHARMACOPOEIA.

The publication of an Indian and Colonial Addendum to the British Pharmacopœia of 1898, under the authority of the General Medical Council of the United Kingdom, shows that the medical profession is fully alive to the present wave of Imperialism, which is bringing closer and cementing the various parts of our great Empire. The Addendum contains 59 pages dealing with medicinal plants and other substances suggested for inclusion by Indian and Colonial authorities. The work is provisional and it is hoped that the official recognition of the preparations suggested will stimulate further research into their properties, preliminary to their incorporation into the next Pharmacopœia. The fact that the General Medical Council are not only willing, but anxious, to adapt the Pharmacopœia as fully as possible to meet colonial requirements will certainly be appreciated. The editor, Dr. John Attfield, F. R. S., who has spent much labor in the preparation of the Addendum, is particularly deserving of the thanks of his colonial brethren, as well as of all those who wish to see the bonds of Empire in every field of enterprise or labor, drawn closer. The committee entrusted with the general supervision of the work consisted of Dr. McAlister, Dr. Atthill, Sir Dyce Duckworth, Dr. McVail, Dr. Payne, Mr. Tichborne, Sir John Batty Tuke and Dr. Nestor Tirard.

CORONERS' INQUESTS AND MEDICAL FEES.

The wisdom of the Ontario Government in the matter of fees paid doctors for services rendered in medico-legal inquiries is open to question. At present, for the performance of an autopsy, drawing up a report and afterwards attending and giving evidence at the coroner's inquest, the doctor is paid the handsome fee of \$10.00, with mileage. If on *post mortem* examination in a given case, death is found to be due to natural causes and consequently further legal procedure is rendered unnecessary, the doctor, according to recent interpretation of the law, is only entitled to receive \$5.00 for the examination and report. While the effect of his investigation of the case has been to render the holding of an inquest unnecessary and thus to save the country much expense, he is rewarded for his services by being paid only half the usual fee. The law makes no provision for special bacteriological, microscopic or chemical examinations, which any tyro in medicine knows are frequently absolutely necessary for the proper clearing up of the

case. The neglect of these points in a proper examination weakens the prosecution and results in many a miscarriage of justice.

The fact is, the law appears to take no cognizance of the great advances made in pathology, bacteriology and post mortem technique during the past quarter of a century, nor of the much greater skill and the much longer time required to make an examination according to present methods. The remuneration remains the same during that period, or has been actually reduced. Neither is any distinction made between the most difficult and obscure cases and the simplest routine examinations. In some instances where the cause of death is really not in doubt, as in railway accidents, or in the routine examinations required in cases of death in gaols, where no particular skill or knowledge is required and where the examination is not necessarily exhaustive, the present fees may not be so inadequate. In many criminal cases, however, the greatest amount of experience and skill and the most careful and prolonged investigation is often necessary in order to properly estimate the various conditions found, to obtain all the data possible and to arrive at a satisfactory conclusion. As mentioned before, microscopic, bacteriologic and chemical examinations may be necessary to this end. It is obviously absurd to expect that such an investigation can be conscientiously made for the present fees. The matter should be brought to the notice of the government by our medical representatives in the legislature and if properly represented, no doubt the injustice existing and the necessity for a change would be apparent.

EDITORIAL NOTES.

A Suit for Malpractice.

We regret to notice that the action for damages for malpractice against Dr. J. M. Conerty, of Smith's Falls, still drags through the courts. The details of this case were given in *THE LANCET* a year ago. The prolonged defence of a case in which the complainants are penniless is a genuine hardship in which Dr. Conerty will have the sympathy, and should have the material support of his medical brethren. No better example of the necessity for a medical defence association need be given.

A Heroic Canadian Nurse.

The *New York Sun* relates the story of the heroism of a Canadian nurse, Miss Margaret C. Macdonald of Pictou, N.S., who was wounded in the shoulder in one of the engagements in South Africa, while assisting in

caring for the wounded near the firing line. Notwithstanding the painful nature of the wound, she continued at her post for some time. Miss Macdonald is a graduate of the Charity Hospital Training School, New York, in the class of 1895, and was a nurse in the American army during the operations in Cuba.

Suprarenal Extract in Organic Heart Disease.

Dr. Samuel Floersheim, 218 East 46th St., New York, would like reports from our readers on their experience with this agent as follows:—

1. The condition of the heart and pulse.
2. The effect on the heart and pulse and pulse rate within ten minutes after the suprarenal powder, three grains, is chewed and swallowed without water, by the patient.

Congress on Tuberculosis.

A congress on Tuberculosis, under the patronage of His Excellency, the Governor General, was held in Ottawa on February 14th and 15th. Among others taking part in the meeting were Sir James Grant, of Ottawa, and Dr. Oldright, Barrick, Powell and McPhedran, of Toronto, besides many prominent laymen.

PERSONAL.

Dr. S. J. Farrel, (Trinity '00) who served in the Mounted Infantry in South Africa, has been appointed a civil surgeon.

Dr. F. L. Vaux, (Trinity '96), Dr. L. E. W. Irving, (Trinity '00) and Dr. McRae, (Toronto '97), who held commissions in the Royal Canadian Artillery, have safely returned from South Africa. It is gratifying to note that of the large number of medical students and doctors from Toronto who entered the service, all have returned safe and sound.

Dr. Theo. Coleman, of Toronto, has accepted a position as surgeon to a mining company in the Spanish River District and leaves soon to assume his new duties. Dr. Coleman has been a member of the LANCET staff for some time and we extend to him our best wishes in his new field of labor.

Dr. G. H. McLaren, (Trinity '99) who had recently to resign his post on the resident staff of the General Hospital on account of an attack of pneumonia, has gone to the Bermudas to recuperate.

Dr. J. F. W. Ross has gone to the Bermudas with Mr. Geo. Gooderham and party, where he will remain for a couple of months.

A Canadian Association has been formed in Cleveland with Dr. Calvin Shaw (Trinity '98) as first president.

Dr. Harry Johnston (Trinity '99) is practising in Balaclava, Jamaica.

Mr. W. J. Macdonald, fourth year student, and Mr. W. M. Love, a first year student, in Trinity Medical College who served in South Africa, were given a reception by their fellow students on Jan. 25th. They were each presented with a beautiful gold locket. Mr. Macdonald belonged to the R.C.A. and Mr. Love to the R.C.R.

Dr. J. E. Elliott, of Church St., has been honored with the presidency of the Young Liberal Club of Toronto.

We are glad to learn that Dr. J. T. Fotheringham has returned from The Welland, St. Catharines, fully recovered from the effects of his recent attack of la grippe.

Dr. Perry G. Goldsmith, of Belleville, leaves shortly to spend six months in London and Berlin on eye, ear, nose and throat work.

Dr. Gow, of the resident medical staff of the General Hospital, is convalescent from an attack of la grippe.

Dr. Chown, president-elect of the Canadian Medical Association, sends greetings to the members in a very handsome New Year's card in which he reminds them of the date of the Winnipeg meeting, August 28-31, 1901.

Dr. William Osler, of Baltimore, was in Toronto attending the funeral of his brother, the late B. B. Osler. Dr. Osler's many friends in the medical profession will sympathize with him in his present bereavement.

THE LANCET offers its congratulations to Dr. T. P. McCullough, of Peterborough, on his assuming matrimonial responsibilities.

Dr. G. R. McDonagh, of Carlton street, will be absent from the city on a holiday during February and March to the West Indies.

We are informed that Dr. Graham Chambers and Dr. Walter McKeown have assumed the editorship of our contemporary, the *Dominion Medical Monthly*.

OBITUARY.

DR. JOHN EDWARD WARE.

Dr. John Edward Ware, who practised his profession for many years in Port Perry, Prince Albert and afterwards in Orillia, died at Flushing, Long Island, N. Y., on the last Sunday of the century, at the advanced age of eighty-three years.

Dr. Ware graduated from the University of Buffalo in 1850, and for many years occupied a prominent place in the profession of Ontario. Four years ago he left Orillia to associate himself with his brother-in-law, Dr. Robert Hunter, of New York. The deceased was for many years a member of the Masonic order.

By his upright Christian character, strict performance of duty, kindly nature and uniform courtesy of manner, Dr. Ware gained the esteem of the community in which he lived, and he will be missed by a large circle of friends and relatives.

DR. E. P. ROSE.

We regret to note the sudden death of Dr. E. P. Rose, House Surgeon to St. Boniface Hospital, Winnipeg. Dr. Rose was a graduate of the University of Manitoba and joined the first Canadian South African

contingent. During the campaign he suffered from an attack of enteric fever, was invalided to England, returning to Canada about three months ago, and entered upon his duties at St. Boniface Hospital Jan. 1.

DR. JAMES HARTY KENNEDY.

Dr. James Harty Kennedy died recently at Sault Ste. Marie. The deceased studied at Toronto University and was connected with St. Michael's Hospital for some time. He afterwards practised at Phelps-town, Guelph and Jersey City, and latterly at Sault Ste. Marie. He married a daughter of Mr. J. Dobson, Esq., of Guelph, who, with six children, survives him.

DR. MALCOLM RANEY.

Dr. Ranney, M.R.C.S., died at Georgetown on Feb. 1st. The deceased was an M.D. of Glasgow, and after coming to Canada, practised for some time in Toronto, afterwards removing to Sharon, Ont. In 1857, he married Marion, daughter of the late John Grant, M.D., of Toronto. He leaves three sons, one of whom, Albert Errington, is a student at Trinity Medical College.

DR. CHARLES W. PURDY, CHICAGO.

The announcement of the death of Chas. W. Purdy, M.D., L.L.D., Professor of Clinical Medicine at the Chicago Postgraduate Medical School, will be received with much regret in Canada. Dr. Purdy was a graduate of the Royal College of Physicians and Surgeons, Kingston, Ont., in 1869, after which he went to Chicago, where he soon rose to an eminent place in the profession. He was the author of several works on diseases of the kidneys and allied affections, but probably his best known work is that on Practical Urinalysis and Urinary Diagnosis, possibly the most popular and satisfactory publication of its kind that is to be found in English. His Alma Mater a few years ago conferred upon him the honorary degree of L.L.D., in recognition of his worth. Dr. Purdy was about 54 years of age and by a peculiar coincidence died from Bright's disease.

EDWARD FARREL, M.D., HALIFAX.

We regret to record the death of one of the most distinguished members of the Canadian profession in the person of Dr. Edward Farrel, of Halifax, at the age of 58 years. Dr. Farrel was born in Dartmouth, N.S., and received his early education in that city. He afterwards studied medicine in New York, graduating from the College of Physicians and Surgeons in 1864. He was one of the founders of the Medical Faculty of Dalhousie University, in which he held the professorship of anatomy for a time and afterwards that of surgery. He was a member of the Legislative Assembly in the Reform interests from 1874 to 1878. Dr. Farrel was a most public spirited citizen, taking a deep interest in all that concerned the welfare of his native province and the city in which he lived. His kindly, genial nature and brilliant social qualities made for him hosts of friends among all classes of society, so that his early death has been a matter of the keenest regret.

CORRESPONDENCE.

ABSTRACT OF THE PROPOSED BILL FOR THE TREATMENT OF DRUNKARDS.

The main provisions of this bill are as follows :

In all cities of Ontario having a population of 20,000 or over the police Commissioners empowered to appoint a probation officer to take the supervision of drunkards placed on probation by the Court on suspended sentence. These officers are not to be members of the police force and they are to act more in the capacity of friendly visitors than as informers. They shall also assist the probationer in finding employment when necessary. It will be their duty to investigate for the information of the court, the previous record of persons arrested for drunkenness and to keep records of such investigations and also of all cases placed on probation. In cases where a fine has been imposed by the court, this fine may be paid in instalments by the probationer to the probation officer while the person is on probation.

A medical superintendent shall be appointed by the Government to inaugurate and superintend the medical treatment of inebriates and dipsomaniacs and to assist in establishing, for their treatment, cottage hospitals and special wards in general hospitals throught the Province. He shall also make local arrangements for the administration of home treatment in suitable cases. The superintendent and probation officers shall co-operate in the work of reformation.

Government grants to promote the medical treatment of dipsomaniacs and inebriates may be made as follows: Cottage hospitals specially established for the reception and treatment of drunkards, or wards in general hospitals specially equipped for this purpose, shall receive as a bonus, twenty-five per cent. of the cost of building or special equipment as the case may be, secondly, a special grant of ten cents a day over and above the usual per capita grant to all hospital patients shall be allowed in cases of chronic dipsomaniac, and thirdly, an extra grant of forty cents a day shall be allowed, for a period of seven days, for cases of acute alcoholism. The medical treatment not to be considered as a charity but as a loan to be repaid subsequent to treatment and while the person is still on probation.

Able-bodied chronic drunkards instead of being fined or sent to jail shall be sent to the Central Prison for not less than six months and all subsequent sentences to be cumulative. Able-bodied female drunkards shall be sent to the Mercer Reformatory on cumulative sentences. Chronic drunkards, male or female, not able-bodied, may be provided for in county or city houses of refuge.

Three physicians of standing in the Province may be appointed by the Government, as a Committee of consultation, to co-operate without salary, with the superintendent in inaugurating and carrying out the purposes of this bill.

PUBLISHERS DEPARTMENT.

GRIPPAL MEDICATION SIMPLIFIED.

The large and increasing number of deaths especially among our prominent men, due primarily to the prevailing epidemic of La Grippe, and the serious illness of President McKinley from the same cause, impresses us with the advisability of calling the attention of our many readers to the really excellent remedial qualities of the different products of The Antikamnia Chemical Company in the treatment of this scourge and its many insidious allied diseases. For the purpose of reference, we append a list of their various preparations, viz.:

- Antikamnia Tablets
- Antikamnia and Codeine Tablets
- Antikamnia and Quinine Tablets
- Antikamnia and Salol Tablets
- Antikamnia, Quinine and Salol Tablets
- Antikamnia Powdered
- Laxative Antikamnia Tablets
- Laxative Antikamnia and Quinine Tablets

The last mentioned is a new and without doubt a most desirable combination in the above complaints and also in all malarial and congested conditions.

A CASE OF CHRONIC RHEUMATISM.

BY L. B. SMITH M.D., HORNELLSVILLE, N. Y.

Six years ago I had synovitis of the right knee joint following an injury from which I was confined to the house for several weeks, but finally recovered with slight stiffness. In January, 1897, the same knee began to enlarge, which gradually increased until it was at least half as large again as normal. Before this time arrived, the left knee, left ankle, left wrist, right elbow, and right jaw became affected, the latter becoming so bad until I could not place a teaspoonful of food between my teeth. I sat in a wheeled-chair for twelve weeks, during which time I lost flesh and appetite, while sleep was almost out of the question, excepting at short intervals. Before these conditions appeared my urine was loaded with uric acid, and despite all remedies and treatment, could not get rid of it. Being a physician myself, in practice since 1875, I tried everything known to me, and a great many remedies recommended by my brother physicians, but the conditions remained the same, gradually becoming worse. In October, 1898, I was forced to quit work, and went into the Steuben Sanitarium, where I commenced the use of baths, electricity and massage, as well as medicines, following the same for several weeks.

While I improved in some respects the uric acid condition remained the same. When I commenced to take thialion, my strength was almost gone, and to all appearances I was booked for another world. One day, Dr. Walker, superintendent of the Sanitarium, called my attention to an article published in a medical journal, calling attention to the use of thialion in chronic rheumatism, and as it did not bear any symptoms of being a fake preparation, I told him to get me some that I might try it, as I knew of no better subject to experiment on than a doctor. In forty-eight hours my urine was alkaline, an almost inconceivable result. After a few days I only took one dose a day, viz., a teaspoonfull in half a glass of hot water, and I just balanced the urine from slight acid in the morning to slight alkaline at night. In a short time my joints began to decrease in size, and I continued to improve. In July, 1899, I went up in the Catskill Mountains, remaining for six weeks for my general health, which did me worlds of good, and I returned to my home on September 1st, a new man. I then commenced my practice again, and have continued to improve, until now I am as well as ever except a little stiffness of the right knee, which is steadily improving. I still take a little thialion occasionally, as a preventative, as I have had all the uric acid deposits I want in my joints. I weigh now within five pounds of as much as I did before this attack. I never had rheumatism before, and do not expect to have it again. I have used thialion in many cases since, in my practice, with equally good results, sometimes varying the treatment to meet the conditions of the patient. One mistake in all such cases, is that they do not take the medicine long enough, for it has to remove the deposits through the blood, by the alkalinity mentioned. Thialion certainly did for me what no other remedy did (I took everything else, lithia in all other forms gave no result whatever, before taking this preparation). As this is put up only for physicians' prescriptions, I can most certainly recommend it to their use.

EXTRACTS FROM REPORT ON THE PHYSIOLOGICAL ACTION OF PETROLEUM.

By G. Burbidge White, A.B., M.D., Diplomate in State Medicine, University of Dublin, Late Examiner in Physiology, Senior Demonstrator of Anatomy, and Demonstrator of Materia Medica, R. C. S. I., Late Pathologist, Meath Hospital and County Dublin Infirmary, Surgeon to the City Hospital for Diseases of the Skin, Dublin.

In the report which follows, it is proposed to embody the experiments conducted by myself with petroleum, as to its behaviour physiologically in the body, with a view of explaining the clinical effects (which have already been observed and recorded largely) that follow its administration in diseases of various kinds, viz., increase of weight, diminution of catarrh of mucous surfaces, relief of dyspepsia and constipation, relief of flatulence and cystitis, etc. After careful comparative chemical

examinations, ANGIER'S PETROLEUM EMULSION was selected because of its purity, palatability and because it was the best adapted form of petroleum for internal administration.

Research experiments were made from Chemical, Bacteriological, Histological, Physiological and Clinical aspects.

EFFECT FROM FERMENTATION. With regard to the chemical portion of the investigation, in which I was ably assisted by Prof. Kelly, I found that while the Emulsion completely inhibits vinous, lactic and buyric fermentation and the growth of putrefactive bacteria, such as inhabit the alimentary canal, preventing the formation of spirit, lactic acid or foul gases, it has no retarding action upon either peptic or tryptic digestion, both of which we were able to carry on successfully in presence of a very large percentage of Petroleum Emulsion.

AS A SOLVENT AND VEHICLE. Another not less interesting and important fact is that the Emulsion is a solvent of considerable power both of drugs and of animal substances, such as oil and petones which latter it also emulsifies in larger percentages and holds, especially at the temperature of the body, for a considerable time, longer than would be required for absorption from the alimentary canal. Lard, cod-liver oil, clear bacon, fat, etc., are readily dissolved in the Emulsion, as also is butter fat, and an important effect of the mixture of these two substances is that the particles of fat are rendered more mobile, more easily miscible with water and fluids, and these fluids and these solutions on them pour out of glass vessels not clinging to the sides, which can afterwards be rinsed clean with plain cold water.

Petones are freely taken up the Emulsion to 50 per cent. and upwards, and held well in combination without separation, and a somewhat similar effect follows their admixture. The peptones pour more easily, and more quickly diffuse through water and fluids of lesser density, also pour easily and cleanly from glass tubes.

Quite a number of experiments were made to prove these results—as these substances are important factors in alimentation the importance of the effects of mixing the Emulsion with them will be manifest.

BACTERIOLOGICAL EXPERIMENTS. By Bacteriological investigation with the Emulsion, it was found that no organisms could be grown in either pure Petroleum or Petroleum Emulsion; this is doubtless due to its affording no food for their nourishment, owing to the want of the property of chemical combination.

PHYSIOLOGICAL EXPERIMENTS. The rabbit, cat and dog, were selected for the physiological portion of the investigation, which involved much time and trouble in its performance, and was undertaken to study the biological action of the Emulsion in the body. It will be, perhaps necessary to state that the food conditions were equal and constant before and after the administration of the Emulsion, and care was taken to compare similar and not dissimilar conditions; when food was to be introduced into the stomach and bowels, peptone was the food selected in conjunction with Emulsion.

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Potash and Lime ;

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And the Vitalizing Constituent—Phosphorus ; the whole
combined in the form of a Syrup, with a slight
alkaline reaction.

It differs in its effects from all Analogous Preparations :
and it possesses the important properties of being
pleasant to the taste, easily borne by the stomach,
and harmless under prolonged use.

It has gained a Wide Reputation, particularly in the
treatment of Pulmonary Tuberculosis, Chronic Bron-
chitis, and other affections of the respiratory organs.
It has also been employed with much success in
various nervous and debilitating diseases.

Its Curative Power is largely attributable to its stimulant,
tonic and nutritive properties, by means of which the
energy of the system is recruited.

Its Action is Prompt : It stimulates the appetite and the
digestion ; it promotes assimilation, and it enters
directly into the circulation with the food products.

The prescribed dose produces a feeling of buoyancy
and removes depression and melancholy ; *hence the pre-
paration is of great value in the treatment of nervous and
mental affections.* From the fact, also, that it exerts a double
tonic influence, and induces a healthy flow of secretions,
its use is indicated in a wide range of diseases.

When prescribing the Syrup please write, "Syr.
Hypophos. FELLOWS" As a further precaution it is
advisable to order in original bottles.

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MONTREAL

A dog of previously determined weight was denied all food for a period of twenty-four hours and was given instead a quantity of Petroleum Emulsion, equal in weight to the amount of regular food which the dog had consumed in the twenty-four hours previous to the experiment. Under the administration of the petroleum alone the dog lost two ounces in weight. This dog was then given small quantities of food in addition to a minimum amount of ANGIER'S PETROLEUM EMULSION and the weight of the animal increased in three days to four ounces in excess of the original weight. This proves that while petroleum in itself is not capable of maintaining body nutrition, given in conjunction with even small quantities of food, it causes an increased utilization of the latter over that possible from food alone, so that the body weight promptly, steadily, and progressively increased.

EFFECT ON DIGESTION. Digestion and assimilation are natural processes, and any product which delays, hampers, or renders more difficult these processes, cannot help but inhibit nutrition. To determine the effect of petroleum on digestion, there was administered in some cases food alone, and in other cases food plus ANGIER'S PETROLEUM EMULSION to both persons and dogs, and then extracted the stomach contents for purposes of comparison. It was found that in the cases in which food alone was given, digestion was less rapid and less complete than in those cases to which were administered food plus petroleum. It was further noted in the above experiments that petroleum administered in ten times the regular dose, did not in a single instance induce eructations, gastric distress or toxic symptoms of any kind. These experiments prove that petroleum facilitates and expedites digestion without producing a single symptom indicative of gastric irritation or toxic infection.

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