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Original Articles

HOW MUCH OPHTHALMOLOGY SHOULD A GENERAL PRACTITIONER KNOW.—WITH SPECIAL REFERENCE TO THE DISCOVERY OF THE CAUSE OF HEADACHES.*

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Lauder Brunton, in his classic essay on "Headaches," remarks: "Of all the kinds of pain which affect humanity, there is perhaps none which causes a greater amount of misery than headache. Although the pain of it may not infrequently be slight, yet the number of people affected by it, the frequency of its occurrence, and the intensity which it sometimes attains, raises the total amount of pain produced by it to such an extent that the means of relieving or curing it becomes a most important therapeutical question."

In the work of every busy medical man, headaches come frequently under observation. There are the headaches of adults, and the headaches of children. There are structural headaches, congestive headaches, toxemic headaches, and nervous or sick headaches. In many of these cases it is not difficult to arrive at a decision as to the cause of the headache—and that without any knowledge of ophthalmology. But in others, espe-

* Read at meeting of Ontario Medical Association, June 5th, 1902.

cially those of a nervous origin, the eyes are frequently at fault. In these, some knowledge of ophthalmology is of value.

Brunton, in the essay already quoted from, remarks that decayed teeth may be a cause of headache. And he calls attention to the fact that headache may be present, even although there be not the slightest pain in the teeth. We are aware that a similar state of things may exist in connection with the eyes, viz.: There may be a headache due to ocular causes, and no pain or aching be felt in connection with the eyes. "Perhaps," says Brunton, "a still more frequent source of headache than even decayed teeth are abnormal conditions of the eyes," and, he adds a most instructive remark, "Formerly I used to suffer myself from migraine (sick headache), which might affect either side of the head; but for some years past it has almost invariably affected the left side. My right eye is normal, but the left is hyperopic, and probably the greater strain that is thrown upon this eye in reading leads to the headache on the same side." And he sums up his remarks upon ocular headaches by giving the following causes: "Strain from reading, or working with imperfect light, or for too long a time. Myopia, hypermetropia (hyperopia), astigmatism, inequality of vision between the two eyes, and last, but not least, glaucoma." Or, putting the matter in plain words, we may say that the ultimate cause of almost all causes of ocular headache is some error of refraction. This being the case, should not every medical man be able to examine for, and detect, errors of refraction?

I am aware that this subject is often looked upon as very difficult—so difficult that many medical men do not pretend to make examinations at all. On the other hand, many do examine for errors of refraction, and find the knowledge thus obtained of the greatest value. It will be my endeavor to show that to examine for inequality of vision, or myopia, hyperopia, or astigmatism presents very few difficulties indeed. True, it needs special training to determine the whole amount of fault in the refraction, but in the vast majority of cases the kind of fault may be easily ascertained. In examining eyes to discover if they have to do with headache, at least four questions should be determined: (1) Are the eyes of equal vision? (2) Is there hyperopia (far-sightedness)? (3) Is there myopia (near-sightedness)? (4) Is there astigmatism (irregularity of vision due generally to irregularity of the cornea)?

The first question is often answered by the patient, who states that one eye is better than the other. But, in any case, the test referred to later should be made, so that we may know

just how the eyes differ. In order to answer the above question we require five things: (1) Distance test-types; (2) near test-types; (3) an astigmatic chart; (4) trial frames; (5) a box of lenses. These can be purchased at any wholesale opticians.

The Distance Test-types.—This is a large card, with the letters printed smaller on successive lines, as we proceed downwards. It is to be hung where a good light can be thrown upon it, and where the patient can be at six meters distance (nearly twenty feet) from it. If the office is not long enough to give twenty feet, the diagonal direction of the room may give it. If the figures are not already above each line, they should be marked in the following manner. Above the largest letter at the top is to be marked $\frac{6}{60}$, above the next $\frac{6}{30}$, then $\frac{6}{24}$, $\frac{6}{18}$, $\frac{6}{12}$, $\frac{6}{9}$ and $\frac{6}{6}$.

The numerator of the fraction means the distance the patient is from the letters (six meters), while the denominator shows the distance that a normal eye can read the letters. Thus, $\frac{6}{60}$ means that the patient is six meters away from the letter, but that he could read that letter at sixty meters distance. These figures are convenient for recording the vision. If an eye can read the $\frac{6}{6}$ line, vision is normal. This may be recorded as $\frac{6}{6}$, or simply as 1. If the eye can only read $\frac{6}{12}$, then the vision is only one-half of normal, and it may be so recorded.

The Near-Vision Types.—These are known as Jagers types. These are numbered, No. 1 being the smallest, No. 14 the largest. In using these, one eye is covered (as in using the distance test) and the patient is asked to read No. 1 at the distance where he can best and most clearly do so. The normal eye reads No. 1 at a distance of thirteen inches. It is convenient to have a tape and measure the distance. If he reads at thirteen inches, it is noted, "*J*1 at thirteen inches."

The Astigmatic Chart.—This resembles the face of a clock; but having upon it certain lines. These lines are vertical, running from 12 down to 6; horizontal, running from 3 to 9; oblique, running from 1 to 7, 2 to 8, etc.

The Box of Lenses.—In this, besides the lenses, there should be a trial frame and an opaque disc—the latter for the purpose of blocking one eye, for all tests should be made of one eye only.

The lenses are in two sets of four each, the first set contains convex or plus glasses of the following strengths: +0.5OD, +1.OD, +2.OD, +3.OD. There should also be four concave lenses, viz.: −0.5OD, −1.OD, −2.OD, −3.OD. (The marks + and − are to be seen on the lenses.)

We are now prepared to test our patient. Seating him six meters away from the distance test-types, the frame being in

position, we place the opaque disc in front of the left eye. He is asked to read the letters, beginning at the top. We will suppose he reads down to $\frac{6}{6}$. We then record the right as normal. If the left eye, on testing, only comes down to $\frac{6}{18}$ then that eye has only one-third of normal vision. But we will suppose the left can read $\frac{6}{6}$, therefore the eyes have equal vision for distance. It is well, however, to also test the reading power, and if they are equal and normal for reading, then we may note that there is no inequality of vision, and therefore we have not yet found ocular cause for headache.

Test for Hyperopia (often called hypermetropia).—For this test we use the plus (+) glasses. Covering the left eye, we place the +0.5 in front of the right. If there is no blurring of sight while he looks at the distance types, then there is hyperopia present. If we wish to determine how much, we put in + glasses until there is slight blurring of vision. The strongest + glass with which he can read as well at the distance as with the naked eye will give us the amount of the hyperopia.

Test for Myopia.—If our patient has already read $\frac{6}{6}$ with each eye, we have already tested for myopia negatively. For no myope can read $\frac{6}{6}$. But in order to give the test, we will suppose that the patient can only read the $\frac{6}{24}$ line (he has thus only one-fourth of normal vision.) Covering one eye with disc, we place the −0.5 in front of the other eye. If this improves his sight, he is myopic. To ascertain the amount, you proceed as in hyperopia, using the minus (−) glasses, and remembering that the weakest glass which gives the best sight for distance is the measure of his myopia.

Test for Astigmatism.—Covering one eye, the patient is asked to look at the clock-face (which has been hung on the same wall as the distance types) and to say whether all the lines upon it are equally dark, or if some are darker, or lighter, than the others. If he says they are all alike, probably that eye is not astigmatic. But if, instead of the lines being all alike, he sees any of them to be darker than the rest, that eye is probably astigmatic. Try now both a plus (+) and a minus (−) glass, first one and then the other. If either of them makes the lines dark and clear which were previously blurred, then there certainly is astigmatism.

Take an example. If an eye sees the lines from 12 to 6 to be dark, and a glass (plus or minus) makes the lines from 3 to 9 to be dark, while the 12 to 6 lines are now blurred, astigmatism is proved to be present. By these few simple tests we have examined for the principal errors of refraction.

The routine here advised for adults may be followed in examining for ocular causes of headache in children.

It must not be supposed that the methods spoken of will enable us to detect all cases of error of refraction. They will help us in the great majority of cases, but there are conditions which can only be made plain by the use of a mydriatic. We have not the time to discuss the use of mydriatics, but one case may be given to show their value. Recently a young lady came to my office complaining of headaches. She was wearing concave (minus) glasses; in other words, she seemed to be short-sighted. She was not really so, but, without the use of a mydriatic, she seemed to be so. By thorough mydriases, however (the use of atropine), the true condition of her eyes was brought out. She was ordered plus glasses for the right, and plus and minus glasses for the left. She is now completely free from headaches.

I have thus endeavored, Mr. President, to state the least amount of knowledge of ophthalmology which would be useful in considering a case of persistent headache. That amount, in my opinion, is to be able to detect ordinary cases of errors of refraction.

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WHERE CAN OUR CONSUMPTIVE PATIENTS BEST BE TREATED?

By J. H. Elliott, M.B., Gravenhurst,
Physician-in-Charge, Muskoka College Sanatorium.

The question of treatment of our cases of pulmonary tuberculosis is one of great interest and importance to the profession in general, comprising as such patients do a large proportion of those who come to us for advice.

The number of deaths annually in the Dominion from tuberculosis is estimated at 8,000. In the Province of Ontario alone in 1900 there were 3,484 deaths, a sufficient plea for the importance of the question under discussion.

After having made our diagnosis, and this in the early case may be only after repeated examinations, what is to be done with the patient? If the case be far advanced, by all means treat the patient at home or in a hospital near home where he can still see his friends at intervals, and not spend his days away amongst strangers. I think in these hopeless cases our whole

duty to the patient is to make him as comfortable as possible until death intervenes; separation from home and friends is a hardship which we are not warranted in advising.

In deliberating upon the advisability of treating the patient at home we must not consider him alone, we owe a duty to the family living with him. Unless we are satisfied that he will be careful, and follow closely all directions given him, he should be sent to a hospital where he will be cared for, and, as a source of infection, removed from his home. It is incumbent upon us to fully inform the patient and his attendants as to the precautions to be used at home, to show them the necessity of extreme caution, and to assure them that with care and cleanliness the patient may be nursed without fear of infection. Unless we do this we are guilty of criminal negligence.

To advise our early or somewhat advanced cases is not so simple a matter. Only a few years ago we might have felt we were doing our whole duty in prescribing cod-liver oil, iron, and creosote, with any necessary cough mixtures; looking for temporary improvement, then the gradual lessening of vitality and the onset of hectic with all the symptoms of advanced disease. Following this was a reaction; warm Southern climates seemed to possess the greatest advantages, and patients were ordered to the Carolinas and Florida; then colder climates were advanced; then altitude seemed a necessary factor, and Colorado was the one place for phthisical patients. We are now learning that excellent results may be obtained in our home climate; every physician who has been in practice for a few years has seen cases undergo arrest and remain stationary for longer or shorter periods without having left home; others have notes of cases under their care where there has been apparent cure, and not infrequently where the patient has continued at work; these are, however, exceptional and cannot be taken as a basis for treatment; but it goes to teach us what a resisting power is present in many of our patients, and if nature be aided in her efforts to overcome disease we may often get unexpected results.

The reports published by sanatoriums such as Falkenstein and Hohenhonnef, in Germany, of Sharon and Rutland, in Massachusetts, show what may be accomplished when there are no special climatic advantages, but where every attention is paid to the details of the daily life of the patient.

We must then decide, shall the patient be treated at home or in a sanatorium? Shall he be sent to the country or advised to take up life in Colorado, the North-West, or other climate where we know many pulmonary cases do well? No general rule can be laid down, each patient must be studied individually,

and our conclusions arrived at, not only from a consideration of his physical condition, but also from his temperament, the possibility of his leaving his business and his home ties, and last, but very important, whether his finances will allow of his maintaining himself any length of time away from home.

Wherever a patient be treated, we must recognize as essentials a pure air free from dust and organisms, a liberal diet, and a life regulated in all its details with rest or exercise dependent upon the patient's condition. Where these essentials can be secured, with, in addition such climatic *desiderata* as abundance of sunshine and atmospheric conditions, allowing constant living out of doors, we have a place well suited for the purpose in view.

It is generally conceded that a patient who recovers in a climate such as Colorado or California must live out his life there; that a return home is usually fraught with danger. This, if true, would be one of the disadvantages of climatic treatment, and is especially a hardship to a patient with a family, or one who has others dependent upon him, and where taking up life anew amongst strangers means a great sacrifice.

In many cases a patient is already poor from a long drain on his resources, the expense of the journey is great, and he seeks a cheap boarding house in a city on his arrival that he may live as economically as possible. This is often worse than remaining at home. On the other hand, if he goes into the country and lives on a ranch far from a physician, he will altogether likely be injudicious in his method of living unless he has been carefully trained and cautioned.

There are many advantages in the climatic treatment for those who can be accompanied by friends, and who need not fear expense; also it is to be recommended in the case of many young men with early disease, those who have sufficient funds to ensure a proper diet and medical care upon their arrival, and who can look forward to taking up work or business in a short time, with a fair prospect of good health.

A certain number of our patients must needs be treated at home, those whose finances will not permit their travelling, some who would be reckless and careless away from home and friends; others again who, though well able to go themselves, have no one to accompany them, and to whom life alone amongst strangers would be unbearable. A contented mind goes a great way towards making a successful resistance against the progress of pulmonary tuberculosis, while a patient rarely progresses favorably if worried or troubled with that most depressing affection, nostalgia.

No method of treatment of pulmonary tuberculosis has given such universally satisfactory results as that adopted in sanatoriums specially devoted to this work. They are located, as a rule, distant from any large town or city in a situation selected as regards shelter, drainage, and with a southern aspect. This ensures a purity of the air and a freedom from organisms. The proximity of a forest of coniferous trees is a great factor in the lessening of dust. Here, with an abundant dietary, and a daily life regulated in every detail by a physician, whose whole time is given to this work, the necessary conditions for improvement of the patient, and for the prevention of further infection, are fully met.

The physician in the sanatorium has two primary objects in view :

1. The prevention of fresh infection.
2. The improvement of the patient's nutrition.

In no place is there such freedom from infection as in the properly conducted sanatorium. All sputum is destroyed by fire. With large windows, and no shades or curtains to shut out the sunlight, wide open doors and windows to admit freely the air, the corridors and wards are kept fresh and pure. Infection of the attendants or servants in a sanatorium is practically unknown; we might reasonably expect the same proportion of cases to develop amongst them as occurs in the general population, but this is not the case.

Improvement in nutrition usually begins at once as the result of the stimulus of change from former surroundings, an element of great value in many cases, while we must also recognize in a small proportion an opposite effect. As the result of living in the open air, a vigorous appetite develops; with an abundant nutritious diet, complete rest and freedom from worry, and care, a marked change is soon noticeable, and with the return of general health there is a corresponding change in the physical signs of disease.

A control of the patient is secured which is impossible in private practice, and to this is due the excellent results achieved in this method of treatment. Fresh air, proper food, and rest may be ordered for the patient by any physician, but in a sanatorium the physician in charge sees that the prescriptions are properly filled, and all directions scrupulously followed.

Many patients find it impossible to remain under treatment until perfectly well, and this is to be deplored. With, however, a complete arrest of the disease, that is, a return to normal general health, a disappearance of signs of active trouble in the chest, though perhaps still some cough and sputum, the patient

may often take up light work with safety, especially in the West, where there are splendid opportunities.

The work done by a sanatorium cannot be estimated by the number of cases discharged each year as apparent cures. The number of arrested and much improved cases are also of great importance, many of these having given promise of ultimate cure, but are unable to remain longer under treatment. It is for these cases that the sanatorium provided by nature in our great West, and in the South-western States, is to be advised; they can safely take up some occupations out of doors, and by following the rules of life learned in the sanatorium a fair proportion progress to ultimate cure.

We must then recognize the advantages of climate, and no doubt should any of us find ourselves in need of treatment, we must be frank, and acknowledge that climate would appeal to us, and not one in a hundred would undergo treatment in a town or city at home. But amongst our patients we know that only a few are able or willing to go far, most must remain near home, and for these we may be encouraged by the splendid results which have already been shown to be possible in our home climates, and where our patients are still near their friends. Placed in a sanatorium, with constant supervision of the patient, and every facility of out-of-door life, we can confidently look for cure in 60 to 90 per cent. of the incipient cases, while of all classes treated, the arrested and apparently cured cases will reach about 50 per cent.

PNEUMONIA.*

By David Hoig, M.D., Oshawa, Ont.

In reading to you a short paper on pneumonia, I wish at the outset to disclaim any expectation of being informative, and merely hope that the presentation of a few practical points bearing on this disease, culled from the experience of a fairly active practice, may not be without interest to this Association.

The subject is one of unusual interest to the general practitioner for many reasons. No disease of a serious character is so commonly met with in general practice except typhoid fever, and typhoid fever is confined to certain localities and is susceptible of control by sanitary precautions, while pneumonia is found

*Read at meeting of Ontario Medical Association, June 4th, 5th, 1902.

everywhere and is not subject, so far as we now know, to any preventive precautions. Then too, the character of those attacked makes the disease of peculiar interest to the physician, for pneumonia loves a shining mark, and its victims are mostly at the interesting period of adolescence, or early manhood, when the keenest sympathies are excited in the community on their behalf, and the responsibility and anxiety of the medical attendant is proportionately increased.

Every year the late winter and early spring bring in their wake a plentiful crop of this disease, and the physician in any large way of practice is very fortunate who escapes without the loss of one or two patients from this cause, during the period of its prevalence. The conception of this disease has changed considerably during the lifetime of most middle-aged practitioners, as has also, perhaps, the type of disease itself. The classical description of "a sudden seizure with high fever and a chill, after prolonged exposure to cold, etc.," would hardly fit the majority of the cases that are met with at this day. More frequently the disease comes on like a thief in the night, almost as insidiously as typhoid, the patient feeling generally miserable for the first day or two, and forty-eight hours may elapse before the exact nature of the trouble is made manifest. And even when pneumonia is suspected and the lungs are carefully examined, it may happen that nothing will be found for the first day or two beyond a slightly sharper note to the vesicular breathing; and then, without, as far as you know, the occurrence of any of the preliminary phenomena which we were taught to expect—on going next day you may find a partially solidified lung. This is very mortifying to the physician, and disturbing to the confidence with which we hope to inspire our patients. Especially is this so, if, influenced by misleading symptoms, he has rashly committed himself to a mistaken diagnosis.

Quite recently I met with two cases, both in young people, in whom the outset was marked by severe pain in the bowels and distressing vomiting lasting nearly two days and suggesting appendicitis or biliary colic rather than any pulmonary disorder. In one of these cases the patient during his convalescence was intensely jaundiced and developed diarrhœa of severe type. In another case, which I saw with a friend some years ago, a child of about four years exhibited all the ordinary symptoms of meningitis with violent delirium, etc., so strongly marked were these symptoms as to render it difficult to believe that there was not some implication of the meninges, and yet, on the establishment of the pneumonia, all the head symptoms vanished. A diagnosis of tubercular meningitis was made in this case, and

was the more pardonable as there was a well marked history of consumption behind. Too much caution then, cannot be observed during the first few days of a doubtful illness. When there is much uncertainty the chances are rather in favor of pneumonia and the lungs should be carefully and repeatedly examined.

Once the diagnosis has been positively made, and the patient placed under suitable conditions, I do not think that prolonged examinations of the back of the lungs at every visit at all necessary or advisable; unless when there is reason to fear involvement of the second lung. I have known physicians who, at every visit, made a practice of forcing their patients to maintain an upright position while they made a leisurely and exhaustive examination of the back of the lungs, and I have seen patients so cyanosed during the process as to excite apprehension for their safety. This practice adds very little to the sum of our knowledge and is a source of great discomfort and some danger to the patient.

The diagnosis having been established we are generally asked how long, in event of recovery, the illness is likely to last, and our answer to this must be very guarded. As before remarked, the type of disease has changed much of late years and far fewer cases terminate by crisis than formerly. The point at which the disease attains its greatest severity and begins to retrogress is in many cases difficult to determine, and an inflamed lung may drag along for many days or even weeks without giving any indication of a sharp termination to the inflammatory process, and when it subsides, it often goes out like a slowly dying fire, and like such a fire, is liable to break out into flame repeatedly.

Another reason for a guarded prognosis is the great uncertainty as to the termination of this disease, this is, of course, true of all sickness, but peculiarly so, as it seems to me, of pneumonia. During the progress of a case of perhaps not exceptional severity, the patient may show signs of sudden collapse and die without our being able exactly to say why. On the other hand, in no disease does it seem possible for a patient to come nearer to death and to finally recover than in this one. Except in those cases where there is profuse catarrhal secretion and the patient literally drowns, the greater number of deaths are from collapse of the heart. Whether there is truly a failure of the heart muscle, partly from mechanical obstruction and partly from high temperature, or whether what we term heart failure is really a saturation of the system by the specific toxic micro-organisms and their bye-products, which many now regard as the cause of

pneumonia, is an undetermined point. What chiefly concerns us is, that during a severe case, the heart will demand a chief share of our attention.

While it seems possible to carry on the business of life for a time with only a small portion of healthy lung, the patient who is handicapped from whatever cause with a lame heart is in imminent danger during the whole course of the disease. And even during convalescence from a severe case this organ often gives us the greatest anxiety and may threaten collapse. This may sometimes be due to the too sudden withdrawal of those supports and stimulants with which we buttressed the heart during the continuance of the attack. We are apt to forget, that sometimes the weakened digestive organs are not able at once to take on the business of supplying the system with the food and stimulus of which it is in such need, and we must continue in such cases for some time to supplement these with the heart tonics and stimulants which we relied on during the acute attack. In this connection too, it would be wise to remember that the cardiac debility is usually much greater than is apparent on examination, and that much care must be exercised in preventing the patient from sitting up too soon, or making any unusual effort. In the hurry of active practice we sometimes lose sight of a patient when the acute attack is over, and we should never neglect to warn his attendants of this danger.

As might be anticipated, in cases where there is, from whatever cause, a constitutional predisposition, severe pneumonia is often followed by phthisis. More frequently is this the case in the young. Whenever a sharp attack is followed by slow, incomplete recovery and frequent febrile relapses (pleuritic effusion being excluded) the possibility of phthisis should be suspected. Not that much practical benefit to the patient is to be expected even from an early recognition of this condition, for I have come to regard pulmonary tuberculosis having pneumonia as its exciting cause, as among the most hopeless of all tubercular conditions.

Of two of my recent cases, which were early diagnosed and at once placed under the most favorable hygienic conditions, one died within the year and the other in fifteen months. Its early recognition may, however, serve a good end in causing precautions to be taken for the protection from contagion of the other members of the family, who, presumably, may have a similar constitutional tendency. As the treatment of pneumonia is to be fully dealt with by another member of the Association, I will only refer to it very briefly.

For the introduction of one external remedy, that is, the so-

called "pneumonia jacket," the country physician, particularly, has reason to be very thankful, for to him it meant the passing of the poultice. In most country districts the prejudice in favor of hot poultices was so great that the physician who lost a case without having used them came in for a great deal of hostile criticism. Always of doubtful efficacy in pneumonia, the poultice as applied in most country homes, was a positive menace to the life of the patient. In most of these houses as you are aware, the heat is confined to the kitchen and the sleeping rooms are usually as cold as a barn. Into such a room the poultice would be conveyed steaming hot and applied; an hour afterwards, if you could examine, you would find it stone cold and, as like as not, having slipped its moorings, gracefully reposing on the patient's hips. With the advent of the pneumonia jacket the necessity for other applications was not felt and the poultice could be discarded. The application of the warm, well-padded jacket seems to bring with it a distinct access of comfort, especially to the young and thin walled.

It is a long interval from the blood-letting blistering period of a generation ago to the expectant treatment of to-day, and meanwhile we have witnessed the exploitation of innumerable drugs for the cure of this ailment. Few people of this day believe that the inflammatory process can be controlled by the use of drugs and it is to maintaining the integrity of the vital force that our efforts are principally directed. Of strychnine, nitro-glycerine and whiskey, each in its sphere of usefulness, their value is so well attested as to need only to be referred to. Opium too, is a very useful drug and has many indications in the course of this disease. Latterly I have used the different coal tar products very freely in this and kindred troubles with the happiest results, and have encountered none of the depressing influence on the heart which is sometimes attributed to them. For the weak, rapid or intermittent pulse, digitalis has long been the chief reliance, but I do not know of any drug of the virtues of which it is more difficult to form a decided opinion. It is, in fact, unreliable. While its inhibitory action on the heart can usually be depended on, at certain times, and that often, at the moment of our direst need, like a defective brake, it fails us utterly. Few of us, however, would care to be without it and some of its faults may be due to imperfect preparation, so that when possible the standardized drug should be used. The high hopes that were entertained of oxygen inhalation have not been justified by experience, and even in New York, where it found its widest acceptance on this continent, little is now heard of it. Anti-pneumococcus serum is still on its trial, but of it too there seems

to be a vague premonition of failure. Its use is based on the assumption of a theory not yet accepted. Certain other drugs based on the theory of a septic origin have the endorsement of some very eminent names in the profession, and are exciting a good deal of interest at the present time. The conscientious physician, however, who does not desire to use his patients for purposes of experiment, will probably continue for a long time to select such well tried drugs as his reading and experience have taught him to rely upon, adding new preparations to their number only with great caution.

Clinical Reports

SYPHILITIC CASES.*

By Graham Chambers, M.B., Toronto.

A Case of Syphilis of the Lung.—M. F., aged 28. Family history is unimportant. Patient came under my care about four years ago at the time of her first labor, and she states that I am the only physician who has attended her since she was a child. An inquiry into her previous history before she became a patient of mine elicited nothing which would indicate a syphilitic history. Patient has two healthy children, aged two and four years. She has had no miscarriages. History of present illness.—About three years ago patient consulted me on account of a sore throat. I found the soft palate deeply ulcerated and diagnosed the case as one of tertiary syphilis. The exhibition of potassium iodide effected a speedy resolution and confirmed the diagnosis. Since that date her throat has given her no further trouble. The next time I attended her was at her second confinement, about two years ago. Last August she again came under my care. I found her expectorating blood and she told me that shortly before sending for me she coughed up about a quarter of a teacupful of it. She was anemic and somewhat emaciated and had a cough about two months previously. She also complained of a wheezing sensation in the upper part of left lung. The temperature was normal; examination of chest and heart, normal; right lung, normal; left lung, resonance on percussion, slightly diminished in infraclavicular

*Reported at Ontario Medical Association June 5th, 1902.

region. Over upper lobe, front and back, bubbling rales and sonorous rhonchi, and harsh vesicular breathing. Vocal resonance normal. An examination of her sputum for tubercle bacilli gave a negative result. On account of her previous history she was given potassium iodide. Improvement was rapid and in a fortnight her cough had disappeared. Later she was given mercury along with iodide. At the present time she is in splendid health and there is no indication of past disease of the lungs. I believe that this was a case of syphilis of the lungs and of the gummatous type. The gummata were probably situated around the medium side bronchus in the upper lobe of the left lung and the hemorrhage was no doubt due to a gumma undergoing necrosis and ulcerating into a bronchus.

Case No. 2.—*A Case of Syphilis with Multiple Lesions, Periostitis, Arthritis and Ulcer of Rectum, etc.*—S. H., aged 30; married; has never been pregnant. Ten years ago had rheumatism and was treated at Toronto General Hospital. Patient gives no history of primary or secondary syphilis. Four years ago she suffered from severe pains in her shins and head. Her shins were swollen and a lump appeared on her forehead. Although she did not take any medicine the pains and swellings disappeared in about three weeks. In 1899 she consulted me on account of a discharge from her bowels, and constipation. An examination of the rectum revealed the presence of a restriction and an ulcer. She was given potassium iodide and appeared to be greatly benefited by the treatment. After a few weeks I lost sight of her until January of the present year, when she again consulted me. She was then complaining of severe pains in the head, shins and left elbow. Her elbow was swollen and hot and there were swellings on the forehead, left clavicle, left third rib near its union with its costal cartilage, and in front of the shins. The patient was given potassium iodide and mercury and in about a fortnight the pains and swellings disappeared. She continued to take the medicine for about three weeks longer. On the 15th of May the swelling of the left elbow reappeared and she was again given iodide and mercury. This swelling disappeared in a few days. At the present time she is still taking the medicine and appears in fairly good health.

The unusual feature about this case is the multiplicity of lesions.

A Case of Syphilis of the Finger.—A. M., aged 45, farmer. Came to St. Michael's Hospital in June, 1901, to have his right index finger amputated. His previous history was good. During the last ten years he had been farming, but previous to that date had lived in Toronto. Patient stated that he never had any

form of venereal disease. The disease in the finger began about eighteen months previously in the form of a slight thickening around the root of the nail. At the time of the examination the end of the finger was thickened and club-shaped. The color was reddish-brown and very suggestive of a syphilitic lesion. The nail was soft, lustreless, and broken off nearly as far back as the matrix. The patient stated that the finger did not pain and gave him little trouble other than that from disfigurement. He was placed under specific treatment and in about three weeks the finger had resumed its normal appearance. The interesting feature about this case is the occurrence of the disease in a farmer and as a result not being recognized by his family physician.

A Case of Syphilis with Early Cerebral Manifestation.—M. M., aged 22, single. Came under my care in St. Michael's Hospital 1st January, 1901. His father had died at about forty years of age of some disease about which he could give no information; his mother was alive and healthy. His previous health had been good until a few months previous to his admission to the Hospital. In June, 1889, he contracted chancre, which gradually healed after three or four weeks' treatment. About the end of the following September he began to have severe pain in the head and shortly afterwards found difficulty in opening the right eye. His mother states that his upper lid appeared to be paralyzed. During October and November he continued to have severe headaches, but regained power over the eyelids. In the following month—December—the symptoms became worse. The headaches were very severe. The patient appeared to have great difficulty in talking and his speech was frequently incoherent. When the headaches were severe the patient could not sleep. Mentally he became very sluggish and this condition gradually changed to a comatose state, accompanied by right hemiplegia, and this was his condition at the date of his admission to St. Michael's Hospital. The coma disappeared in a few days and then it was found that the hemiplegia was accompanied by complete motor aphasia. The aphasia was very slow to disappear. A month afterwards he was only able to say a few words. The medicinal treatment consisted in the administration of potassium iodide and later of iodide along with mercury. He continued under the treatment for a year. The condition of his right side was considerably improved but he still has some difficulty in speaking. His was, no doubt, a case of cerebral syphilis and the very unusual feature about the case is the appearance of the cerebral manifestations so early after the primary lesion. The pathological change in the brain was probably a meningitis accompanied by endarteritis.

Desiring to make a practical, useful journal for the General Practitioner, the Editors respectfully solicit Clinical Reports from subscribers and others.

DOMINION MEDICAL MONTHLY

AND ONTARIO MEDICAL JOURNAL

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CANADIAN MEDICAL ASSOCIATION.

As we have been announcing every month for the past four or five months the thirty-fifth annual meeting of the Canadian Medical Association will take place this year in Montreal on the 16th, 17th and 18th of September. Year by year, especially noticeable in the past five years, the annual meetings of this, our national Association, have steadily increased in importance. The character of the scientific papers have become of such a high order that it will tax the ingenuity of the future Programme Committees to improve upon them. The numerical attendance has also been most gratifying; and we are advised from Montreal that the coming meeting will probably outstrip all other previous meetings in this regard. Two items of practical medical politics have disappeared from the arena, viz., the agitation for a Dominion Medical Council and the formation of a Medical Defence Union. The latter of these was finally consummated at Winnipeg last year, and a good deal of interest will be manifested in the first annual report which will be submitted to the members of the Defence Association, or as it is properly called, the Physician's Protective Association, during the meeting of the parent organization. Parliamentary sanction has

been secured for the Dominion Medical Council through the able and persistent effort of Dr. Roddick; and no doubt the Association will vote that gentleman a very cordial conveyance of thanks for his disinterested endeavors for the cause of the medical profession throughout the whole Dominion. There are, however, other matters to fight for, whisperings of which are in the air, matters of keen moment, which will most probably be set afoot at the coming meeting.

To one who has followed these meetings for the past decade it must seem strange that out of a total medical population in the Dominion of nearly 6,000, barely 200 practitioners can be assembled in annual convention. Aside altogether from the scientific and political aspects of the Association meetings, the social communication has a place second to none. To meet and know the dominating minds in the medical thought of Canada, clean across a continent, should be a stimulus in itself, more especially to the younger generation of practitioners, who would be sure to carry back with them valuable suggestions. Take it all in all there is no fraternal organization in existence the whole world over which can compare with the medical faculty; and those who miss these opportunities of the annual meetings of the Canadian Medical Association are missing what would prove a happy reminder in the long work-days of winter-time professional activity.

This year that brilliant son of the Canadian profession, Osler, is to be with us. There are many who will be glad to meet, hear and know this distinguished doctor. For some years now his text-book on the Practice of Medicine has been the medical student's bible; and when disputes arose, "Osler says so!" settled the question. Many of these disciples of Osler will be sure to foregather at the conference to honor this great leader in medicine by their presence.

The profession in Montreal is sparing no time nor trouble to provide a happy time for all who come. Excellent arrangements have been made with the railway and steamboat companies, and the small item of expense should not deter any member of the profession from the enjoyment and pleasure in store for anyone who attends.

Editorial Notes

PROVISIONAL PROGRAMME CANADIAN MEDICAL ASSOCIATION—MONTREAL MEETING, SEPT. 16th, 17th, 18th, 1902.

The general meetings and evening addresses will be held in No. 111 Lecture Room, Medical Faculty, McGill University. The sections will meet in other lecture rooms of the same building.

FIRST DAY.

9.30 a.m.—General meeting; proposal of members; notices of motions, etc.; striking of committees.

10.30 a.m.—Meetings of Sections.—*Surgical Section.*—Papers: R. Primrose, Toronto, "Filariasis Cured by Operation"; Dr. Perry Goldsmith, Belleville, "Hemorrhage, in Removal of Adenoids and Tonsils"; H. D. Hamilton, Montreal, "Complete Occlusion of Posterior Nares"; Dr. Casey A. Wood, Chicago, "Empyema of Frontal Sinus." *Medical Section.*—Papers: John Hunter, Toronto, "Pleurisy as Associated With Tuberculosis"; A. E. Orr, Montreal, "On Blood Pressure"; G. A. Charlton, Montreal, "Anemia Due to Toxines"; Dr. J. R. Clouston, Huntingdon, "The Country Doctor of To-day."

2 p.m.—General meetings; proposal of members, etc.

3 p.m.—"Address in Surgery," by John Stewart, of Halifax, N.S.

5 p.m.—Garden party at the residence of Mr. Jas. Ross, Peel Street.

8.15 p.m.—President's Address, followed by lantern demonstration on the exanthemata, by Dr. Corlett, of Cleveland, Ohio.

SECOND DAY.

8 a.m.—Exhibition of cases at the different hospitals: Montreal General Hospital, surgical cases; Royal Victoria Hospital, medical cases; Hotel Dieu, medical cases; Notre Dame Hospital, surgical cases.

9.30 a.m.—General meeting, followed by discussion on "Diseases of the Gall Bladder and Bile Ducts": (*a*) Medical Diagnosis, introduced by Dr. A. McPhedran, Toronto; (*b*) Medical Treatment, introduced by Dr. A. D. Blackader, Montreal; (*c*) Surgical Diagnosis, introduced by Dr. Jas. Bell, Montreal; (*d*) Surgical Treatment, introduced by Dr. J. F. W. Ross, Toronto, followed by Dr. G. E. Armstrong, Montreal.

2 p.m.—*Medical Section.*—Papers: Dr. J. F. Macdonald, Hopewell, N.S., on "Tuberculosis"; Drs. Starr and McKenzie,

Toronto, "Multiple Sarcoma"; Dr. Maude E. Abbott, Montreal, "Methods of Classification in Medical Museums"; A. D. Shirres, Montreal, "Degeneration of Spinal Cord in Anemias, etc." *Surgical Section.*—Papers: G. A. Peters, Toronto, "A New Symptom of Intestinal Paralysis in Peritonitis"; Dr. Ferguson, Chicago, "Removal of Prostate by Perineal Incision"; G. E. Armstrong, Montreal, "Treatment of Prostatic Hypertrophy by Suprapubic Incision"; Dr. J. O. Orr, Toronto, "Artificial Astigmatism"; Dr. Burnham, Toronto, "Sympathetic Ophthalmia"; subjects not announced, Dr. Monod, Montreal; Dr. A. E. Garrow, Montreal. *Obstetric and Gynecologic Section.*—Papers: Dr. Robinson, Ottawa, "Normal Labor"; Dr. Lapthorn Smith, Montreal; Dr. Lockhart, Montreal; Dr. Chipman, Montreal.

8.15 p.m.—"Address in Medicine," by Dr. Wm. Osler, Baltimore, followed by reception in engineering building at 9 o'clock.

THIRD DAY.

8 a.m.—Exhibition of cases at the different hospitals: Montreal General Hospital, medical cases; Royal Victoria Hospital, surgical cases; Hotel Dieu, surgical cases; Notre Dame Hospital, medical cases.

9.30 a.m.—General meeting; reception of reports from committees; general business.

10.30 a.m.—Papers: Dr. Robinson, New York, "X-ray Treatment of Cancer"; Dr. Girdwood, Montreal, "X-ray as Diagnostic and Curative"; W. F. Hamilton, Montreal, "X-ray as Diagnostic Agent in Thoracic Diseases"; S. F. Wilson, Montreal, "On the Use of High Potentials in X-ray Work."

The afternoon will be given over to an excursion by rail over Victoria Bridge and thence to Lachine (through the courtesy of the Grand Trunk Railway). From here the steamer *Duchess of York* will make the trip up Lake St. Louis and run the Lachine Rapids, arriving in the city about 5.30 p.m. (Lunch on board steamer.) At 8.30 a "Smoker" will be given in the Victoria Rifles' Armoury, Cathcart Street.

THE GOLDEN AGE OF MEDICINE.

The present era seems to be the golden age for physicians. Every country appears to be bent upon overwhelming them with honors and dignities of one kind and another. In the list of

honors granted by King Edward on the day set for his coronation, the medical profession figures more largely than any other calling. A physician has just been intrusted by the President of the French Republic with the duties of Premier, while in Canada many medical men are prominent in politics—such as Sir Charles Tupper, Dr. Roddick, Dr. Landerkin, Dr. Montague, Dr. Roche, Sir Frederick Borden, Sir James Grant, Dr. Sproule, and others—while in the United States we find a medical man on the high road to the command of the army, after having filled with such signal success offices of exceptional difficulty, delicacy and responsibility as to lead to his being publicly extolled by the chief magistrate of the Commonwealth as the most valued and valuable of the latter's servants.

It is difficult under the circumstances to realize that as recently as the early portion of the reign of Queen Victoria physicians had virtually no place in European society. They were merely tolerated when eminent, and neither in London, nor yet in any of the leading capitals of Europe would members of the great world ever dream of inviting their doctors to their dinner parties. Their position was indeed most invidious. To put the matter in plain English they were not regarded, socially speaking, as gentlemen. Nor were they accorded the treatment as such. This was due in part to a survival in the olden days when the surgeon and the apothecary stood on the same social level as the barber, the three offices being often united in one and the same person. It was likewise due also to the very natural awkwardness which a hostess might feel in receiving at her table on terms of social equality the medico whom she had fed in the morning and consulted about her health. All these ideas, however, belong to a bygone generation. To-day we find doctors being ennobled by nearly every one of the sovereigns of Europe. There are some two score baronets and knights in the medical profession of Great Britain, as well as a peer in the person of Lord Lister. Emperor William has conferred patents of nobility upon Dr. Ernest Leyden, the famous German physician, who attended the deathbed of the late Czar, upon Dr. Koch of bacilli celebrity, and upon a number of other stars of the medical profession in Germany and abroad. To the Regent of Bavaria belongs the credit of having converted Dr. Roentgen, the inventor of the X-rays, into a full-fledged baron. In Republican France physicians have in late years received the highest grade of the Order of the Legion of Honor, and not only several princes of royal blood have adopted medicine as a calling destined to enhance their usefulness to their fellow-citizens, but there is

likewise a full-fledged queen, namely, the French consort of King Carlos of Portugal, who, having passed all the requisite examination, is now entitled to add the letters "M.D." to her name, in addition to the word "Regina."

THE PHYSICIAN'S POWER.—That this should be the case need furnish no ground for surprise. On the contrary, it is astonishing that so many years, nay, even centuries, should have elapsed before the medical profession came to be appreciated at its true worth. It is a calling to which all others, save those perhaps of a religious character, must necessarily give way. For even the greatest and most powerful in the land are not exempt from human ills, and when prostrated and rendered helpless by sickness, or by physical injury, are compelled to yield obedience to the directions of the physician, no matter what his birth or origin. There is no empire more vast in extent than that of Great Britain. Yet during the past month the ruler of more than 300,000,000 human beings, embracing one-fifth of the population of the entire globe, has been obliged to submit in the most absolute fashion to the behests of his medical attendants, who have not hesitated to exercise their authority in the fullest measure, realizing the burden of responsibility that rested upon their shoulders. It has not been merely that their professional reputation was at stake—for any error of a disastrous character in the treatment of a patient such as King Edward would entail, of course, the ruin of their medical careers, but it has likewise been because they have felt that their country-men, and not alone their country-men, but the entire civilized world have looked to them and to their skill to avert the domestic and international crisis that is necessarily involved by the death of the executive of a great Power, be he emperor, king or president of a republic. So strongly do physicians realize this, that in several instances where mistakes in the treatment of their royal patients resulted fatally, they took their own lives, and not even the suicide of Sir Richard Croft was held by his fellow-citizens to have constituted an atonement for the sorrow and trouble in which he had plunged the entire nation by the fatal errors of his treatment of Princess Charlotte of Wales, only child of King George IV., and at the time of her premature death the heir to his throne. And within the last decade we have witnessed the self-destruction of one of the late Czar's physicians, while a celebrated colleague of his, who was held by the Russian people to be equally accountable for their ruler's death, had his residence at Moscow completely wrecked by the mob, narrowly escaping with his life.

DOCTORS AND KINGS.—The task of physicians in attendance upon rulers and upon royalty is rendered additionally difficult by the fact that until their illustrious patients become seriously ill, and more or less helpless, they are proverbially self-willed, opinionated and somewhat touchy on the score of their health. They do not relish being told that they are ailing, nor do they like to obey directions with regard to precautionary measures in the way of diet and care until they are actually stricken. Moreover, some of them are in the habit of placing all the blame upon the shoulders of their physicians whenever by any chance through their own carelessness and their own neglect to observe certain rules and regulations they fall sick. Finally there is that pronounced objection which they one and all seem to entertain to permitting the public to be made acquainted by the doctors with the real condition of their health. And it is more often the fault of the distinguished patient than of the physicians and surgeons in attendance that optimistic bulletins are issued long after all hope has been abandoned, and up to the very moment when grim death is actually knocking at the door of the sick chamber.

It is only by means of the exercise of a vast amount of tact, discretion, courage and firmness that these doctors of personages of the rank of King Edward, can manage to fulfil their duties towards their charges, as well as towards the people interested in the welfare of the latter. And the combination of these qualities is sufficiently rare to render those who display them valued, not merely as medical attendants, but as warm friends and trusted advisers. There was no one for instance who exercised so great an influence over the late Czarina of Russia as old Dr. Botkine, who, when first summoned to the imperial palace, had shown sufficient independence to refuse to diagnose her case—it was consumption—unless she permitted a medical examination of her chest and lungs. He was quite young and utterly unknown at the time, but by his sturdy honesty and decision of character, not only succeeded in getting Her Majesty to do what all his other more eminent confreres had previously sought in vain, but likewise inspired her with such confidence and regard that she retained him for the remainder of her life as her physician and best friend. Only those acquainted with the inner history of the English court during the latter half of the Victoria reign are aware of the immense influence which Sir William Jenner exercised over the late Queen. It was an influence acquired as a doctor, but which led to his advice being sought by his illustrious patient about all sorts of matters, many of them entirely foreign to her health. He was wont to see her regularly twice a week wherever

she happened to be, these visits never, however, being recorded in the "Court Circular" which she herself edited, and Sir James Reid, the resident physician to Her Majesty being her regular medical attendant, the visits paid by Sir William Jenner to Victoria must be regarded as having been rather those of a friend and adviser, than as professional calls. Sir Francis Laking is on the high road to attain a similar position with regard to King Edward, who not only values his science, but shows a marked predilection for his companionship. The baronetcies conferred upon him, as well as upon Sir Frederick Treves, who performed the recent operation upon the King, are likely to be supplemented in the event of the latter's complete recovery by further honors which will probably take the form of peerages, thus adding to the number of medical lords in the Upper House. Nor will any fault be found with such a promotion. The days when the English press and people united in abusing King George IV., for knighting his doctor, and for confiding to him the duties of private secretary as the only man upon whom he could absolutely rely, are long since past. Gone too, are the days when Punch with ponderous humor ridiculed the idea of granting hereditary honors to medical men by putting forward a suggestion to the effect that the physician in attendance at certain events in Queen Victoria's family, should be raised to the peerage under the title of "Lord Deliverus," and not a word of objection will be heard to the addition of two such valuable recruits to the Upper House of the British Legislature.

The extent indeed to which the medical profession has raised itself in the eyes of the people, may be seen by the fact that when the other day the London Lancet recommended that one of the three boys of the Prince of Wales should be reared as a physician, giving as its reason that the English medical profession "has long merited acknowledgment, and the finest acknowledgement would be the enrolment in their body of a prince of the blood," the idea met with widespread expression of approval, several notable cases on the continent being recalled where royal personages have taken the trouble to acquire this, the grandest of all callings, and to render themselves more than ordinarily useful to their fellow-creatures, the late Empress of Austria's brother, for instance, being able to claim to have restored the sight to more than three thousand people, from whose eyes he has removed cataracts during the last twenty years.—*Montreal Star*, Aug. 9th, 1902.

News Items

THE death is announced of Dr. Jean Charles Prieur, of Montreal.

PHYSICAL culture will be introduced into the Idiot Asylum at Orillia.

DR. L. LABERGE, M.H.O., Montreal, visited Toronto during the last week of August.

DR. LANGSTAFF has returned to Richmond Hill, Ont., after spending three months in European hospitals.

THE death is announced of Dr. J. A. Mignault, one of the oldest physicians in the vicinity of Montreal.

THERE were 111 children under five years of age interred in Toronto cemeteries during the last week of August.

BY the will of the late Dr. Klock, of Ottawa, the Protestant General Hospital will receive his valuable X-ray apparatus.

THE number of patients treated in the Montreal General Hospital during the past quarter was 716, and 8,108 out-door patients.

DR. GOLDWIN HOWLAND, of Toronto University, has been appointed Registrar of the National Hospital for Nervous Diseases, London, England.

DR. TELESPHORE PARIZEAU has been appointed to succeed the late Dr. J. A. S. Brunnelle as professor of pathology and surgery at Laval University.

DR. THOMAS CHRISTIE, M.P., died August 5th at Lachute, Que. He was born at Glasgow in 1824 and was graduated M.D. from McGill University in 1848.

CONTRACTS have been let for a $20,000 addition to St. Joseph's Hospital, London, Ont., which, when completed, will double its capacity and give accommodation for eighty patients.

HERBERT E. ROAF, M.B. of Toronto University, has been elected colonial fellow at University College, Liverpool. He will prosecute studies in tropical and zymotic diseases.

DR. C. A. DUGAS, who for some years was assistant to the late Dr. Wyatt Johnston, Montreal, official autopsist, has been promoted to the senior position. He will have for his assistant Dr. D. D. MacTaggart.

DR. L. N. DELORME and Dr. M. T. Brennan, of Montreal, have gone to attend the fourth International Congress of Professors of Gynecology and Obstetrics at Rome. It will be held between the 15th and 21st of September.

THE Vaccination By-laws in Montreal will be very strictly enforced during the coming fall and winter season. Official circulars have been addressed to the managers and superintendents of schools and colleges requiring certificates of vaccination from all pupils.

SINCE the 1st of January there have been 500 cases of smallpox in Montreal; in the same time in Toronto there have been twenty-eight cases. Montreal had eleven deaths and Toronto one. In Montreal 432 of the patients had never been vaccinated. On September 1st Montreal had four cases.

Special Selections

THE MEDICO-LEGAL VALUE OF THE ROENTGEN RAYS.*

BY CARL BECK, M.D., NEW YORK.

Professor of Surgery in the New York Post-Graduate Medical School and Hospital, Visiting Surgeon to St. Mark's Hospital and to the German Poliklinik, Consulting Surgeon to the Sheltering Guardian Society Orphan Asylum, Fellow of the German Surgical Society (Berlin).

Within the two years which have elapsed since I had the honor of presenting to this society a paper on "Errors Caused by the False Interpretations of the Roentgen Rays" (see *Medical Record*, August 25th, 1900), great strides have been made in this new and fascinating field. Accurate knowledge has taken the place of ignorance and doubt, and painful manipulations are no longer a necessity for diagnostic purposes.

Even the most skilful experts in fractures have ceased to deny that there is an enormous number of bone injuries, which, in former years, could not be properly recognized, the general symptoms being either obscure or veiled by the swelling of the surrounding tissues. The mistakes made in differentiating fractures from dislocations, contusions, distortions, or tumefactions were innumerable; but they could be proven as such only under extraordinary circumstances. The Roentgen rays have brought about a revolution. They show the conditions as they are, and are impolite enough to do this without the slightest regard for great authorities. No wonder that such brusque information was received with a feeling of uneasiness, often by the very men who should have been but too glad to learn of their diagnostic errors, in order to correct them. As you know, the errors made in the interpretation of skiagraphs, of which so much was then heard, supplied a favorite argument in defence of their procrastination.

We have learned now that our misinterpretations were caused by insufficient anatomical knowledge, as well as by technical shortcomings with which the rays had nothing to do. Officious friends, inconsiderate and malicious confreres, and shyster lawyers heralded and misapplied the great discovery, and succeeded for a while in discrediting it even among those members of the medical profession who had begun to appreciate its great value. But these times have passed. The Roentgen rays

*Read before the Society of Medical Jurisprudence, May 12th, 1902.

no longer need a gladiator in the medical arena, but their recognition in the courts leaves much to be desired.

Since it is accepted by the medical profession that a plate, which is accurately made by a physician specially trained in skiagraphy, and interpreted by an expert, gives most valuable information which cannot be obtained otherwise, the court should regard it as its duty to acknowledge this fact and avail itself of it in the interest of justice. Especially the judge of the modern era of humanity in contrast to the obsolete representative of the old dogma "*Fiat justitia, percat mundus!*" must see a valuable ally in this most wonderful discovery of the last century.

What a triumph for suffering mankind are the numerous cases in which veteran soldiers, contemptuously treated as malingerers before the courts, can now show the skiagraphic proof of the presence of foreign bodies. A patient whose body harbors a bullet, has, indeed, a very good reason to complain. The number of patients who submitted to unnecessary surgical operations because foreign bodies were suspected, but not found, and the still larger number of those who were not advised to submit to operations, although they were needed on account of the non-suspected presence of foreign bodies, is legion.

Long before the Roentgen era, when I was a young assistant, a woman was referred to me for an obscure swelling along the first phalanx of the left index finger. The anamnesis revealed that the swelling had come on slowly after she had wounded herself with a needle. She reported that the needle was broken but that the fragment was pulled out by herself. There was but little pain, but much functional disturbance. The impression prevailed that there was an inflammatory process caused by an infected needle. Later, when fomentations and immobilization were of no avail, rheumatism, osteitis, and then tuberculosis was suspected, and, besides the application of tinct. iodi, internal medicines were administered. No improvement being obtained, I studied all the text-books available for information, but my scientific thirst was not quenched. My old routined chief, whose advice I then sought, suggested that I should make an exploratory incision, which I did. How great was my surprise when I found a small needle-fragment buried alongside the phalanx! I have never forgotten the feeling of humiliation which overcame me then in the presence of the patient. But I believe that I do not stand alone in this experience. *Solamen miseris, socios habuisse malorum!* To-day a simple glance with the fluoroscope would at once have pressed the extraction-forceps into my hands.

This experience also reminds me of the case of a man (demonstrated by me before the Surgical Section of the New York Academy of Medicine) who carried a thick glass splinter underneath his zygoma for thirty-eight years, experiencing but little pain, until, shortly before Roentgen's discovery, a swelling below his eye led him to seek medical care. The swelling was regarded as a malignant growth. He lived in a country town, and was advised to go to New York and have his superior maxilla resected. On making an incision I found the glass splinter, and when the patient saw it, he remembered that when a boy he was wounded in his face by the explosion of a glass bottle containing gunpowder. The facial wound had healed without reaction. In this case, also, the Roentgen rays would have made the nature of the growth clear at once.

An odd pendant to the needle case is illustrated by the skiagraph of the foot of a dwarf, which I made two years ago. For about two years the hero of the tragic comedy has been a round trip patient in most of the reputed clinics of New York City. He showed a slight swelling at the outer aspect of his foot, which was diagnosticated as periosteitis, osteitis, osteoma, osteosarcoma, beginning tuberculosis, rheumatism, arthritis, syphilitic proliferation or exostosis, badly united fracture, etc. Later an amputation, as well as exploratory incision, was advised. After having suffered for more than two years, he was ready now to submit to anything which would relieve him from the pain he suffered while walking. I was unable to make a diagnosis with the usual methods, but the Roentgen rays cleared up the situation at once, showing a needle in the sole of his foot. When the patient was informed of this fact, he remembered that about two years ago, while sleeping on a lounge, he fell on the carpeted floor and noticed a sharp pain in his foot, which he explained by the fall itself. He had undoubtedly fallen on a needle sticking out of the floor, and by walking he had shifted it up into the joint, from which I removed it under considerable technical difficulties. It is needless to say that his "rheumatism" disappeared at once.

Much more serious, from the standpoint of humanity, is the following case, reported by Dr. L. Passower, Riga (*Aerztliche Sachverstaendigen-Zeitung*, No. 15, 1901.) In November, 1897, a young farmer, suffering from a swelling on his foot, was admitted to the surgical division of the army hospital of Riga (Russia) for observation. Being a recruit, he was expected to serve his military term. But a year before a mass, weighing thirty-five pounds, had fallen on his leg, causing an injury which compelled him to stay in bed for three months. It was reported

that during that time the foot had appeared much swollen and ecchymotic. When admitted to the service of Dr. Passower at the military hospital he was limping and complained of a continuous pain in his foot.

He was assigned a bed among old soldiers, who were requested to watch him closely, as he was suspected to be a malingerer. Three days after admission Dr. Passower received an anonymous letter, signed by "a friend of the recruit," which contained the information that the patient had produced the swelling himself, constricting his thigh and injecting medicamentous substances underneath his skin. Dr. Passower stated that he did not pay much attention to this communication, but deemed it his duty to order a still closer watch by adding a subaltern medical officer (Feldscheer) and a professional nurse to his outpost. Besides this, he as well as his assistants visited the poor victim repeatedly and unexpectedly during night time, but were never able to discover anything wrong. After two weeks the edema had subsided, but the tarsus still remained thickened, motion of the ankle-joint also remaining painful. Especially pressure on the scaphoid bone produced intense pain. As soon as the bandages were removed the edema returned. So Dr. Passower came to the conclusion that the patient suffered from a chronic inflammatory process of his tarsal bones, produced by an injury. The possibility of a fracture of one of the bones was also duly considered.

After four weeks' observation he was presented to the medical board of the hospital, which suggested that he should be exempt from military service for a year. It was expected that the swelling would gradually disappear if the patient could enjoy rest at home and regular treatment. But the military commission of Riga did not accept this suggestion, because one of its physicians insisted upon the theory of the artificial origin of the swelling. So the unfortunate candidate was sent to the City Hospital of Riga, where, after a second examination, he was accused of having injured himself by constriction and puncture in order to get rid of his military obligations. So he was delivered to the public prosecutor, but set free after a long trial, and especially through the efforts of Dr. Passower.

A few weeks later he was again arrested and sentenced to three months' solitary imprisonment for self-mutilation. Now Dr. Passower recommended transferring the criminal to the clinic of Professor W. W. Koch in Doypat, in order to obtain a skiagraph. This was at last permitted, and so Professor Koch had a chance to ascertain that there was a fracture of the astragalus, which had caused sinking of the sustentaculum of

the astragalus. The patient appealed to a higher court, which dismissed the previous sentence. At the end of February, 1900, the government referred him back to the military hospital at Riga, where he was skiagraphed. (It seems that a Roentgen apparatus was not obtained in this university town until then.) The evidence in favor of the "criminal" was too overwhelming, and so he was declared unfit for the military service.

Thus an honorable man was virtually imprisoned during a period of three years. If a skiagraph had been taken at the time of his admission at the military hospital (fully two years after the publication of Roentgen's discovery), the whole procedure of ignorance and malicious arrogance would not have been set in motion, and the psychical torture of another poor individual would have been rendered impossible. In the face of the skiagraphic illustration of the fracture of the most important bone of the foot-skeleton, no judge and no jury would have dared to dispute the claims of the patient.

The counterpart is represented by a case which I reported to this society two years ago, and which I desire to review briefly, since at the same time it shows how important for proper interpretations is the knowledge of minute anatomical details. It has occurred to me as well as to others that the normal os intermedium cruris (os trigonum tarsi) has, after a single exposure, been taken for a fragment severed from the astragalus. In my case a fracture of the fibula was present, but the first skiagraph suggested the presence of a tibial fragment also. But this was cleared up by a subsequent exposure in a different projection-plane. (See *Medical Record,* August 25th, 1900.) The os intermedium cruris is a typical part of the tarsus of all mammalia, and its frequency is estimated at from 7 to 8 per cent.

The practical significance of this bone is evident from a case described by Wilmans of Hamburg. A laborer claimed that he was injured by an iron bar on January 20th, 1897, but was able to work during the whole day. On the following day he called on Dr. Wilmans, complaining of intense pain at his internal malleolus. He limped and asserted his inability to work. Wilmans found a slight swelling below the right internal malleolus. Ecchymosis of the skin being absent, the swelling was attributed to the presence of a considerable degree of talipes, from which the laborer suffered at the same time. The leg was elevated and fomentations were applied for several days. The patient still complaining of great pain, it was decided to transfer him to a hospital for observation. When discharged, after several weeks of treatment, the laborer made an effort to resume work, but at once declared that he was unable to keep it up. He was there-

fore admitted to another hospital, where he repeated this manœuvre several times during a period of six months. Finally, he claimed damages for having been crippled by the injury sustained on January 20th, 1897, but in view of the negative objective condition found by Dr. Wilmans, the society decided not to grant any claim. The consequence was that the man was transferred to the surgical division of a third hospital for further observation. There he complained that he had continuous pains below the right external malleolus, even while in the recumbent position. The pain increased during walking or sitting. Stepping on the right heel he also declared to be impossible. By distracting his attention, however, it was noticed that he could stand well on his heel, and he would doubtless have been declared a malingerer had not the Roentgen rays come to his rescue, at least temporarily. A skiagraph showed a bone-fragment at the junction of the astragalus with the posterior surface of the calcaneum. On the strength of this skiagraphic "proof" Dr. Wilmans, although still mistrusting, was forced to modify his original opinion and certified that the patient suffered from "fracture of the astragalus, in consequence of which he was damaged for life." The laborer therefore received an annuity of 30 per cent., in proportion to the estimated curtailing of his wages. Soon afterward the laborer was seen by Dr. Wilmans carrying a heavy load without any apparent pain, while formerly he had claimed to be unable to walk without a cane or crutch. Now Dr. Wilmans insisted upon a second irradiation, this time also skiagraphing the uninjured left foot. The skiagraph showed the "severed bone-fragment," which had first been regarded as a sesamoid of the musculus flexor longus hallucius, but which now was recognized as a normal os intermedium cruris. The society, of course, refused the annuity, and the German Supreme Assurance Court, to which the man had appealed, not only sustained the verdict of the society, but also decided that the laborer must return the annuity which he had unjustifiably enjoyed for eighteen months.

In this case the Roentgen rays were very near becoming the contrary of what they are expected to be, namely, a protector of dishonesty. But the fault would have lain with the insufficient anatomical knowledge and not with the rays themselves, which reproduced the condition exactly as it was. The repetition of such cases, however, is highly improbable.

A complicated medico-legal question will arise when chronic diseases develop after an injury. Osteitis, arthritis deformans, and even malignant growths are not infrequently observed in this connection. If such injuries are sustained in factories, a

suit for negligence is generally brought against the owner. The amount of damages, of course, depends largely upon the duration of the healing process and the degree of functional disturbance. This will vary greatly—as from a case of simple fracture, which may be accurately united in a few weeks, to an injury followed by the development of a malignant growth, which will finally cause the death of the patient.

The skiagraph, for instance, which I present to you illustrates the case of a laborer fifty years old, who sustained an injury of his elbow eleven years ago. He reported that recovery took place after some months, and the elbow had remained stiff ever since. During the last few years inflammatory signs had manifested themselves which were regarded as rheumatic. No other joints were involved. Since then he also had repeated attacks of pain in the elbow joint.

When I first examined the patient I found the elbow very much thickened and fixed in a sharp angle. Pressure below the external condyle caused intense pain. Crepitus, so often found in old arthritic processes, could not be produced in this instance, as the joint permitted no motion at all. There were no indications of tuberculosis, syphilis, or gonorrhea.

The skiagraph revealed the presence of malunion (sideways displacement) of the coronoid process of the ulna. This, probably, had given the first impetus for the development of the arthritis deformans, which is especially well marked in the external condyle of the humerus. The left condyle showed synostosis with the olecranon. Removal of the projecting fragment by the chisel, separation of adhesions, and the partial resection of the external condyle, the seat of predilection for the acute attacks were advised as therapeutic means.

It was promised the laborer, who sustained his fracture in a factory, and who did not show any signs of ill health before, that he could use his arms again a few weeks after the accident. After ten weeks he was able to resume light work; then the swelling became gradually worse, and the diagnosis of arthritis was made. He has remained a cripple ever since, and his wages were cut down considerably. He might have claimed damages, but in view of the presence of the arthritis he realized the difficulty to prove that there was a fracture originally. The Roentgen rays would have furnished this proof for him.

The development of malignant growths after an injury is illustrated by another skiagraph which shows the faint outlines of bone-shell in the soft myelosarcoma of a woman of twenty-eight years, who had fallen on her hand in dorsal flexion. The swelling resulting from it gave the impression that a fracture

of the carpal end of the radius was sustained. Three months after the injury, when I first saw the patient, I noticed a small deformity, just as it is observed in badly united fracture of the carpal end of the radius; but the consistency of the epiphyseal end was soft. The skiagraph failed to show the evidence of bone-tissue, only one small remnant being left at the outer aspect of the radius. Resection was advised; but before the patient submitted to it another month elapsed, during which time the neoplasm had grown to twice its size. The result was reported fair eight months after the operation. But the chances of a permanent recovery are poor. (See "The Differentiation between Inflammatory Processes and Neoplasms," *Annals of Surgery*, December, 1901.)

It is not always possible to show the evidence of a fracture as long as twelve years after its occurrence, as in the case of the laborer described, in which the displacement proved that there was fracture of the coronoid process of the ulna. The older the fracture, the less the fracture-line will appear. In case of the entire absence of displacement it is only a very distinct skiagraph that shows the line clearly. It is natural that in such cases there is no skiagraphic evidence after recovery—that is, in from four to ten weeks, according to the type of the fracture. Should a jury in such an event doubt that there has been a fracture, a skiagraph taken after such a period will show a negative result, although there surely was a fracture. At my last demonstration I showed you a boy whose fracture of the femur could not be shown by a very distinct skiagraph taken two months after the injury, because there was blameless union. Had I not skiagraphed the thigh shortly after the injury, no evidence of the fracture could have been obtained subsequently.

In the case of a girl who sustained a fissure of the head of the radius followed by considerable functional disturbances, the blameless skiagraph, taken four weeks after the accident, showed ideal union, so that no fissure-line could be recognized. This also proves how quickly the evidence of the presence of a fissure becomes lost if there be perfect approximation. (Case presented to the surgical section of the Academy of Medicine, January 14th, 1901; see *Annals of Surgery*, April, 1901.)

This experience suggests that a mediocre or even indistinct plate should never be admitted in court. It has repeatedly occurred to me that I was not able to discover a fissure, or fracture-line in a mediocre skiagraph, which appeared well marked in a blameless one. Such facts explain very well why some surgeons have disputed the reliability of other fellow-observers. Dr. A, for instance, insisting, and properly, upon his own

diagnosis, while Dr. B, with his poor skiagraph, ridicules Dr. A's imagination, sneeringly asserting that he could find no fissure-line. Of course, Dr. B's opinion is thoroughly honest, but absolutely erroneous, nevertheless. It should also be considered that during the first days of the injury the presence of a fissure is easier overlooked than later when callus-formation begins.

But that even in a fairly good skiagraph a fracture, followed by no displacement, can be overlooked, is illustrated by the patient whom I present to you, who sustained a fracture of the middle of the radius three weeks ago, a heavy brick having fallen on his outstretched arm. He had great pain at the seat of the fracture, his hand was slightly swollen, and there was disturbance of function. Crepitus could not be elicited. A fluoroscopic examination made by myself, as well as by a number of physicians, revealed nothing abnormal. A fairly good skiagraph made at the time proved negative. Another one, taken in the opposite direction, gave the same result. But my suspicion that a fracture was present was so strong that I made a third exposure, this time long enough to bring out the bone-texture, the result of which was the faint representation of an oblique fracture-line at the point of tenderness. A fourth skiagraph, taken from the extensor-side, revealed the fracture-line still more distinctly.

When in this case I was unable to represent the fracture at first, some of the physicians present suggested that this was a proof of the integrity of the bones and that the soft tissues, perhaps a nerve, were injured. But, as a rule, injuries of this kind are only found in nerves, where there is a synchronous injury of the bones, the fragments of which generally produce the trauma of the soft tissues. In a case of this kind a difference of opinion between experts may happen in court, and the patient may become the victim of an imperfect technic.

A counterpart to this case is the one of a boy, who was under my treatment after extirpation of his cervical glands, and who sustained a contusion of the forearm, while I happened to be absent from the city. So he was referred to a brother physician, who was supposed to be an expert in Roentgen science. Relying entirely upon the fluoroscopic screen, he claimed to have seen the fracture line and declared a photograph to be unnecessary. A plaster-of-Paris dressing, extending over wrist and elbow, was applied in consequence. A few days later, when the patient was referred back to me, I made a fluoroscopic examination of the arm, and as I could see no fracture line, I took a skiagraph through the plaster-of-Paris dressing. No evidence

of fracture being found, I removed the plaster-of-Paris dressing, although the bones presented themselves very distinctly. This third skiagraph proved that there was absolutely no fracture, a fact which was corroborated by the perfect function of the arm.

These two cases afford further support for the demand that only blameless skiagraphs should be admitted as evidence in court.

While we can readily see that a skiagraph furnishes the most convincing proof of the extent of the bone injuries, it does not show the injuries of the soft tissues, at least not directly. Therefore a skiagraph alone is not conclusive for the purpose of estimating the degree of functional disability. A non-medical skiagrapher will, therefore, never be able to give expert testimony in any case of injury. If there is only one skiagraph taken the injury may appear at its worst, and *vice versa*. So a skiagraph may show a considerable degree of bony deformity, and still the function may be but little disturbed. Even our best results show, especially when displacement of the fragments or other unfortunate complications were present, no ideal union, and still the function may be fair. An unscrupulous patient, who secures possession of a skiagraph of his own case, which shows considerable deformity, may strongly appeal to a jury on the strength of his deformity, especially if he succeeds in simulating great disturbance of function. On the other hand, there may be but little evidence of bone injury on the skiagraph, but there may be severe impairment of function on account of the injury of the soft tissues (circulatory, trophic or inflammatory disturbances), which can be produced only faintly, if at all. Thus we see that in a given case the skiagraph must be considered in connection with all the clinical symptoms, and this can, of course, only be done by an experienced medical expert. As alluded to, a thorough anatomical knowledge is required. But it is also necessary to know the different modes of delineation in various projection planes. At my last demonstration (see also *New York Medical Journal*, January 6th, 1900) I reported the history of a boy, whose fracture of the lower end of the tibia was not shown in the antero-posterior position, but appeared very distinctly in the lateral projection plane. If the case was brought before a jury, an expert might there, on the strength of the first skiagraph taken in the anterior-posterior projection, have testified, in good faith, that there was no fracture. With our new improved technic, however, even in this position, a faint indication of the fracture-line is generally shown.

Similar cases are reported by me in the *Annals of Surgery*,

August, 1901, and in *Die Roentgenstrahlen in der Chirurgie,* Seitz and Schauer, Munich. The skiagraphs, for instance, which I show you here, illustrate a case of osteo-epiphyseal separation of the radius in a lad of sixteen years, who had fallen from a stone stairway. By looking at the first skiagraph only the impression of normal, nonossified epiphyseal ends must necessarily prevail. The other skiagraph, taken with the ulnar margin of the hand slightly lifted, shows the presence of the fracture line beyond doubt. The third skiagraph, taken in the lateral position, markedly illustrates the displacement of the fragments.

These cases are another proof of the absolute need, as stated on previous occasions, of taking at least two exposures in different positions in all fracture cases. In joint-injuries it is often necessary to make a skiagraph of the healthy joint of the opposite side at the same time, in the same position, and in the same projection. Sometimes it is also advisable to compare a normal skeleton with a skiagraph, since some pathological conditions, like rachitis, syphilis, etc., influence the outlines of the bones and may deceptively be supposed to represent a portion of an injury. The fact that in children the epiphyseal tissues are not sufficiently ossified to produce a shadow on the plate has caused many, but unjustifiable errors at the early Roentgen era.

In many fractures the destruction is so extensive that a good result could not be expected under any circumstances. Then the patient may be tempted not only to claim damages from his employer, but also from his physician. In such a case a skiagraph, taken as early after the accident as possible, will be the best protection for the physician. It would be a document showing that the physician knew well the serious nature of the injury. The skiagraph I present to you illustrates a multiple fracture of the elbow. Splinters of bone are scattered and are shown imbedded in the soft tissues. Only a fool would, on the strength of this skiagraph, have expected the surgeon to restore the lower end of the humerus, which was almost completely shattered, to a normal condition.

Or if a deformity is caused by excessive callus-formation, the skiagraph will be the surgeon's advocate. In one of my cases considerable deformity at the wrist was present, which caused disturbance of function. The skiagraph showed the fragments in splendid apposition, proving that the deformity was produced by excessive callus-formation, for which, of course, nobody can be made responsible. The patient who accused his physician of malpractice could, when he saw the skiagraph, be easily convinced by me that he had done great injustice to his physician.

Another important medico-legal question arises in another case which I will mention. A girl of twenty-three years fell downstairs on March 5th, 1902. The family physician found considerable deformity, which he corrected to a great extent. When the swelling surrounding the whole elbow did not subside after a week, he referred the patient to me. Before I made a Roentgen examination I had the impression that there was fracture of the external condyle. But the skiagraph revealed the presence of a fracture of the head of the radius, associated with considerable displacement, infraction of the external and fracture of the internal epicondyle, the latter injuries without displacement. Since I could locate the displaced radial fragment so well by the rays, I assumed that I could now also succeed in reducing it. But I was not able to palpate it. A fairly large number of physicians tried the same, but, with the exception of a young practitioner, none could feel it. So I marked the position of the fragment as my anatomical knowledge indicated it and pressed inwardly. Now I applied a fenestrated plaster-of-Paris dressing, through which I took the skiagraph. This showed most impolitely that I had not only failed in my efforts of reposition, but had even made it worse. Now I tried to reduce it in the extended position, as it is indicated in the third skiagraph, and there I could press the fragment nearer to its normal position. This encouraged me to make a fourth attempt in the same position of the arm, and this time I succeeded fully, as the skiagraph shows. As you see, the result is a good one.

In this case a diagnosis without the Roentgen rays was simply impossible, and without the diagnosis the patient would surely be crippled. It was not until weeks had passed and the swelling had subsided that I was able to grasp the radial fragment, which is of such great importance in view of its joint surface. Would the court have the right to censure the physician if he had not advised skiagraphy ? Could he be accused of professional negligence ? If litigation ensued, would the other party have had the right from the beginning to insist that a skiagraph be taken ? And if I had not succeeded in reducing the fragment, would I have been criticized ? I leave these questions to our learned lawyer friends. What, I may ask further, does secure the identity of the patient who is skiagraphed ? Is it sufficient that he signs his name on the envelope of the plate, with a pencil containing impermeable substances, so that his signature is photographed together with the limb, or is it necessary to have a witness present, or both ?

This brings us in touch with another question, which is a burning one in the full sense of the word: Is the physician

responsible for an injury-burn, caused by the peculiar influence of the rays, if they are used for diagnostic purposes? It seems that in some individuals an idiosyncrasy exists which can be compared with the so-called iodoform idiosyncrasy. This susceptibility cannot be recognized except after the burn has established itself, when, in other words it will be too late for prophylaxis. All we know is that blonde individuals are more susceptible than others. There are no means at all which protect the body from this except at the expense of a thorough examination. Since the time of exposure has, thanks to our improved apparatus, been considerably diminished, the danger of burning the patient is, however, extremely small.

As the Roentgen rays have also shown therapeutic properties, this question has reached a new phase. In order to exert a curative influence, frequent and powerful exposures are required, and consequently the chances of burning the patient are not small. In some instances, especially in non-malignant skin diseases, protection can be obtained by lead masks. But if malignant growths, like cancer or sarcoma, are treated, too much irradiation can hardly be done. In view of the fact that the cancer cells are not confined to the growth itself, but are also found in the adjacent tissues, it is necessary to irradiate as large an area as possible. Where ulcerations exist already, as it often happens in carcinoma, and where new ulcerations, as well as inflammatory processes may originate every day, an unscrupulous patient may claim that they were caused by the injudicious use of the rays. How can the physician protect himself against such allegations? Is it necessary to have the patient sign an agreement stating that the risks of the Roentgen therapy were explained to him? Or are further ceremonies required?

You can readily see that numerous medico-legal questions have turned up with this wonderful discovery, and I know of no body that is more fit to answer them than this society.—*Medical Record.*

THE TREATMENT OF THE INFANTILE DIARRHEAS OF THE SUMMER SEASON.

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To prove that fine work has been done in the study of the bacteriology of these diseases during the past decade, one has but to cite the oft quoted researches of Booker, Baginsky, etc. But, on the other hand, these very studies have served to show us the incompleteness of our knowledge and the present impossibility of classifying these diseases from the bacteriological standpoint.

Indeed, a perusual, always profitable, of the splendid articles in Keating's Encyclopedia, forces upon us the conclusions that the principal etiological factors in the summer diarrheas, the various pathological changes produced in them and the cardinal principles involved in their treatment, were described in that work as clearly as they have ever been since. One feels that Holt's article in particular must stand as a classic for all time.

The difference between now and then is that the teachings of that fine advance-guard have become the knowledge of a large body of the rank and file of the profession. And such propagation, in the United States, has been productive of great results, for these dangerous diseases are becoming less prevalent and their effects less dire.

In order that these diarrheas may be successfully dealt with, it is most important that one should adopt or should formulate a working classification of them. All such schemes are open to criticism, just as they were ten years ago; but for practical purposes such a one as this will answer:

Dyspeptic: (Due chiefly to improper or to imperfectly digested food. Bacteria may or may not play a part.)	Acute intestinal indigestion. (Dyspeptic diarrhea.)
Infectious: (In which bacteria of different kinds play the important role. Such organisms are almost invariably introduced in food, and nearly always in cow's milk.)	1. Fermentative diarrhea. (Mild gastro-enteric infection.)
	2. Ileocolitis (*enterocolitis*) acute or chronic.
	3. Cholera infantum.

This is practically the classification of Rotch and of Morse, and containing as it does the older terms applied to these

diseases, and suggesting the dominant etiological factors, it may be accepted tentatively. It must be borne in mind that any one of these diseases may pass suddenly or grade insensibly into a more severe or a milder form. Thus a patient with a neglected fermentative diarrhea may readily become the victim of the more severe ileocolitis. The dyspeptic diarrhea may pave the way for a severe infection. Again, the patient who has survived the terrible acute symptoms of cholera infantum may continue to exhibit the evidences of a milder infection.

Dealing with etiology as it does, the above classification serves to direct our first thoughts toward prophylaxis.

Prophylaxis.—The physician, who would prevent the occurrence of the disease under consideration, must look first to his patient; second, to the infant's food; and third, to the other environmental conditions of the patient.

The baby, who is weak from any cause, is more liable to contract one of these diseases than is his sturdier contemporary. Not only this, but he possibly dies from a relatively mild form of disease. I well remember a rachitic baby of thirteen months, who was seen one hot July morning, and who displayed the symptoms of a mild gastro-intestinal infection. That evening I received a phone message stating that he was worse and arrived at the house to find him dead.

One need scarcely enumerate all of the conditions which may weaken the resisting powers of the infant. The most frequent one is rickets; but syphilis, tuberculosis, anemia from any cause, scurvy, convalescence from the acute infectious diseases, stomatitis, etc., are all important forerunners of the summer diarrheas. A diarrhea in a tuberculous subject may simulate ileocolitis of the ordinary type. Such a case was observed in the wards of St. Christopher's Hospital. The child was discharged as cured, returned one month later with a similar attack, except that there was prolapse of the anus, and in this attack she perished. An autopsy revealed general tuberculosis, with well-marked intestinal lesions; though the changes which were apparently most advanced were found in the bronchial lymph-nodes.

Dentition is a process which may prove of much predisposing importance, particularly in the rachitic infant. Those who deny it a pathological role are almost as unscientific as those who attribute to it all of the ills in the calendar. In many infants dentition does weaken temporarily the digestive functions and so may pave the way for the dyspeptic diarrhea or for the infection.

Whilst speaking of the infant, one should lay stress upon the

care of his mouth. A good antiseptic mouth-wash should always be used before feeding, but when there is vomiting from any cause, oral cleansing should be resorted to more frequently and thoroughly. For the latter purpose, one of the appended prescriptions will serve:

℞

Oil of peppermint	*m* xxx
Oil of cloves	
Oil of gaultheria	aa *m* xv
Glycerine	f. ℥ ss
Distilled water	q. s. ad. ft. f. ℥ iii

Or,

℞

Boric acid	gr. xxx
Hydrogen peroxide	f. ℥ i
Glycerine	f. ℥ ss
Rose water	q. s. ad. ft. f. ℥ iii

The Diet.—Few breast-fed babies suffer from these diarrheas, but that they may contract one or another form should not be forgotten.

Thus, a breast-milk rich in proteid may cause intestinal indigestion in the infant. In such cases the rules laid down by Rotch are of importance. (1) Effect dilution of the proteids by giving the baby water before each nursing. (2) Lessen the amount of proteid in the mother's diet. (3) Make the mother indulge in physical exercise up to the fatigue point. One may add that these directions do not always apply to neurotic mothers, in whose milk the proteids may run very high. In my experience nothing benefits them and the quality of their milk so much as tonics (the compound sumbul pill, the mixture of the four chlorides, etc.), a concentrated nutritious diet and a modified rest cure.

With high fat percentage in the mother's milk the writer has not met; but when superabundant fats cause diarrhea, the suggestion to diminish the amount of meat that the mother eats seems in full accord with modern physiology.

Milk infections in the nursing are very rare, but they do occur occasionally. Such accidents may be prevented by proper aseptic care of the mother's nipples and of the baby's mouth. In the practice of a medical friend, Dr. Frishmuth, a most striking case of milk infection occurred in an infant at the breast. He found the mother's undervest and corset simply saturated with decomposing milk.

With hand-fed babies we strive to prevent intestinal indigestion by the adaptation of a proper milk formula to their digestive powers and their nutritive needs; and percentage feeding in skilled hands yields splendid results. There are a number of methods of obtaining such percentage formulæ; the best of which, in the main, is through the milk laboratory; but when expense or geographic location preclude such feeding, my own preference is for the simple method of Baner. His formulæ have been good friends in a number of difficult cases.

During dentition, or when the digestion of the infant is weakened from any cause, the percentages of solid constituents must be temporarily decreased, in spite of the fact that the infant has been thriving upon a stronger formula. Or, with poorly nourished babies at such times, one may peptonize the food for a few days, and gradually lessen the amount of peptonization as the infantile digestion returns to its former state. It is well to give mothers such directions before they leave town for the summer months.

For the infant in the second year, diet-lists should always be provided, one for the first half of the year and the other for the latter. The great importance of feeding in the second year of life precludes its consideration in this article, but one may refer the seeker after knowledge to the text-books of Holt, Rotch, etc., or to such excellent mother's books as those of Griffith and Starr. The recent article by Southworth* upon the subject contains a number of valuable suggestions. It must always be borne in mind that an excess of carbohydrates in the diet at this time may furnish an important factor in the production of the fermentative diarrhea.

In addition to these instructions to the mother the following one may prove of life-saving value: "If fever and prostration should accompany a diarrhea (with or without vomiting); and if the stools should be green and of offensive odor, or should contain blood and mucus, or should be very frequent and watery, give calomel, stop all milk and send for a neighboring physician."

This brings us to the consideration of the infectious diarrheas.

Writers of several years ago predicted that pure cow's milk would be obtained eventually by bottling and sealing the milk upon the model dairy farm. This prophecy has been fully realized, and the story of its fulfilment is briefly summarized in the views of Rotch, their adoption by the Walker-Gordon people and the certified milks of Newark, Buffalo, Boston, Philadelphia, New

* Archives of Pediatrics, May, 1902.

York, etc. Sterilization and pasteurization have both served useful purposes, and will continue to do so under certain conditions; but in the certified milk we have a much better answer to the pure milk problem.

In the first two years of life, in the summer months at least, certified milk is the only milk that the city baby should receive. The average baby, even in the second year, does not take more than a quart of milk a day, and it is a witless parsimony indeed which would cavil at spending twenty-eight cents more a week to secure a pure food for the baby.

At the present time one may safely make another prediction, and that is, the public knowledge of the value of certified milk will gradually force all city milk-dealers to comply with the sanitary regulations which have enabled the advanced few to secure a relatively pure milk. At present, progressive milk dealers are striving with the more difficult problem of producing a pure cream.

Possibly, tardy legislation may eventually coerce the unprogressive milkman to like endeavors.

All methods of preserving milk by means of chemical agents have been shown to be inimical to the action of the digestive ferments. The presence of such preservatives is sometimes revealed when the cook or housewife endeavors to make junket and fails to obtain any result. Incidentally such a negative result is a demonstration of the inhibitory effect of formaldehyde, etc., upon zymolysis.

It is the firm belief of the writer that the infant in the city who is receiving a certified milk is better off than the baby in the country whose milk is not properly handled and kept. During the past three years, he has seen the worst cases of milk infection in the country, or the sick babies have originally contracted the disease in the country. While this article was in preparation a true case of cholera infantum was seen at a neighboring country resort.

Mothers who have their infants upon farms can minimize the danger of milk infection by securing the milk soon after the milking, sealing it in clean glass jars and subjecting it to a rapid cooling upon ice. The spring house should be regarded as a relic that has outlived its usefulness. Whenever the least doubt exists as to the purity of a country milk, it should be subjected to pasteurization. The possibility of the infant contracting a disease like scurvy does not influence us when we think that omission of pasteurization may result in the more dangerous milk infection.

Ice is an essential in the proper preservation of milk for

babies. In New Hampshire, the barn is a part of the house and is kept scrupulously clean, and yet we had trouble with milk from such a farm until it was subjected to a preliminary cooling upon ice.

Farmers who knowingly use the milk of a cow suffering from sore udders should be subject to criminal prosecution. The presence of the same pus cocci, particularly the streptococcus, has in several instances been revealed in the abscess pus, the cow's milk and the baby's stool. Woodward observed a most instructive example of such infection, in which the milk of two diseased cows had not only contaminated the milk of a whole herd, but also that of the numerous farms from which the city dealer derived his supply. In a country child suffering from ileocolitis and seen by the writer at St. Christopher's Hospital, a stained smear of the blood and mucus from a stool revealed numbers of streptococci. Booker found the same organisms in a number of severe cases.

The Environment:—To state that the city is no place for babies during the summer months is to voice a platitude; provided, of course, that the milk-supply of the summer residence is pure in quality or is pasteurized to prevent infection.

The results of high temperature and humidity have been considered too often to deserve lengthy attention. They favor the growth of the bacterial flora in the milk; they serve to enervate the infant, and the presence of miliaria rubra may cause serious reflex disturbance. With regard to thermic fever in infants we have never been convinced that the condition occurs.

Overcrowding, particularly where there are other babies with diarrhea, infected water, dirty toys and other unhygienic conditions may one or all constitute predisposing or direct causes of the summer diarrhea. Such splendid charities as model tenement erection, sea-side homes, country weeks, day nurseries, diet kitchens, etc., are doing much to remove or to mitigate such influences even in society's lowest stratum. The trolley car, the steamboat and the public park may also be utilized in preventive and corrective treatment of these diseases among the unfavored classes.

In the treatment of any form of summer diarrhea in the infant the first consideration is the diet:

In the case of the nursling we strive to modify the composition of the mother's milk along the lines indicated; too frequently an unsuccessful operation.

In the case of the bottle-fed baby, unless he is suffering from mild dyspeptic diarrhea, it is safer to withdraw milk from the

diet, because the baby with such a diarrhea offers a splendid soil for infection.

With slight dyspeptic diarrheas, such as may attend dentition, the weaker milk formula or the peptonization of the milk carries us over the period of weakened digestion.

When a milk infection is present or is suspected one invariably withdraws the milk and resumes its use only gradually after all danger is past. In these cases it is wiser to give no nourishment at all in the first twenty-four hours of the illness. Boiled water should be given at frequent intervals, however. During the second day, or if the infant becomes ravenously hungry before that, the use of barley water is indicated. Many babies will not take it, and in this case one may avail oneself of Chapin's valuable suggestion, viz., that one add a few drops of aromatic spirits of ammonia to the barley water. This has stood me in good stead a number of times. In cases in which an excess of carbohydrate, as found in the prepared foods, has been responsible for the fermentative diarrhea, barley water is positively contraindicated.

Beef-juice, if freshly prepared, is usually well borne and on the second or third day may be given in much larger amounts than those generally advocated. It occasionally causes diarrhea, but in such cases it is passed unaltered in the stool. Miller has recorded a case in which the exhibition of rare beef-juice resulted in the infection of the patient with tenia saginata.

In most cases the animal broths, particularly mutton and veal broths, may be given upon the third day, and may continue to replace one or two of the daily milk feedings for some time. In chronic ileocolitis they may prove invaluable. It is in this troublesome and most serious affection that the artificial foods may also be temporarily used. One should never regard them, however, as other than temporary expedients and should get the baby back upon the more natural fresh milk as soon as that may be accomplished with safety.

Milk feeding should always be resumed gradually, probably never sooner than forty-eight hours after all acute symptoms have subsided, and then only in the form of weak formulæ. Again, one must always feel one's way and upon the appearance of the least untoward symptom must again stop the milk. Chronic ileocolitis may indeed exhaust one's resources in the realm of dietetics.

The Purge.—No rule in the domain of treatment meets with greater unanimity of acceptance than that which relates to the unloading of the bowel in these diseases. A purge or a laxative

should always be given as a preliminary to other treatment, and not infrequently such drugs must be resorted to several times.

When there is a clear history of the ingestion of some indigestible substance and the patient is seen early, castor oil is regarded as the laxative of preference. In dyspeptic cases which are observed after several days, in cases in which there is great gastric irritability and in all of the infectious cases, calomel is the best drug. It may be given in divided doses, as it usually is; or in cholera infantum one may adopt the suggestion of Victor Vaughan and introduce a single large dose through the tube that is used for lavage.

When a laxative must be given several times during the course of the disease, unscientific as it appears in theory, calomel or grey powder may be combined efficiently with an astringent:

℞

Hydrarg. cum cretæ	gr. 1-6
Salol	gr. i
Bismuth subnit.	gr. v
Sacchari lactis	gr. v

One dose.

Or, in cases with much tenesmus, castor oil may be combined in a somewhat similar way:

℞

Ol. caryophyll.	*m* ii
Ol. menth. pip.	*m* ii
Ol. ricini	*m* x
Bismuthi subnit.	gr. v
Mucilag. acaciæ	
Aquæ	q. s. ad. ft. f. ℥ i

One dose.

Astringents.—In many of the dyspeptic cases, and in some of the milder infections, these drugs are not needed at all. In most of the severe infectious cases their exhibition is necessary. For acute cases the salts of bismuth are the only ones in general use at the present day. They should not be administered whilst there are fever and foul-smelling stools, unless the movements are very frequent and are exhausting the patient. The massive dose of bismuth for the purpose of suddenly checking the discharges in a case of chronic or subacute ileocolitis, is positively contraindicated. In such cases the strain of elimination may be thrown upon the kidneys.

When bismuth fails in its proper sphere, it is frequently because it is administered in insufficient amounts. Not less than five grains of the subnitrate, subcarbonate or subgallate should be given to an infant of one year.

In chronic cases silver nitrate in doses of one-half grain, and administered three times daily, half an hour before feeding, is a remedy of signal value.

With tannigen and similar preparations, the writer has had no experience.

Intestinal Antiseptics.—A few years ago each authority was prone to vaunt his favorite antiseptic; but now the tendency is to pronounce them all worthless or unnecessary. Possibly the pendulum has swung too far in the other direction.

When a resident at the Philadelphia Hospital, the writer observed that the odor of the stools in tuberculous enteritis was diminished to a considerable degree when salol was administered to the patients. It would appear that such an agent must decrease putrefactive changes at least. He has used salol ever since in the treatment of the summer diarrheas and believes with benefit. To an infant, aged one year, the dose is one grain, given every two or three hours and preferably before feedings. Such dosage has never in his experience led to symptoms of salol poisoning.

The repeated reports from East India as to the value of salol in true cholera would certainly seem to furnish confirmatory evidence of the correctness of this position.

Opium and its Preparations.—Impressed by the powerful teachings of that great man, Horatio C. Wood, many young men have started to practise medicine, believing that this drug in the treatment of infants is labelled with the words *noli me tangere.*

That opium and its principal alkaloid are powerful drugs, and that their administration must be carefully pursued, no one can deny, but that they are also of great value in the affections under consideration most pediatrists are agreed. The following aphorisms may be formulated respecting their use:

1. Opium or morphine is needed in relatively few cases of infantile diarrhea.

2. Its indications are practically three: (*a*) After their odor has lessened and the patient's temperature has fallen, when the stools continue frequent in spite of the administration of bismuth. (*b*) To control pain with great restlessness and loss of sleep. (*c*) In cholera infantum.

The preparation and the mode of administration: The last time that I heard the late Dr. Wm. Pepper discuss a medical

paper, he spoke upon this very subject and stated his preference for the local use of opium by the rectum. He believed that one thus lessened the inhibitory effect of the drug upon the secretion of the gastric and intestinal juices. Opium used in suppository is certainly most efficient in meeting the first two indications; one-twentieth of a grain of the extract may be incorporated in a small suppository, and the dose may be repeated in from four to six hours if necessary.

Dover's powder, the deodorized tincture of paregoric are preparations which various authorities administer by the mouth.

In cholera infantum, morphine, preferably in combination with atropine, should be given hypodermically.

As to the Dose.—One uses opium to secure a definite effect, and the result determines the dosage; but a safe working-rule is to select a minimum dose for an adult and apply Young's rule.

For a one year old infant the dose would be determined as follows: The minimum dose for an adult is 1-8 grain of morphine. Add 1, the baby's age, to the No. 12. This gives us the result 13. Now 1-8 divided by 13 equals 1-104 of a grain; 1-100 of a grain is the dose that Holt recommends in cholera infantum. It is safer to err upon the side of a small dose, as this can be repeated.

Enteroclysis and Hypodermoclysis.—It is the consensus of opinion that the former measure has been much abused, that it has been employed when it was not indicated, and has been overdone in cases in which its proper use might have done good. It still remains, within its proper sphere, one of the most valuable agents in our armamentarium. One may state with regard to it, that it is indicated:

1. When irritating material still remains within the bowel and is giving rise to mechanical or bacterial disturbance.

2. When, in acute cases, fever and foul smelling discharges persist for several days.

3. In cholera infantum, when it should be supplemented by lavage. It is used here not only as a cleansing measure, but also to combat the anhydremia. If such patients are seen early in the attack when the temperature is quite high, iced saline solution is very valuable for lavage and enteroclysis; but when prostration has supervened and the surface temperature is low, hot solutions (110 degrees F.) are preferable for both purposes.

4. In acute cases one needs no other solution than the commonly employed one of sodium chloride.

5. Except in cholera infantum, enteroclysis should very rarely be used more than twice daily, and seldom more than

once. In the former disease one uses it more frequently until the results are accomplished.

6. In chronic ileocolitis, tannic acid or silver nitrate injections given once daily may prove more valuable than any drugs given by the mouth.

The writer still uses a soft female catheter for enteroclysis, and, in chronic cases particularly, one should be afraid of the use of a stiffer instrument. When the baby is struggling, it is best not to try to pass the catheter more than two or three inches, as it may turn upon itself, but in a patient who is quiet it may often be passed a much greater distance. The funnel or the bag which holds the fluid should never be held or suspended more than two or three feet above the patient.

Hypodermoclysis is a most effectual measure in the treatment of cholera infantum or of that condition, seen in ileocolitis, which has been styled hydrocephaloid. The sterile normal salt solution which is used for this purpose should be higher in temperature than the bodily temperature and should be introduced in smaller amounts (two to four ounces) than those usually advocated.

Stimulants.—With regard to the administration of alcohol, a great diversity of opinion exists. In mild cases it is not needed, but in those in which marked prostration is present, alcohol is most valuable. In obstinate vomiting, as in cholera infantum, iced seltzer or soda with brandy is one of the few combinations which may remain on the stomach. Even the brandy, in this condition, may have to be given hypodermically.

Neither brandy nor old whiskey should be given needlessly, but when a stimulant is called for, either one, in doses of from 10 to 30 minims, is indicated.

In cholera infantum atropine sulphate (1-600 to 1-400 of a grain), and strychnine sulphate (1-300 to 1-250 of a grain), are both drugs of worth. Strychnine is also of value in protracted cases.

Treatment of the Fever.—The cold pack supplemented by friction is the best agent we possess to combat the effects of high temperature. In milder cases the cold sponge may suffice to reduce the baby's fever and to add materially to his comfort. The patient should not be dried thoroughly, but a film of water should be left upon the skin.

The ice-water enema has been mentioned, and is another powerful method of coping with hyperpyrexia.

In cholera infantum which has advanced to the second stage, the hot bath, mustard bath, or hot pack may serve to improve the surface circulation.

Complications.—The most frequent and most feared complication is catarrhal pneumonia. Some interesting bacteriological studies have shown that the intestinal pathogenic organisms do not usually penetrate the intestinal mucosa to a great depth, and are not found in the blood. In cases complicated with catarrhal pneumonia the organisms found in the pneumonic lung are often of other varieties than the intestinal bacteria. Such finds are very suggestive and support the conclusion that such pneumonias are aspiratory in character, the weak condition of the patient favoring such an occurrence. And this conclusion again suggests the importance of the toilet of the mouth and pharynx.

When the pneumonia has occurred, its treatment does not differ from that of catarrhal pneumonia observed under other conditions.

Nephritis is a complication wnich appears more rarely than was formerly thought, but which must be energetically treated when it occurs. The treatment should be initiated by a withdrawal of animal broths from the diet. In a very limited experience (two cases, in chronic ileocolitis) sparteine sulphate has proved to be the most valuable drug. Caffeine and nitroglycerine are other remedies of value.

The hot pack is most efficient in stimulating the skin to activity, but the writer has had no experience with pilocarpine in this condition.

In cases in which marked edema appears, but in which there are no urinary findings of nephritis, the same lines of treatment will prove useful. These cases are much more common and, while they do not exhibit evidence of true nephritis, they do appear to display a renal insufficiency. A study of the total solids passed by these infants in the 24 hours would be most interesting, but it would also be very difficult to pursue.

Convalescence.—This period should be most carefully watched and managed. Nature's tonics are of predominant importance at this time, but their beneficial effects may be materially contributed to through the use of drugs. Strychnine, arsenic and iron are the best of the tonic remedies at this time.

Strychnine, particularly when anorexia exists, is well administered as the tincture of nux vomica, using a good old port wine as a vehicle. Infants readily take one or two minims of the tincture in one-half or one drachm of the port.

Arsenic and iron are usually used in the time-honored forms of Fowler's solution and of the syrup of the iodide of iron.

For babies in the second year, the writer often combines the iron and arsenic in the good old mixture of the four chlorides.

The preparation is sometimes taken under protest, but fulfils indications admirably.

In conclusion, it may be said that the treatment of these diseases, shifting as little as it has during the past decade, may be said to have arrived at somewhat unassailable position. Our best endeavors should be and are directed toward prophylaxis, but when the summer diarrheas occur in spite of preventive measures or because they are imperfectly carried out, the majority of authorities are agreed upon the essential principles of treatment.—*Philadelphia Medical Journal.*

PHYSIOGNOMY.

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I know nothing of greater interest than the study of the physiognomy of the race, which practically resolves itself into a consideration of the mechanical factors that determine the form of the bones of the face. It is of interest not merely from an esthetic point of view, which is of vital importance to the sex most liable to suffer from conditions of imperfect development of that part of the body, but the knowledge of the modification of the several factors upon which the face depends for its development assists one most materially in obtaining a scientific insight into the morbid states associated with variations in it.

The form of the face of the individual is influenced more or less by that of one or both parents from the hereditary factor. We will consider in their order of importance the several forces that exert an influence on the form of the bones of the face and of the cavities they surround.

By far the most important factor in the form of the face is the degree of development of the nasopharynx. When in a child the nasopharynx is fully developed, the upper jaw and the antral cavity it contains are correspondingly large. The lower margin of the orbit and the anterior and lateral aspects of the upper jaw are prominent and rounded; the malar bones project outward; the alveolar arch is horse-shoe shaped; the palate forms a long gentle sweep, being almost completely horizontal above the alveolar level; the lower jaw is correspondingly well developed, the lower incisors, in biting, close at no great distance behind the upper: the mouth, which is of fair size, is kept closed

habitually, the upper lip covering the upper incisor teeth and projecting below their free margin; the nose is fairly broad, while the nostrils are, widely open, oval and move appreciably even in ordinary respiration. The hair on the forehead ends abruptly and the back is almost quite free from down. The chest is well developed and respiration is free, the measurement of the thorax varying decidedly during the process, which is normal in frequency. The child displays all the qualities which we are accustomed to associate with what is called health and these I need not enumerate further. A good volume of air passes constantly freely and forcibly along the nasopharynx and it is chiefly on the presence of this mechanical influence that the nasopharynx and the bones of the face depend for their full development. But such a condition as I have just described is by no means as general as one would wish. Indeed, in large communities and even among whole races a very decided change can be observed to be taking place with comparative rapidity in consequence of peculiar conditions of life. Civilization entails a considerable modification in the mechanical relationship of the individual to its surroundings as compared to that which existed originally in the human animal and we pay a very heavy toll for the possession of the advantages or disadvantages associated with it. We will now examine the several alterations in the physiognomy of the individual which result from an imperfect development of the nasopharynx consequent on a deficient passage of air through the nasal cavities or on the complete absence of this force. Instances of these conditions exist only too abundantly all round us and I will proceed to describe a typical example and its mode of development. At birth the child's face and the structure of its nasopharynx and of the bones of the face are normal. It is most unusual to see any variation from this at this period of life. On rare occasions I have noticed the arch to be markedly higher than it should be, and very occasionally one comes across cases either of imperfectly developed or of excessively large lower jaws. In a child who had neither nose nor anterior nares and in whom the nasal cavities must have been very badly developed, the palate presented the mesial elevation which so often appears later in life from a similar cause. The vast majority of children are perfectly normal at birth and continue to develop normally during the first, second and generally during the third year of life.

It is at the end of this period that changes in the form of the face and especially of the jaws and palate usually first attract notice.

For some reason or another the child has become less vigorous. It may have been badly fed or kept frequently in a foul, close atmosphere, or it may have had some fever, as scarlet fever, measles, whooping cough, etc. From whatever cause the depreciation has arisen, it is remarkably inactive or, if it displays activity, it tires very soon. It assumes habitually attitudes of rest whether in the erect or sedentary posture, these after a time becoming fixed and producing deformities which have received recognized names, as dorsal excurvation, lateral curvature, knock-knee, flat-foot, etc.

Breathing is abnormally rapid and very superficial. It is practically entirely abdominal under ordinary circumstances. The circumference of the chest, which occupies a position of complete expiration, shows no variation whatever during respiration. The skin of the body is pale and opaque. The back is covered, especially in the median line and in the vicinity of the scalp, with a fine downy hair. This also exists on the backs of the arms and forearms. The veins on the chest and shoulders are conspicuous and are filled with a dark venous blood. Pressure on them appears to produce no movement of the blood, which seems to be quite stagnant. The skin of the trunk, legs and arms is marked off into innumerable little islands, because of the stagnation of the blood in the small vessels. In the cheeks minute blood-vessels can be distinctly observed making up what patch of color the child may possess. The hands and feet are abnormally cold and, if the weather is not warm, the skin of the hands and forearms is patchy, in some parts yellow and in others a livid purple. The ears are also cold and bluish. The joints are very loose, the elbows readily extending considerably beyond the normal, so that the forearm forms with the upper arm an angle open backward and the leg an angle at the knee open forward.

Any point on which even very slight pressure by the clothes is habitually exerted shows deposit of pigment in the form of a dirty stain. This is noticed especially around the neck, on the folds of the axillæ, along the spinous processes and on places on which the garments rub more than elsewhere.

These children hold their head well forward because of the flexion of the spine associated with the position of complete expiration of the thorax.

The hairy scalp presents no sharp outline in front, but encroaches on the forehead to a varying extent, in some children extending to the outer limits of the eyebrows. There is a deep hollow beneath the lower eyelid, where the skin is bluish in color.

The breadth of the face is less than normal and the cheeks are flattened. The form of the nose varies widely from the original shape inherited from its ancestors. If prominent, it is very much flattened laterally, its sides concave and it appears to spring abruptly from the face, or, if broad-based, it is hollowed laterally and vertically. The anterior nares form elongated, narrow slits which show no appreciable alteration in shape during the movements of expiration.

Owing to the frequent tilting of the tip of the nose, the nostrils look more forward than in the normal condition. The upper lip is short. The mouth is kept open and the lip covers only a portion of the upper teeth, which are in young life freely exposed. Later, in adult life, by the exercise of the will, the individual may, and often does, acquire the power of keeping the mouth closed except when smiling or talking. The chin recedes to a variable extent and on approximating the jaws in the normal bite the lower incisors occupy a position behind the upper that is further back than usual. If this is a marked feature, the condition is described by the dental surgeon as "superior protrusion." When marked, it detracts considerably from the attractiveness of the face, but in a moderate degree only, it, with the associated evidences of degeneration and of physical incapacity, gives to the face that appearance which by novelists and poets is regarded as intellectual or refined. The curve of the imperfectly developed upper lip, as it stretches over the protruding teeth, is described as Cupid's bow. I feel I must refer you for further description to the works of these very unscientific professions who seem to see things from a sensual and imaginary rather than from an intelligent and accurate standpoint.

Still, the fact remains that to a considerable proportion of our fellow-creatures the indications of degeneration, when existing in a moderate degree, are considered to be attractive, especially in the case of the female subject. Another very good instance of this is the manner in which women simulate the extension of the hairy scalp on to the forehead by bringing hair, artificial or otherwise, down over it. The mouth is small and the angles of the jaws are, like the chin, very imperfectly developed. The size of the mouth varies with the development of the lower jaws, for the reason that very large jaws necessitate a larger aperature than the average when they are separated from one another, and the reverse is true of those that are imperfectly developed. Diminished prominence of the symphysis and angle of the jaw gives a rounded appearance to the chin and neck.

On examining the interior of the mouth, the alveolar arch is compressed laterally and the palate is high, especially along the middle line, where it often makes an abrupt ascent. The height of the palate varies inversely with the development of the nasopharynx. The faucial tonsils are frequently large, as also is the lymphatic tissue constituting the pharyngeal tonsil.

The teeth, which are poorly developed, are often fixed rather loosely in their sockets, and their cusps fit imperfectly upon their fellows. The tongue is small.

All these conditions are consequent directly or indirectly on the absence of the developmental factor in the nasopharynx. This force has been reduced or deleted, in the first instance, by an infection of the nasopharynx by organisms producing a cold in the head. The nasopharynx is the portion of the child in which organisms most readily secure a foothold, and this liability to their presence varies inversely with the vitality of the individual. The vitality or resisting power can for all practical purposes be measured by the respiratory capacity to which it bears a direct and constant relationship. The feeble child has not the energy to spare and takes no pains to expel the mucus, etc., from the nose. It obtains with ease through the open-mouth-breathing air sufficient to provide for the carrying on of its modified mechanical relationship to its surroundings. The infection may not be limited to the nasopharynx, but may extend to the larynx, trachea, bronchial tubes or alveoli. Associated with, and in consequence of, the presence of the infection of the nasopharynx, the lymphatic masses forming the pharyngeal and faucial tonsils which drain this area become infected also. These again discharge into the cervical chain of lymphatic glands which in turn become inflamed and swollen.

You are well aware of the mode in which tubercle develops in the young subject. Two factors are requisite and exist in an ideal state under the circumstances just described. One is a condition of low vitality or, in other words, a deficient resisting power on the part of the individual. The other is the presence of a suitable nidus or cultivation medium in which the tubercular organism can grow and thrive free in its isolation from interference from those structures which meet it successfully under conditions of robust health. The inflamed gland, the vitality of which is depreciated by the presence of one lot of organisms or their products, forms the cultivation medium, and owing to the frequency of their presence tubercular infection of the glands in the neck is remarkably common in subjects of the class referred to.

How are these cases usually treated ? After a certain amount of medical treatment for the recurring catarrhal attacks, to which they are so liable, it is discovered that adenoids are present and the parents are given to understand that the child's troubles have been due to their presence and that, if not removed, many others will probably arise; also that they are certain to have no recurrence of the growth once it has been removed.

The operation is performed and in many cases the child breathes more freely for a longer or shorter time, the amount of benefit derived varying inversely with the duration of the obstructive symptoms. In a large number of cases the hopes raised in the parents' minds by the slight improvement following the operation are soon dashed to the ground by the reappearance of the obstruction and in not a few cases the child is apparently worse rather than better for the operation.

Some surgeons who devote themselves to the study of diseases of the throat profess to exercise great care in the choice of the particular variety of enlargement of the pharyngeal lymphatic tissue, which, they say, they consider should alone be operated on, and pride themselves on performing the operation so skilfully that a so-called recurrence never takes place. I regret very much to say that, though I have seen many of these cases treated in this manner and rendered myself very familiar with every detail in their history, I have been unable to verify the accuracy of their statements by their practice in these particulars. However, this is but a side issue, as I merely wish to indicate at the present moment that the enlargement of the pharyngeal and of the faucial tonsils is only one of many effects and not primary causes, and that this must be taken into careful consideration in deciding on their treatment.

When the glands in the neck become affected with tubercle, the children are treated variously. Many medical men who appear to have no idea of the widespread existence of tubercle in these glands will inform the patient's parents that there is no suspicion of the presence of tubercle even when fluctuation is undoubtedly present. Some are given medicines, as cod-liver oil, etc., or very often the latest drug in the market. Iodine is usually applied. Others are operated on, the glands being excised entire, while abscesses are scraped. Very often the parents are assured that certain climates, as that of Margate, are specific, and the comfort of the home and the happiness of the household are seriously interfered with in order that these recommendations shall be put into practice.

They are too often disappointed by the appearance of other enlargements.

During all this time any effectual means of improving the child's resisting power by increasing the respiratory capacity is but rarely adopted, the treatment alternating between drugs, the seaside and the knife.

If the patient is a girl, the parents are frequently informed that, once menstruation commences, the swellings will subside rapidly.

The teeth of these children, a very important feature, are often very defective and become carious very early. Mouth-breathing, the indigestion from which they so often suffer and their diminished oxygenation which renders them incapable of breaking up the food which they occasionally eat ravenously, assist materially in depreciating the resisting power of the teeth and of the tissues in which they are embedded, favoring at the same time the growth of organisms which settle upon them and destroy them. These dyspeptic and dental infectious troubles also help in producing enlargement of the faucial tonsils and of the lymphatic glands in the neck. The decay of the teeth also increases the indigestion, as it interferes with mastication, salivation, etc., and it keeps the mouth in a more or less foul state, producing material of a septic nature which, by its absorption by the stomach, produces an unhealthy condition of the mucous membrane of the organ and, in consequence, damages the patient's health. The boy escapes at an early age from constant association with his mother and nurse and engages in active sports, in which he of necessity breathes more quickly and has to keep his mouth shut in order to perform them efficiently. Considerable improvement in the respiratory capacity ensues in consequence.

The unfortunate female child too often continues to accommodate her physiology to that of her female ancestors and of her usually inactive nurse. When she shows no improvement, but continues to get worse, the mother takes her to a dentist, who arranges to attack the deformity of her jaws and face when she arrives at the age of twelve or thereabouts, making no effort to interfere with its progress in the meantime. The aid of a competent staymaker at a later date, by interfering with the free action of the diaphragm, results in a further reduction of the abdominal respiration on which the child has depended, and the dressmaker who stretches the material composing the body of the dress tightly across her flat, ill-developed chest helps to reduce the breathing capacity to a minimum, and so the sequence

continues. Pregnancy, by necessitating for a period an efficient performance of the thoracic respiratory functions by an involuntary systematic course of breathing exercises, may permanently convert such a girl into a fine, healthy woman, but in many cases, after parturition, the position of thoracic expiration is merely complicated by a loose abdominal wall and the kidneys and other organs descend still further and flop about with greater freedom, seriously and progressively impairing the comfort, health and happiness of the individual.

The next factor in the development of the face to which I will call your attention is the complete eruption of the teeth. We are all very familiar with conditions of incomplete development of both jaws and especially of the upper, due to noneruption or the too early removal of certain teeth. Here the deformity is in no way due to any imperfection in the development of the nasopharynx or in the respiratory capacity, though it frequently co-exists from the causes already described. The treatment of these conditions, so far as they are due to the teeth alone, comes solely within the province of the dental surgeon, who usually finds them very difficult to benefit materially.

The tongue is a mechanical factor of very great importance in the development of the lower jaw. A thorough recognition of this fact is of considerable service in practice, since by encouraging mastication and exercise of the tongue from early infancy by the use of a suitable "comforter," the tongue and the lower jaw can be simultaneously developed, the latter being enlarged and probably strengthened, the durability, texture and size of the teeth being also increased and improved by the process. Later in life the same purpose may be effected by the habitual use of American chewing-gum. In this way character may be given to a face which would otherwise suggest mental feebleness and indecision.

That the lower jaw varies in size with that of the tongue is shown by its excessive growth in those cases in which the tongue is abnormally large. I have been able to stay the growth of the lower jaw by reducing that of the tongue by excising a mesial wedge from its substance. Conditions of the lower jaw due to excessive enlargement of the tongue are by no means uncommon. The simplest form is what in dentistry is called "edge-to-edge bite," in which the lower jaw is sufficiently enlarged that in approximating the jaws the edges of the incisors of the lower jaw impact on those of the upper.

With a greater increase in the size of the jaw the condition called "underhung bite" arises, the edges of the lower incisors passing in front of those of the upper when the mouth is closed.

In cases of edge-to-edge or underlying bite, in which the tongue is obviously large or the features of the parents suggest the probability of a steadily increasing deformity, much advantage may be obtained by removing certain teeth at an early date from the lower jaw, so depriving it of a very important factor in its development.

Another condition associated with an abnormal enlargement of the lower jaw is "open bite." This may be associated with a jaw which should be otherwise an edge-to-edge or an underhung bite, a varying interval existing between the opposing incisor and certain other teeth when the jaws are approximated to the utmost. This is due frequently, in the first instance, to an incorrect approximation of the molar teeth produced by a forward movement of those in the lower jaw upon the upper. When associated with mouth-breathing, as it may be primarily in many cases—and is of necessity always as a final result in severe cases—the condition is aggravated by the imperfect development of the upper jaw brought about by the absence of the habitual air pressure in the nasopharynx. For extreme conditions of this kind I have divided the lower jaw on either side, removed wedge-shaped pieces and then fired the fragments together in the best possible position.

Though the enlargement of the tongue would usually seem to be hereditary, I believe I have seen it develop in cases in which the tongue and jaws were apparently quite normal at birth.

To what extent the size of the tongue and jaw can be influenced by feeding with hard or soft foods is a matter of much interest and should be taken into consideration in the treatment of these cases. The whole subject of physiognomy is replete with interest and I fear I have been able to do little more than touch upon it in the brief time at my disposal. I trust, however, I have done so sufficiently to give some idea of how much we hold in our hands the physiognomy and health of the children who are growing up around us under our observation and care. —*Philadelphia Medical Journal.*