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THE DIAGNOSIS OF LUNG TUMORS.*

BY I. ADLER, M.D., NEW YORK.

“The clinical history of malignant neoplasm of the lungs is still enveloped in much obscurity. The classical descriptions in the text-books are, in the majority of cases, far from corresponding to the reality.” Thus wrote Spillman and Haushalter¹ in 1891, and their words are still in the main true, though undoubted advances have been made in diagnostic methods, and much has been added since that time to our clinical and pathological knowledge. It is much to be regretted that primary malignant tumors of bronchi and lungs are generally considered so extremely rare that they do not enter into the everyday working consciousness of the physician. In obscure and doubtful cases every other possibility is usually thought of except tumor, and most frequently the ever-convenient and ready-to-hand diagnosis of tuberculosis must do duty in these cases. If, however, the physician is more scrupulously discriminating, and his mind not so easily set at rest by superficial routine diagnosis, he is apt to get into that condition so graphically pictured by Graves. Graves, in his fascinating clinical lectures², reports a case of malignant disease of the lung, probably a sarcoma, in which he gives a minute analysis of the clinical symptoms, and shows how both he and Stokes were misled. He candidly confesses that he should have made the diagnosis during life, but adds in his characteristic manner: “I became quite tired of the difficulty of attempting to explain the phenomena observed, and gave up all further attempts at diagnosis.”

* Read at Meeting of Ontario Medical Association, Toronto, June, 1909.

Primary malignant disease of the lungs is by no means so rare as is generally believed. It is true that the old aphorism, according to which those organs which are most frequently invaded by secondary tumors are rarely the seat of primary growths, is valid also to a certain extent for the lungs, but it is quite safe to say that primary carcinoma of the lungs is more frequent than, for instance, primary cancer of the liver. Statistical data are as yet very insufficient and unsatisfactory. This need cause no surprise, if the peculiar difficulties of the subject be remembered. Hansemann points out that, of 700 cases of carcinoma that came to the autopsy table in his hospital, the majority having been under the care of the best physicians of Berlin, 156 were not diagnosticated—not even as tumor—during life. Of these, 16 were primary in the lungs and bronchi³. On the other hand, 58 were diagnosed as cancer during life, and not corroborated post-mortem. This fact, a sharp reproach to our diagnostics, would not, however, affect the final statistical figures if every case were examined after death, but unfortunately the great majority of cases do not come to autopsy, and as regards lung tumors, what Boyd wrote more than twenty years ago is still strictly true. He says: “A case of malignant deposit in the bronchial glands, infiltrating the lung, ending in ulceration and in the formation of cavities, is frequently set down as one of hopeless phthisis, a post-mortem of which would be of no interest, and all record of the frequency of the disease is in consequence entirely lost.”⁴ Even the post-mortem examination, however, does not always bring to light the real nature of the case. There are lung tumors which are not recognized as such in the gross specimen, which are put down as chronic, interstitial or fibrous pneumonia, and which only after a careful microscopic examination, often to the great surprise of the pathologist, are found to be genuine carcinoma. Notwithstanding these difficulties, however, the percentage of primary malignant growths in lungs and bronchi, as reported from the various pathological laboratories, is found to be increasing from year to year, not because the disease itself is becoming more frequent, but rather because more attention is paid to the subject, and more thorough examinations are made. As the general practitioner becomes more familiar with this form of disease, and as our diagnostic methods become more perfect, this percentage will, no doubt, become still larger. Roughly, it may be stated that up to date, carcinoma of lungs and bronchi is found in numbers varying from 1 per cent. to 5 per cent. of all cancer cases, and from .2 per cent. to .6 per cent. of all autopsies. Sarcoma is very much rarer, and is not in-

cluded in these figures, which, it may be repeated, are averages and apply merely to the figures of a number of large German pathological laboratories. In the last 15 years since my attention was first called to this form of disease, I have seen about 18 cases, all except one diagnosed during life, and with a few exceptions, corroborated by autopsy after death. It may be inferred from this that primary malignant disease of the lung, while it must undoubtedly be classed among the rarer diseases, is not so very rare but that every physician in a fairly large practice may, and probably does, meet with it from time to time. Carcinoma is by far the most frequent, and all the various forms, including under this heading also the so-called endothelioma, are represented. Sarcoma is very much rarer, as compared with carcinoma. I have not seen an undoubted and genuine case.

The great majority of all pulmonary cancers are bronchial, beginning either in the main bronchus, perhaps a little more frequently in the right one, or in one or the other of the secondary bronchi, sometimes in those of the lower order. The growth starts at some point of the mucous membrane or the submucosa, proliferates into the lumen, which is gradually filled up, the bronchus becoming more or less completely obstructed. Coincident with this is growth in the other direction, the bronchial wall is destroyed, the neoplasm penetrates into the peribronchial tissue, and, proliferating along the bronchial ramifications, produces more or less extensive infiltration in the lung, so that not infrequently the greater portion of an entire lobe is occupied by tumor. In the neighborhood of this primary tumor, secondary nodules may appear, which again may merge into larger masses; at the same time the lymph nodes at the hilus become involved, the mediastinum is filled with neoplasm, the large vessels, the nerves, especially the pneumogastric, the trachea and esophagus are surrounded, compressed and involved in the tumor formation. The growth may extend directly to the pericardium, and through this or through the large vessels to the heart. The obstruction of one or more of the larger bronchi leads to bronchiecatic dilatations; these become filled with abundant bronchial secretion, and very frequently infection and the formation of bronchiecatic abscesses follow. The tumor itself is apt to degenerate and break down, ragged cavities being formed in it, filled with detritus or sanious puriform material. Compression or thrombosis of larger branches of the pulmonary vessels may lead to more or less extensive gangrene. Secondary infection in the engorged and more or less morbid lung tissue not directly involved in the new growth, often causes areas of pneumonic consolidation.

At a comparatively early stage the pleura may participate in the morbid process, adhesions, pleural thickening and effusions following. Through the pleura the growth may penetrate to the chest wall, some ribs being eroded and partially destroyed, the muscles of the chest infiltrated, and the tumor finally appearing under the skin. Then come the metastases. As a rule, sarcoma has less tendency to generalization than carcinoma. Some authors have asserted that pulmonary carcinoma has little tendency to the formation of secondary deposits, but this is a generalization that does not quite correspond with the facts. It is true that cases of quite extensive pulmonary carcinoma have been reported without any metastases, others with but few and insignificant secondary deposits; but in a very large number of cases, especially in cases of carcinoma of the medullary type, numerous metastases are formed, sometimes in almost incredible numbers, throughout the entire body. The other lung, lymph nodes—supra and infraclavicular, axillary, retroperitoneal—brain bones, all the abdominal viscera; in short, there is not an organ or tissue of the body but may become involved. A large uterine fibroid has been found to contain, deep in its interior, a secondary nodule, as have also the tip of the nose as well as the little finger. Death finally ensues from exhaustion, from sudden and profuse hemoptysis, from secondary growth invading some vital spot, as in the brain or heart, or from suffocation, the latter the most horrible death that one may imagine.

Not every case, however, runs the full course here roughly sketched. In many death brings relief before the picture is completed; in others, where the cancer is not so malignant, the course is more chronic and less destructive, so that all sorts of gradations in the anatomical as well as in the clinical picture are observed. The rare cases in which the carcinoma does not begin in a bronchus, but takes its origin directly from the alveolar epithelium, are, as a rule, much less extensive and infinitely less malignant than the bronchial type. Here the clinical symptoms most frequently suggest forms of chronic pneumonic consolidation. They are, as a rule, not diagnosed during life, and even at autopsy are not recognized as tumor without the aid of the microscope. Sarcoma of the lung may, in clinical symptoms, entirely resemble bronchial carcinoma, especially with reference to its involvement of the mediastinum and the various organs at the root of the lung. It is even claimed by some authors that certain forms of sarcoma have a marked tendency to an early and very massive involvement of the mediastinal lymph nodes, a point which may be useful in differentiating between sarcoma

and carcinoma. Not infrequently, however, sarcoma forms huge solid tumors, replacing an entire lobe, or even an entire lung, and completely filling the pleural cavity. Carcinoma never produces such tumors.

This brief sketch may suffice to indicate the possible complexities of the clinical picture and the diagnostic difficulties that may present themselves, as it is evident that the subjective symptoms, as well as the physical signs, may vary within a wide range of possibilities according to the location and extent of the tumor, and the secondary as well as the direct involvements. Instances are occasionally met with in which there are practically no symptoms whatever. The patients are apparently quite healthy, and nothing points to pulmonary disease, when suddenly and without warning, some secondary growth in the brain, the spinal cord, the liver, the heart, etc., etc., causes grave and usually promptly fatal symptoms. These cases are, however, rare. As a rule there are early signs, often but slight, it is true, but, if taken at their proper value, most significant. Pain in the chest is a very common and frequently a very early symptom. According to Schmidt⁵, the lung tissue proper does not appear to be sensitive to pain, and real pain will, therefore, only be produced when the pleura is involved; hence, in the earlier stages, the chest pain is rarely sharp, but rather a dull, indefinite, unlocalized discomfort. With the further involvement of the pleura, and with the advent of inflammatory processes and effusions, the pain may become very intense and persistent. In accordance with the well-known relations of the pleura to the brachial plexus, the intercostal nerves and the diaphragm, the painful radiation along the shoulder and arm of the side affected, along the intercostal nerves, the costal arch, and in the abdomen is frequently very marked. Shortness of breath on slight exertion is probably one of the most constant, and often, too, one of the very earliest signs, and when heart disease can be excluded, of great diagnostic significance. The higher grades of dyspnea belong to the later stages of the disease, and are always due, not to bronchial obstruction, as is frequently but erroneously maintained, but to compression or obstruction of the trachea. There is nothing, perhaps, in the whole range of human suffering which we physicians have to witness and to combat, so horrible and so hopeless as these extreme cases of orthopnea and suffocation resulting from substernal tracheal compression in the terminal stages of mediastinal or pulmonary tumor. Cough may be a very early, perhaps the earliest symptom, or it may not appear until a late stage of the disease, but it is rarely entirely

absent. A persistent, short, hacking cough, with scant or no expectoration, is very frequently the very first sign, and often occurs long before physical examination of the chest shows any pulmonary lesion. Sometimes, however, it is possible, by very careful auscultation, to hear over one very small area, usually in the back near the spine, in the region corresponding to the hilus of the lung, that peculiar bronchial swish which the French call "cornage," and which points with certainty to an obstruction of a larger bronchus. When this is found in an elderly person in apparently good health, or at any rate without any signs or history of chronic pulmonary disease, it is most suggestive, and should at once arouse suspicion of a developing bronchial carcinoma. As in all other forms of malignant disease, loss of weight and strength are very unreliable and inconstant symptoms. In many cases of pulmonary tumor, they occur at a very early period of the disease, may, in fact, be the very first sign; in others, cachexia does not appear until very late. I have seen several cases in which there was no appreciable emaciation or impairment of strength up to the fatal termination.

The sputum is of the greatest interest and importance. The much discussed prune-juice or black currant jelly sputum is still mentioned in most text-books as pathognomic of malignant disease of the lung. This, however, is not in accordance with the facts. It is far from being a constant sign, and a very great number of cases have been reported where this type of sputum was never seen; it appears, too, that its occurrence is by no means confined to lung tumors. Where other symptoms point towards cancer of the lung, the prune juice expectoration may be accepted as a further corroboration of the diagnosis; its absence has no diagnostic significance. There are cases on record in which from first to last there has been no expectoration whatever; in many others the sputum has been merely mucoid, and not at all characteristic of disease. Where there are bronchiectatic dilatations, the sputum may be muco-purulent, purulent and fetid; again, it may exhibit all the well-known characteristics due to a gangrene of the lung. In the great majority of cases, the sputum at one time or another is bloody; sometimes there is so little of this that only close inquiry will elicit the fact that it has ever been present. Oftentimes the bloody expectoration is very constant during the entire course of the disease: it may be only an occasional pinkish stain, but more often a dark red or blackish tenacious secretion. More or less profuse hemorrhages may occur, and they are not so rare as some authors. Hampeln, for instance, would have us believe. Sometimes, as is so frequently observed in tuberculosis,

a sudden profuse hemorrhage is the very first indication of some lesion in the lungs. These hemorrhages may occur at any stage of the disease, and are not infrequently the cause of its sudden and abrupt termination. One of my cases, a man apparently still far from the fatal ending, died of profuse hemoptoe in a hansom cab on his way to a medical meeting at which I wished to demonstrate him. In some cases of sarcoma of the lung, a peculiar grassy green sputum, without, however, any characteristic microscopic elements, has been observed. It can by no means be considered as pathognomonic, but tends, in conjunction with other symptoms, to strengthen the diagnosis, and may help occasionally to differentiate as between sarcoma and carcinoma. The systematic and thorough bacteriological and histological examination of the sputum is obviously of the greatest importance. The continuous absence of tubercle bacilli in cases where there are signs of consolidation or ulceration in the lung, and where there is a history of hemorrhage or bloody expectoration, should always suggest the probability of malignant disease. But even when tubercle bacilli are found and the association of tubercular disease and primary malignant neoplasm of the lungs is by no means so very rare—it may, under particularly favorable conditions, be possible to recognize the tumor by the aid of a careful study of the sputum. In some very few isolated instances, probably all of them sarcoma, massive pieces of the tumor have been ejected with cough; smaller particles of cancerous tissue, recognizable by the microscope, have also here and there been detected in the expectoration, but these are rather exceptional occurrences. In the overwhelming majority of cases, constant, even daily examinations of the sputa for many months, has failed to detect genuine particles of carcinoma. There remains, therefore, the search for characteristic cells. Among the multitude of epithelial cells that are found in the expectoration—squamous, large and small round or polygonal, cuboid, cylindrical, ciliated, etc., it would seem, *a priori*, quite hopeless to attempt to pick out cancer cells. Attention, however, has been called to certain forms of cells, which, if present, are claimed to be absolutely pathognomonic, so that on the evidence of these cells alone the diagnosis of cancer may be made. Hampeln⁶ considers the appearance of certain large polygonal, polymorphous cells in the sputa, characteristic of carcinoma. They are often met with in great abundance; they may assume all sorts of distorted shapes, but never entirely lose their epitheloid character, and—this is the most important point—they are always entirely free from pigmentation, while all other forms of epi-

theloid cells that are found in the sputum are more or less abundantly pigmented. According to Hampeln, they are not constantly present; vain search for them may be made for days, but when they are found, if only one single time, the diagnosis of carcinoma, according to this author, is assured, as these cells occur only in carcinoma, and under no other conditions. Lenhartz⁷ claims great diagnostic value for certain rather large round cells filled with very prominent fatty granules (*fettkörnchen kugeln*); these cells, supposed to be derivatives of degenerated cancer cells, are often very abundant and easily demonstrated; or again, but very sparingly distributed in the sputa. They may sometimes disappear temporarily altogether, but are never permanently missed in any genuine case. They are said to occur only in cancer of the lung. Their presence in the sputa clinches the diagnosis, provided only such sputum has been used for examination that is free from any possible contamination with milk. Since our attention was called to these cells we have seen only one case of cancer of the lung, but in the sputa of this case these cells were present in great abundance. We have also examined a great number of sputa from other forms of pulmonary disease with entirely negative results. It seems quite probable that these cells are really pathognomonic for pulmonary cancer, and a further and more extensive study of the subject is desirable.

The physical signs may be comparatively simple or extremely complicated and confusing. In reviewing a very large number of cases a certain monotony in the clinical picture becomes apparent, and a rough arrangement of the clinical material into a few typical groups is suggested. Perhaps the classification proposed by Marfan is the most convenient.

I. Cancer pleuro-pulmonaire aigue ou galopant. The acute or galloping form; extremely rapid course—cough, dyspnea, asphyxia, death in a month or thereabouts. One is led to think of acute miliary pulmonary tuberculosis, and at autopsy both lungs and pleuræ are found studded with cancer nodules (acute miliary carcinosis). This form need not detain us. It is not only extremely rare, merely a very few scattered cases having been reported, but there is reasonable doubt of its primary character when found in the lung. Granted, however, that it does occur as a primary pulmonary lesion, it seems practically impossible to secure a correct ante-mortem diagnosis.

II. Cancer pleuro-pulmonaire chronique. The ordinary chronic form of cancer of the lung. This may again be divided into several subordinate types. It must be remembered, however,

that these groupings are merely for the convenience of the clinician, and do not represent strictly limited and firmly established syndromes. With the progressive development and extent of the lesion, one of the so-called types may gradually merge into another, and it very frequently happens that several or all of the forms here mentioned are exemplified in the course of a single case.

(a) Cancer broncho-pulmonaire, type classique du cancer du poumon. The typical bronchial cancer, by far the most common form of the disease. The dominant symptoms are referable mainly to the lungs and bronchi. In the earlier stages a simple chronic bronchitis is usually suggested, but even in these earliest periods it will frequently be possible, if not accurately to diagnose, at least to suspect, the graver lesion in its incipiency. The occasionally bloody sputum, the dyspnea on slight exertion, the debility entirely disproportionate to the physical signs, are often enough among the earliest symptoms, and are very suggestive. A close physical examination may detect, even at a very early stage, some slight, gradually extending area of dullness, usually posteriorly and in the region of the root of the lung, or possibly over one or the other apex, with diminished voice and breathing. In the later stages, when extensive areas of dullness have developed, when through degeneration or breaking down of the neoplasm, or through the formation of bronchiectatic dilations, amphoric breathing, tinkling rales, tympanitic percussion note, and all the other signs of cavity in the lungs appear, when fever, night sweats and hemorrhages set in, it is not surprising that the diagnosis of tubercular phthisis is so readily made. The case is set down as one of ordinary consumption, until at last the appearance of secondary tumors or the autopsy clear up the error. It is not always easy to differentiate in these later stages, but it can in many instances be done in uncomplicated cases, at least, and with a very high degree of probability. If the growth has invaded the lower lobe there should not be much difficulty, though it need hardly be mentioned that the diagnosis cannot always be made at a single examination, as a longer period of observation and study may be required. The apex, the favorite location of the tubercular process, is usually entirely normal or shows only a few rales. The area of dullness is irregular in extent and location; it may be over some portion of the anterior part of the chest, but more frequently is on the posterior aspect, starting usually from about the hilus, and most intense in that region. It is of especial diagnostic importance that, owing to bronchial obstruction, the breathing sounds and vocal fremitus heard over

these irregular areas of dulness are, as a rule, extremely feeble or entirely absent. This never occurs in tubercular or pneumonic consolidation. Bronchial breathing and increased vocal fremitus appear only when secondary inflammatory consolidation is established in the lung tissue surrounding the neoplasm. There is a certain element of instability in the physical signs which is also quite characteristic. An extensive area of dulness over which hardly any breathing sounds are heard may suddenly, because the cancerous obstruction in the afferent bronchus has partially or entirely sloughed off, and the bronchus thus again become pervious to air, exhibit loud tubular breathing and pectoriloquy. Some time thereafter the former condition is restored, because the bronchus has again become blocked by a new proliferation of the tumor. A bronchiectatic cavity filled with mucus, pus and detritus, because the afferent bronchus is obstructed, does not produce any marked physical signs except perhaps some dulness. In one way or another the bronchial communication is re-opened and at once, within a few hours, we may have all the signs of a larger or smaller cavity. These sudden and surprising changes occur in no other form of pulmonary disease. The continued absence of tubercle bacilli from the sputum, whether bloody or not, speaks against tuberculosis, while the presence of the granular cells of Lenhartz points to tumor. In tuberculosis, fever of a more or less hectic type is the rule at a comparatively early stage of the disease, and it is always present when ulceration and the formation of phthisical cavities have begun. Cancer of the lungs may run its entire course from beginning to end without any rise of temperature. When fever does occur it is usually at a late period and is of quite an irregular type.

The fact that all these manifold lesions, consolidations, cavities, etc., are confined to one lung only, or perhaps even to a portion of one lung, may also serve to distinguish between malignant disease and phthisis. The modern tests for tuberculosis—the ophthalmo-reaction of Wolff-Eisner and Calmette, or perhaps better still, the cutaneous method of von Pirquet, may be of great value and should certainly always be tried in doubtful cases. Inasmuch as these reactions depend upon a tubercular process somewhere in the body, not necessarily in the lungs, a positive outcome will not necessarily exclude tumor, while a negative result would be of great importance as tending strongly to show that the process is not tubercular, and, therefore, going very far towards corroborating the suspicion of tumor. A further and very important diagnostic aid is afforded by X-rays. A bronchial carcinoma starting from the root of the lung, and from there

penetrating into the lower or middle lobe, presents a very characteristic picture on the screen or skiagram, and one quite different from anything that is seen in pulmonary tuberculosis or any other disease of the lung. It may even be possible under favorable conditions to diagnose with a fair amount of accuracy the location and extent of the tumor developing in the interior of the lung while still of comparatively small size and surrounded by healthy tissue, causing as yet but slight clinical symptoms. In order to accomplish this, however, a mental attitude of the physician totally different from what it is at present is required. No conscientious physician to-day examines a chest without thinking of the possibility of tuberculosis. It will not be very wide of the mark to say that hardly anyone ever thinks of the possibility of tumor. If any progress is to be made in the diagnosis and treatment of these unfortunate cases we must train ourselves to think of bronchial or pulmonary cancer, more especially in elderly persons, just as readily, perhaps even more so, than we do of tuberculosis. Cancer originating in the upper lobe is perhaps at first more easily confounded with a tubercular lesion, inasmuch as the apex of the lung is the favorite location for tuberculosis. The differential diagnosis, however, should, with careful observation, offer no real difficulty, provided the case is an uncomplicated one. Now it happens none too rarely, that tuberculosis and carcinoma are associated together in the same individual, that the sputa are crowded with tubercle bacilli, and that all the other typical signs of phthisis are in evidence. In such cases it will probably be only by a rare conjunction of favorable circumstances that the carcinoma can be diagnosed. A small cancer growing from the wall of a tubercular cavity, as has been reported by Friedlander and others, may possibly, perhaps by the presence of granular cells in the sputum, be suspected, but it is hardly ever recognized with any certainty. In some few favorable cases of combined tuberculosis and cancer, the diagnosis has been made during life and corroborated post-mortem. The recent development of bronchoscopy encourages the hope of diagnosing from this quarter. Several cases have been reported in which the cancer obstructing a bronchus has been made directly visible and the diagnosis thus made absolutely certain.

(b) *Form du tumeurs de mediastin.* A bronchial cancer, it is indifferent of what order the bronchus may be, whether large or small, has two main preformed routes of extension at its disposal. The easiest and most natural, and the one that is in the majority of cases first resorted to, is along the bronchial ramifications and the peribronchial tissue into the interior of the lung.

Usually in the later stages, the bronchial wall being broken down and penetrated, the bronchial and mediastinal lymph nodes become involved and sometimes enormously enlarged. The mediastinum, both anterior and posterior, becomes filled with tumor masses, the pericardium is covered or penetrated, the large vessels, both aorta and cavae, and pulmonary arteries and veins, are surrounded and compressed, the superficial veins of the chest are dilated, the laryngeal recurrens are involved, trachea, bronchi and esophagus are compressed and obstructed, and we have all the signs of mediastinal tumor. Sarcoma starting at the hilus of either lung runs a somewhat different course in so far as the tendency of the growth is somewhat less towards involvement of the lung, but tends earlier and more rapidly towards the mediastinum. In a case that presents itself to us at this rather late stage of the process, the differential diagnosis as between primary tumor of the lung or some other intrathoracic growth, or aneurysm, is always extremely difficult and but too frequently impossible. A full discussion of the numerous little diagnostic points that have been suggested as helping in the differentiation is altogether beyond the scope of this brief review, although a few points may be mentioned. In the first place, it must be said that carcinoma of the lung affords slightly better chances of diagnosis than sarcoma. A careful consideration of the history may demonstrate the primary involvement of the lung, and the only secondary participation of the mediastinum. In most cases of primary mediastinal growth there are no clinical symptoms whatsoever until the tumor has attained a certain size, when at once the symptoms of intrathoracic pressure are developed. In pulmonary cancer we will very frequently have the sequence outlined above. The preferred and most convenient route for the further extension of mediastinal growth is along the track of the great vessels, and therefore towards the left; it will, therefore, always be more easy to distinguish a tumor of the right lung from mediastinal tumor than a tumor of the left lung. Edema of the right side of the face, shoulder, arm and chest, paralysis of the right laryngeal recurrent indicates pulmonary tumor. Cropping out of the growth above the jugular notch suggests mediastinal tumor. In pulmonary tumor, the pleuritic effusion, if there is any, is usually confined to one side; effusion into both pleural cavities speaks for mediastinal growth. Jacobson⁸ points out the greater respiratory mobility of the lung in cases of mediastinal tumor as compared with the impaired respiratory motion in pulmonary growths. This symptom is particularly well seen by means of the Roentgen rays, though otherwise the X-ray affords but little diagnostic assistance in this type of cases.

The Oliver-Cardarelli symptom, the downward tug of larynx and trachea when the head is slightly thrown back, may be of assistance in the question of aneurysm. Lastly, in carcinoma the characteristic cells in the sputa may settle the otherwise impossible differential diagnosis.

(c) Form pleuritique. The pleuritic type. In this form the symptoms referable to the pleura predominate; severe pain in the chest and shoulders and persistent pleuritic effusion often more or less completely mask all symptoms of pulmonary disease. This type also corresponds to a later stage of the disease as far as tumors of the lung and bronchi are concerned. It is the usual and very early form in which primary malignant disease of the pleura presents itself, but which is beyond the scope of the present discussion. The diagnosis is not always easy, and can often be made only after continued observation. Hemorrhagic effusion occurs, as is well known, not only in malignant disease, but often enough in tuberculosis; it may, in very rare cases, even occur in entirely benign forms of pleurisy, as, for instance, in measles. It very frequently happens that the first few aspirations recover only clear yellow serum, sometimes in very large quantities, and that only by later punctures, hemorrhagic, oftentimes thick chocolate-colored fluid, is obtained; this may be taken as characteristic of tumor. I am not aware that it has been observed in any other form of disease. In nearly all cases the effusion is persistent, that is, the chest fills up again and again, and the aspirations have to be repeated at comparatively short intervals until the end. There are, however, rare exceptions. Unverricht⁹ reports the case of a woman in whom, after two aspirations of hemorrhagic fluid, all symptoms seemed to disappear; she felt entirely well for a time and gained in weight until secondary tumors appeared in the skin where the aspirating needle had penetrated. The autopsy showed primary bronchial carcinoma. Hampeln reports a similar case. Not much is to be expected from the bacteriological examination of the effusion. The cystological examination, on the other hand, often, though by no means always, gives valuable hints. Single epithelial cells do not possess any significance; the large, edematous and vacuolized cells described by Fraenkel are characteristic of endothelioma of the pleura and need not concern us here, but if conglomerations of a number of epithelial cells are found, and especially if these show a decided glycogen reaction, it goes far to corroborate the diagnosis of tumor. In the ordinary cases of non-malignant effusion there is usually more or less complete relief as soon as the fluid has been evacuated, but in the majority of cases of malignant pulmonary disease this relief does not follow and there is little

or no abatement of the dyspnea, cough, expectoration and general distress. If a paralysis of the recurrent laryngeal is observed on the side of the pleuritic effusion, it may be taken as a sure sign of malignancy. In some few cases the aspirating needle has brought away small particles of tumor directly from the lung which could be sectioned, and from which thus the absolute microscopic diagnosis could be made. Kroenig devised a method based upon this, by which in every doubtful case the attempt was to be made to remove particles of tumor by aspiration. As this method is not without its dangers, and at best not very reliable, it has not found much favor. It would appear much more rational to make a broad incision, as has been done in a number of cases, not only for the sake of diagnosis, but also for the sake of establishing drainage, and thus, if not curing, at least relieving some of the most distressing symptoms.

(d) Form pleuritique sans epanchement. The pleuritic type without effusion. This is also a very late stage. There are all the signs of pleuritic effusion—pain, absolutely flat percussion note, complete absence of voice and breathing, respiratory immobility, not infrequently increased circumference of the chest and displacement of the heart, but the exploring needle fails to find fluid. The needle seems to penetrate into a more or less solid mass extending to such a depth as to preclude any possibility of its being merely an abnormally thickened pleura. In these cases, too, the needle frequently brings away particles of tumor. It is characteristic of this type that while there is complete absence of respiratory murmur or vocal fremitus, there is very loud propagation of the heart sounds, so that if the tumor occupies, for instance, the right chest, the heart sounds can be heard very distinctly over the whole of the right chest, both in front and in back. This sign alone is sufficient to assure the diagnosis of a solid tumor. These cases are probably always sarcoma, and their recognition should not present any very great difficulty.

In no other department of clinical medicine does the old precept, “*Opportet omnia signa contemplari*”—“it is necessary that everything should be taken into consideration”—apply with more compelling force than in the diagnosis of lung tumors. There is no single, constantly present pathognomonic symptom. Undoubtedly there are cases where the diagnosis cannot be made at all, where the initial symptoms are so slight that the patient does not have recourse to medical aid, where the physician is consulted at a time when cerebral or abdominal metastases cause symptoms which predominate to such an extent as to exclude all possibility of locating the primary tumor, and any attempt at accurate diagnosis is not only vain but useless. In a great many

cases, however, perhaps in the majority, thorough and repeated examinations, as well as careful weighing and consideration of all symptoms, will render a diagnosis of a fair amount of assurance possible, if not at once, at any rate after a reasonable time of observation. It is well to remember the words of Stokes with which he concludes his classical article on lung tumors: "Though none of the physical signs in this disease are, separately considered, peculiar to it, yet their combination and modes of succession are not seen in any other affection of the lung."

About a hundred years ago, Heyfelder¹⁰, disgusted with the treatment that these unfortunates were receiving under all sorts of diagnoses—the blood-letting, the purging, the salivation, etc., etc.—urges upon physicians to recognize these cases as cancer and as hopeless, and not to add the torture of medical treatment to the sufferings consequent upon the disease—"Optima hic est medicina medicinam non facere"—"the kindest treatment in these cases is not to treat them at all." Barely five years ago, Benda¹¹ was still justified in saying that cancer of the lung occupied a unique position, inasmuch as it was the only cancer that was absolutely beyond the reach of the surgeon; but he went a step further and added that, no matter what progress surgery would make, it could never hope to deal satisfactorily with lung cancer, as it would always remain impossible to make the diagnosis early enough for any reasonable expectation of a cure by surgical interference. This is a forcible illustration of how unwise it is to attempt to set limits to the progress of science. Within the few years that have elapsed since Benda made this daring assertion, the outlook has completely changed. Until recently the diagnosis of malignant disease of the lungs meant the death warrant of the patient. The interest attaching to an accurate diagnosis was mainly theoretical and scientific, and it is not to be wondered at that physicians took little interest in forms of disease that offered not the slightest hope of therapeutic success. This has all been suddenly and marvelously changed. The new era of thoracic surgery that is just dawning seems, with the help of the Sauerbruch cabinet, to promise some chance for these cases, until now so hopeless. Already a number of cases have been reported, especially by Lenhartz and Kümmel, which have been operated on by the new method with encouraging results. At least one case (past all help according to all experience) has remained well, up to last reports, for a year after the operation. This new branch of surgery is still in its infancy, but there is every reason to expect with confidence that it will do for the thorax much of what abdominal surgery has done for the peritoneal cavity. If that is so, and we sincerely hope it may be,

then a new and great responsibility is placed upon the shoulders of internal medicine. It is the sacred duty of the physician to recognize these cases and to recognize them as early as possible. The cases are there and they can be found, but in order to find them we must look for them. The physician must be imbued with the consciousness that malignant pulmonary disease occurs much more frequently than is commonly thought, and that he may meet it any day in young or old in his practice. Gerhardt gives sound advice when he bids us suspect of pulmonary cancer every elderly person who has bloody expectoration, and where heart disease and tuberculosis can be excluded. No age, however, is exempt, and our suspicions should at all times be readily aroused. When a study of the sputa, the X-rays, the bronchoscope, and all the other diagnostic means fail to assure the diagnosis, an exploratory thoracotomy would be indicated. I personally would not hesitate even now in this as yet imperfect period of the development of the technic, were there well-founded suspicions of malignancy, to advise an exploratory opening of the chest by means of the new methods, rather than wait until the diagnosis were absolutely certain and the case inoperable.

In conclusion, Mr. President, I may be permitted to thank the officers and members of this Association for the honor conferred upon me in inviting me to read this paper, and for the indulgence with which you have listened to me.

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URICACIDEMIA IN RELATION TO STOMACH TROUBLES.*

BY W. H. PEPLER, M.D., L.R.C.P., LOND.

“Nothing is perhaps so bewildering in the whole of bio-chemistry as are the various hypotheses regarding the metabolism of the purin bodies.” This statement from Leonard Hill’s excellent new work entitled “Recent Advances in Physiology and Bio-chemistry,” alone prevents the possibility of my burdening you to-day with any lengthy controversy on the many insoluble problems that present themselves when considering the metabolism of uric acid.

It is now generally recognized, however, that uric acid arises in the body from two sources.

(a) Exogeneous uric acid, that from nuclein-proteids and purin bodies present in food.

(b) Endogenous uric acid from the nuclein bodies of the tissues.

The uric acid is formed in most of the organs of the body, principally the liver and spleen, where it is also disintegrated.

Exactly when the presence of uric acid in the blood leaves the physiological state to become a pathological one, is difficult to say, there being always a small amount of it present in the blood in health. Uric acid is 35 times more soluble in the blood than in distilled water, but you require a high alkalinity of the blood to retain it in solution. This is greatly aided by the action of the gastric juice, the hydrochloric acid of which extracts the alkaline phosphates from the food, so that after each meal we get a lessened acidity of, or even an alkaline urine, if hydrochloric acid is present in regular amount. In this way we can roughly gauge the amount of HCl. present in the gastric juice.

Sir W. Roberts says that “one part of sodium biurate in 6,000 of the blood serum constitutes a supersaturation, and precipitation must take place, and irritation and inflammation follow as a result.”

An excess of uric acid in the blood may be caused in a variety of ways. The principal ones are:

1. Alterations in diet.
2. Increased destruction of nuclein material in the body.
3. Lessening in the further combustion of the uric acid formed.

* Read at Meeting of the Ontario Medical Association, Toronto, June, 1909.

4. Increased washing out of the uric acid stored in the body.
5. Increased uric acid synthesis in the body.

Alteration in diet is generally the most important factor. Foods rich in nuclein matter, as meats, meat extracts, etc., rapidly cause this excess.

There are many individuals who, from various causes, accumulate uric acid in their blood and bodies very readily and rapidly. These people, we say, possess the *uric acid diathesis*; their name is legion, and it is of them and their stomach disorders that I wish to speak in this paper.

How do disorders of the stomach lead to uricacidemia? An imperfect absorption of food leads to a deterioration of the blood and a poor oxidation and incomplete metabolism follows as a result.

Errors of diet that lead to an acid fermentation in the stomach will neutralize the alkalies formed during digestion, and the blood will not be supplied with the salts necessary for entering into combination with the uric acid, and the result is uricacidemia—a retention of uric acid in the blood.

The disorders of the stomach most likely to produce a uricacidemia are chronic asthenic gastritis, with motor insufficiency; cancer, and myasthenia, with lessened secretion. These conditions cause an excessive acidity, and a resulting lessened quantity of neutral phosphates of soda available for holding the uric acid in solution. The converse, however, is sometimes true; a dyspeptic often escapes uricacidemia. "I have been a dyspeptic all my life," said an old clergyman; "thank God for it, all my brothers died of gout." He hadn't been permitted to eat food that caused increase of uric acid.

Uricacidemia is a cause and means of continuance of gastric troubles.

Uric acid is not strongly toxic, yet it is decidedly irritating both when in solution and when precipitated in the tissues. This fact is agreed upon by such authorities as Garrod, Haig, Roberts and Lauder Brunton. The latter designates uric acid as *dirt* when retained in the blood. Uric acid can find its way into the gastric juice, and directly cause disturbance. The constant presence of excess of uric acid in the blood may lead to a thickening and contraction of the pyloric orifice of the stomach, just as it so often does in the knee and other joints. This is followed by a dilatation, gastropotosis, lessened motor power, etc. Haig, in his excellent work on this subject, says that uric acid, when present in the blood in any quantity, takes the nature of a colloid or gluey substance, and that it mechanically obstructs the

circulation in the capillaries, and venous stasis, with increased arterial pressure, results. This blocks the glands and vessels of the stomach, leading to loss of muscular tone and insufficient secretion and motility, with acid fermentation and putrefaction. This condition he calls acid auto-intoxication due to collemia.

Van Valzah and Nesbit, in their work, "Diseases of the Stomach," state that the special gastric trouble which accompanies a uricacidemia is myasthenia gastrica, with either a hyper- or hypochlorhydria, plus fermentation. If hypochlorhydria and fermentation are present, you have a vicious circle established, for the secondary gastric trouble favors the retention of uric acid in the blood.

Ebstein and His make the statement that the toxic properties of uric acid directly cause digestive disturbances.

An important and often difficult question to determine is when the stomach trouble has been caused by, or depends upon, a retention of uric acid in the blood. We have often to depend, rather, on the accompanying symptoms than on its own. For instance, we have a history of periodical headaches, of a migraine type; mental depression; irritable temper; drowsiness; scanty, high-colored urine, with many pink urates or crystals of uric acid, and even renal or vesical calculi—perhaps a history of asthma, myalgia, or other rheumatic manifestations. With this history, the patient will complain of considerable eructation, heartburn, epigastric oppression and distention, furred tongue, etc., and it is these gastric symptoms that generally bring him to us. Now we find that this train of symptoms is nearly always relieved or improved by diet and drugs that free the blood of uric acid, and also may be made decidedly worse by the administration of uric acid in any form. With such a history it is strong presumption that collemia is at least one of its causes and continuances.

Very often the gastric phenomena blanket the accompanying more important ones, and to illustrate this I will briefly cite a case in point:—

A lady, 35 years of age, was referred to me in August, 1908. She stated that she had been under treatment for stomach trouble for the last four or five years. Her chief complaints were constant belching of gas, pain in left hypochondrium referred to the back, some oppression and distention of epigastrium, considerable gastroptosis, analysis of gastric contents showed hyperchlorhydria. She had a good appetite throughout. Accompanying these symptoms and signs were marked mental depression.

irritable temper, and analysis of the urine revealed high acidity, concentration, many urates and crystals of uric acid, also pus.

I must confess that my diagnosis was mainly based upon the urinary findings, and concluded that she was suffering from an excess of uric acid in the system, which later proved correct.

The X-rays revealed a number of calculi in the left kidney, and examination of the ureters by means of the cystoscope showed the right kidney to be healthy. The calculi were removed and the patient made a good recovery, losing all her gastric troubles.

Einhorn speaks of an achylia gastrica in renal calculi, where all the stomach disturbance was relieved by removal of the calculi.

We have many cases coming to us of perhaps a milder type than the above-mentioned, yet belonging to the same category, complaining of headaches, flatulency, an increase or loss of appetite, dirty tongue, a hyper- or hypochlorhydria, with lessened motility. They are often big meat-caters and tea-drinkers. Generally they drink very little water, have sedentary habits, nervous, irritable temperaments, etc. In most of these cases I believe you will find a uricacidemia closely associated, and often the cause.

How are they best relieved?

1. Preventing the accumulation of uric acid in the body and blood.
2. Removing the excess of uric acid from the body and blood.
3. Keeping the uric acid in solution.

(1) The prevention of reaccumulation of uric acid.

We know that the excess of uric acid in the blood is largely due, first, to the consumption of articles of food which contain uric acid or its equivalents in large amounts. Secondly, because so much nitrogen is taken into the system that the uric acid formed out of it in relation to urea is not all excreted, and as a result of taking so much animal food the alkalinity of the blood is low, which prevents the proper excretion of the uric acid that is being introduced with this kind of food, as well as that which is formed out of its nitrogen. Thus animal food increases the introduction and formation of uric acid, and at the same time prevents its elimination.

One of our best means of treatment is to cut off all foods that contain much uric acid or its equivalents, and to partake of no more nitrogenous food than is necessary to keep the urea at a normal level.

A good way to find out what foods are rich in uric acid

is to watch the excretion of uric acid and urea from day to day while giving a constant diet, and if a certain meat or fish increases the uric acid out of proportion to the urea, then avoid it.

In a series of interesting experiments along this line, Haig found that tea and coffee headed the black list, containing as much as 175.0 and 70.0 grains per lb. respectively. Then followed meat extracts and juices, and what he calls hospital beef tea (1 lb. of meat cooked for 8 hours). Liver, kidney, sweetbread all contain high percentages.

The quantity of nitrogenous food required for proper nutrition is best based upon the amount of urea excreted, taken in consideration with the weight, strength and endurance of the patient. A good rule for an adult man is to multiply his weight, say 140 lbs., by 3.5, which is the number of grains of urea per lb. per diem, and then multiply the result by 3, which number stands for the amount of albumin required to produce the urea; and this gives you the amount of albumin in grains that he has consumed each day.

Sir W. Roberts' experiments indicate that starch, sugar and fat have not the least direct influence on the production of uric acid, but as free use of them restricts the intake of nitrogenous food, they indirectly diminish the average amount of uric acid.

What about carbohydrates?

We know that the conversion of azotized foods is more complete with a minimum of carbohydrate; therefore, they should be used moderately. Potatoes are useful, as they dissolve the uric acid and take it up from the tissues. Plenty of water should be drunk, moderate regular exercise, tepid alcohol rubs and mineral waters.

The removal of the excess of uric acid from the body and blood is best obtained by keeping the blood alkalinity as high as possible, which, as I have stated, prevents precipitation of the uric acid.

Lavage and electricity applied to stomach wall, and all measures directed to improving the secretion of the gastric juice and tone of the gastric muscles are best calculated to bring about a condition of the blood suitable for keeping the uric acid in solution.

Acid salicylic is one of the best drugs we have for dissolving and eliminating uric acid from the system, but it is not supposed to cause new formation of uric acid, and acts better where the alkalinity of the blood is not high. For this reason it is a mistake to give alkaline salts of potassium and sodium along with it.

Piperazidin also acts well in certain cases as a solvent and

eliminator of uric acid. I have had under my care for some time a retired military officer, who suffers periodically with intense headaches, some gastric disturbance, and almost continuous passage of gravel per urethra. He has at different times passed quite large calculi per urethra, which were accompanied by much pain and hemorrhage.

He finds piperazidin the only drug that keeps the uric acid in solution, thus relieving his headache and lessening the formation of gravel and calculi. I have been obliged to restrict his diet to milk for a month at a time, which procedure is always followed by excellent results.

Thyminic acid is another drug supposed to keep uric acid in solution, and prevent its precipitation into the tissues. I know nothing of it from experience. In conclusion, I wish to emphasize the importance of recognizing the fact that uricacidemia holds the centre of the stage in many of our gastric dramas, and if we wish to exterminate him before the curtain falls, we must cut off his nutrition and bleed him.

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TWO RESPIRATORY SYMPTOMS OF SERIOUS IMPORT.*

BY A. F. MCKENZIE, M.D., MONKTON, ONTARIO.

Mr. Chairman and Members of the Ontario Medical Association, My old professor of medicine, Dr. H. H. Wright, to whose memory as a man and physician I am pleased to be able to pay a tribute of respect, was wont to impress upon his students the inherent tendency towards recovery which exists in most attacks of illness. This tendency forms the common foundation for success in all systems of therapeutics, and it is a foundation so broad and deep, and yet with such indefinite outlines, it is no wonder that, however intelligent and well educated in other respects he may be, the layman who has to judge only by results in a few isolated cases, is frequently carried away by enthusiastic admiration for some new therapeutic system.

Probably no great progress will be made towards the elimination of quackery, both within and without the profession, until this simple idea of the natural tendency towards recovery in many cases of illness becomes the common property of mankind.

While, however, we recognize this tendency, we also have forced upon us the fact that, inextricably interwoven with the forces working for the recovery of the patient, are forces tending towards his destruction. To estimate so far as he can the relative strength of these antagonistic forces, and to what extent they can be influenced by the resources of his art in any case of illness, and thus form a prognosis, is one of the duties of the physician.

In many instances, however, we are forced by our own personal limitations and by the limited knowledge of the profession at large, to be very cautious about expressing our opinion concerning the outcome of any given case. We have to take into consideration not only the particular disease as it affects mankind in the average, but the general condition of the patient and the particular circumstances in him and his surroundings which give the case a hopeful aspect or the reverse.

Leaving aside the exact name of the disease from which the patient may be supposed to be suffering, the state of the pulse, the condition of consciousness and the character of the respiration are probably the principal guides by which most of us form

* Read at Meeting of Ontario Medical Association, June 3, 1909.

an estimate of the outcome of the case. Too much importance should not be attached to any one symptom, but an attempt should be made to interpret it along with all the other associated symptoms and conditions.

Of the various symptoms connected with the respiratory system, I would like to call attention to two which I consider to be of serious import. During normal respiration there is no noticeable up-and-down movement of the larynx and trachea. When the respirations are accompanied by this up-and-down movement of the larynx, and with it, of course, the trachea, I have been for a number of years in the habit of calling it tracheal breathing. I am not quite sure whether this is a term coined by myself or whether it has been used by others. The symptom appears to me of sufficient importance to be worthy of a name, and in the meantime I do not know of any term more appropriate than that of tracheal breathing. It has to me a somewhat euphonious sound, calls attention to the movement of the trachea, and is perhaps further justified by the fact that the term "tracheal tugging" has been applied to similar movements of the windpipe in cases of aortic aneurism, accompanying, however, of course, the cardiac pulsations instead of the respirations.

Tracheal breathing is easily recognized by both touch and sight. The range of movement varies from about a quarter of an inch or less up to half or possibly three-quarters of an inch.

In the literature at my command I am able to find very little on this subject. Hutchison and Raney¹ say that movements of the laryngeal box are sometimes conspicuous, and may call for explanation, but nothing further is said as to the conditions in which we may expect to find these movements. One of the writers² on diphtheria in Allbutt's System of Medicine, says that "the up-and-down movements of the larynx which attend respiration are much increased in laryngeal dyspnea." He thus speaks as though there were normally a certain amount of movement. If this movement be normally present during respiration, its extent must be very slight, as any of you can see by glancing at your neighbor's larynx. Jacob³ says: "In cases of dyspnea depending upon stenosis of the larynx, this organ makes wide respiratory excursions, and the head is thrown backwards, while in cases of stenosis below the larynx, this organ remains still, and the head is bent forward."

About three years ago⁴ I read a paper on "The Clinical Significance of Tracheal Breathing" before the Huron Medical Association, and in it I stated that I was unable to say when or where my attention was first called to this symptom. Recently

after a somewhat extended search, I have been able to find a paper, through which, or through a synopsis of which, the symptom was probably first brought to my notice. The paper is by Dr. John Shrady,⁵ of New York, on "Signs of the Moribund Condition." In this paper, published twenty years ago, he says: "The most valuable sign of inevitable dissolution is the up-and-down movement of the pomum Adami, always providing it be persistent."

In an extensive article on "Death, its Modes, Signs, and Premonitions," appearing in the *Buffalo Medical Journal* nineteen years ago, the writer gives the credit of first pointing out this symptom to Dr. George F. Shrady. Whether this is a confusion of names, and he should have said John instead of George, I am unable to say.

These are the earliest references to the symptom that I can find in the literature at my command, but it appears to me that a symptom that is so easily recognized by both sight and touch must have been noted by many observers from the time of Hippocrates to the present. In these days of advanced methods of diagnosis by means of the X-ray, blood-counts, estimation of opsonic indices, and other means, which, however, require special apparatus and an amount of technical skill which the busy general practitioner feels that he cannot readily acquire, it is well for us to not neglect those signs and symptoms which can be detected by the unaided senses. Here is a symptom that can be easily recognized by anyone, even if he happened to be blind. The symptom, however, is not quite so positive in its meaning as would appear from Shrady's statement. If, indeed, it were true, as Shrady says, that it is a sign of inevitable dissolution, a knowledge of it would be very valuable. My limited means of observation have led me to form the following provisional conclusions regarding this symptom:

(1) In normal respiration, there are no up-and-down movements of the larynx and trachea, or in other words tracheal breathing is absent.

(2) Tracheal breathing may occur during the course of any severe illness, and when it does usually indicates a serious condition, and very often points to a fatal termination.

(3) The amount of danger appears to be in direct relation to the extent of the movement—the greater the movement the greater the danger.

(4) When this symptom occurs in connection with diseases of the lungs, it is probably not of such grave significance as when occurring in cases where the respiratory tract is sound or only

secondarily involved. The cases I have seen recover and those in which death has been delayed for long periods have mostly been in connection with respiratory troubles. Two of the most pronounced cases I have seen were in patients suffering from asthmatic attacks. One of the patients, however, was able to come to my office, and both recovered. I am not able to say whether or not all severe attacks of asthma are attended by tracheal breathing. No description of asthmatic attacks with which I am acquainted makes any mention of the movement. With regard to the various forms of croup, I am not in a position to state whether or not the presence of this symptom is of any diagnostic value. Shradý in his article says that when this symptom appears in diphtheritic croup, neither tracheotomy nor intubation is available. This statement of Shradý's was made before the introduction of antitoxin, and although I have no personal experience to go by, I imagine that it would need to be modified at the present time.

(5) In old, debilitated subjects, the presence of this symptom, particularly in the slighter range of motion, is perhaps of less significance than when occurring in subjects who, previous to their illness, have been in vigorous health.

(6) This sign may indicate a serious state of affairs when other symptoms by which we are ordinarily guided, such as the state of the pulse, condition of consciousness, etc., do not appear alarming.

(7) If this symptom is present in a case of acute illness, and the patient recovers, improvement in the other symptoms, as a rule, runs parallel with the gradual cessation of the tracheal breathing.

(8) I am inclined to think that this symptom is present in the suffocative stage of nitrous oxide and ether narcosis, without indicating any particular danger; but as I have had very little experience in the administration of these anesthetics, I am not in a position to speak positively.

(9) In a case of acute abdominal trouble, where the diagnosis was in doubt, and this symptom was present, I would venture to suggest that it would be an indication for exploratory operation, as the abdominal lesion that would produce this symptom would probably be a serious one, and operation by a skilled operator, and with favorable surroundings, would likely give a better chance for recovery than expectant treatment.

(10) Although occasionally other symptoms may point to a speedy fatal termination before the onset of tracheal breathing, yet so far as my observation goes, death is nearly, if not quite,

always preceded for a longer or shorter period by this sign, the period-ranging as a rule from a few hours to three or four days, occasionally to a few weeks, and in one case coming under my observation, to some months. Probably some cases of death, particularly when very sudden, may not be preceded by this symptom, but I am inclined to think that the relative proportion of such cases is small.

Shortly after I read my paper on this subject before the Huron Medical Association; my attention was called to an article⁷ by R. A. Chase, of Philadelphia, describing a closely allied but different respiratory symptom, which he terms sterno-mastoid breathing. Chase thus describes it: "After grave symptoms have set in, and generally not very long before death supervenes, it will be seen that the head of the patient moves up and down in a rocking fashion, synchronously with the breathing, or rather it may better be described as a forcible raising of the head and chin, giving a fanciful beckoning motion to the head. This action, a veritable death's call, is brought about by the strong contraction of the two sterno-cleido-mastoid muscles in an effort to facilitate breathing. Every other symptom of the dying state may at times improve or even pass off, but after sterno-mastoid breathing has once begun, the patient never revives, passing at varying rates into the decline, surely and progressively to the end. One may see whimsically in it the portal to the valley of the shadow of death, that once entered no one ever turns back."

In a record of one hundred cases observed by himself and colleagues, the duration of this symptom was found to range from seven hours to one minute. The medium length of time it lasted before death was twenty minutes. Chase formerly had the impression that this important sign was never absent in the dying, being present even in cases of sudden death, appearing in the one or two final gasps. In recent years, however, this belief has had to be modified, and he is assured by a longer experience that there is a small proportion (from five to ten per cent.) in which it may not be detected. In one or two cases he has known this symptom to cease for a few moments, only to be promptly resumed.

Since reading Chase's paper, although I have had several patients under my care die, I have only had one case in which I was able to see the patient close enough to the time of death to observe this symptom. In my notes of his case, which was of a sub-acute nature, I have mention of the fact that tracheal breathing of medium extent was present twenty-five days before death. Fifteen hours before death it was noted as being well marked,

and eleven hours before death as very marked. About forty-five minutes before death, sterno-mastoid breathing, as described by Chase, was noted.

It appears, therefore, that these two respiratory symptoms are of serious import. When tracheal breathing occurs, the patient is as a rule in a serious condition, and in many instances will not recover. When sterno-mastoid breathing sets in, if the observations of Chase are correct, the patient never recovers.

It is rather curious that neither Chase nor Shrady appear to have been acquainted with the symptom to which the other attached so much importance.

I shall not, in this paper, attempt to give any explanation of these symptoms, beyond the fact that I consider they are due largely, if not entirely, to excessive and uncontrolled action of the accessory respiratory muscles and muscles associated with them in action, and that they indicate a last desperate effort on the part of the recuperative forces of nature to overcome the forces that are tending towards the destruction of the individual life of the patient.

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THE PATHOGENIC INFLUENCE OF THE EYE ON THE EAR.*

BY G. STERLING RYERSON, M.D., L.R.C.S.
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An important and interesting article has recently been published by Dr. Marcel Rollet in the *Revue Hebdomadaire de Laryngologie, d'Otologie et de Rhinologie*, and translated by Dr. Park Lewis, of Buffalo. Rollet shows clearly that, under irritation of eye disease, such as disease of the cornea, iris and choroid, the phenomena of tinnitus may be produced. I have observed this a number of times, and subjoin two cases in illustration of the fact.

C. E. J., aged 51, first consulted me April 17th, 1905. Vision Right—15/20, 2 Sn; V. L.—15/0, 6 Sn. With minus 4.50 V. R.—15/50. With minus 7, V. L.—15/50. He complained of floating spots, pain in using the eyes and occasional headaches. Examination with the ophthalmoscope showed floating opacities in the vitreous, especially in the left eye, choroiditis in region of the macula, and a considerable degree of myopia, as indicated by the refraction as above. On October 18th, he came back, stating that he had been accidentally struck over the left eye. Vision hazy. With the ophthalmoscope, no fresh hemorrhages are visible, but the upper and outer section of the retina looks hazy and indistinct. From this on he returned, complaining that the vision of the left eye became suddenly hazy at times, and that at the same time he noticed a noise in the head of a buzzing or singing character. Examination of the ears gave a negative result. Weak solutions of dionine and fomentation with decoction of poppy capsules gave relief, and with the subsidence of the eye symptoms the noise in the head ceased. This occurred several times. It would appear that there is a tendency to detachment of the retina in the left eye. He thought he heard the singing in both ears, but it was most noticeable in the left, corresponding to the left and most myopic eye.

Miss J. H., aged 17, came to me May 19th, 1909, complaining of headache and defective vision. Vision both eyes—15/0, 2 Sn. With minus 8, left eye—15/100; with minus 9, right eye—15/100. Examination with the ophthalmoscope shows media clear, extensive choroidal changes in region of the yellow spot, pallor of both optic nerves. A slight degree of nystagmus is present. She

says that she could never see well at any time. The noises in the ears she compares to the boiling of a kettle. The noises are not constant, but recur when her eyes and head ache. Examination of ears give negative result. Hearing normal. It would appear that in this case, as in the former one, there is a tinnitus set up by ocular disturbances, which tinnitus appears and disappears with the increase or decrease of the ocular irritation. I have thought it worth while to publish these cases, as it is only by the accumulation of facts that we can arrive at a correct conclusion as to eye-ear correlation.

A CASE OF OPIUM POISONING.*

A. TAYLOR, M.D., GODERICII.

I bring this paper before you for two reasons. In the first place, I was asked to do so by Dr. Johnson, for the purpose of putting it on record. The second reason is the age of the infant—2 months 19 days—and her recovery after being in a state of coma for six hours.

When I first saw the child she was very pale and livid. The respiration was very slow and accompanied by mucous rales. They were so slow that each breath seemed her last. There was no time to count them accurately, but I don't think they were more than 5 or 6 a minute. The pulse was very feeble—almost imperceptible. The skin was cold and bathed in perspiration; pupils much contracted. These were the chief symptoms; but as I knew that the child had taken a grain of opium that I had left the previous evening for an adult patient, I did not waste much time in examining them.

It was a serious case, and one that I did not hope would recover, so did not hesitate to use a heroic remedy. I immediately injected 1-50 grain of atropine hypodermically, and asked the nurses to bring me ice-cold water while I was preparing the hypodermic solution. I also asked them to take all the clothing off the child, and to have plenty of warm blankets ready so that when one got wet we could put the child in a warm, dry one. After administering the atropine hypodermically, I commenced dashing ice-water over the face, chest, and abdomen of the child, then had the nurse rub her dry with warm towels and turn her over, when I would repeat the process on the back of the child. I continued this treatment for three hours, when at last we were rewarded with a tiny little cry, which grew stronger and stronger until it became quite boisterous—much to the relief of the nurses and myself. The breathing became more natural, the pulse much stronger and the pupils dilated.

Now, gentlemen, there was no mistake about the quantities. I bought the opium in compressed powders of one grain each, and the atropine was a tablet which I took out of my hypodermic case. There cannot be the slightest doubt about either the amount given or the antidote used. I forgot to mention that I used artificial respiration at first with what I thought good

*Read at Meeting of Ontario Medical Association, June, 1909.

results. I have no hesitation in stating that the little patient's recovery was in a great measure due to the atropine used. I do not believe that it was a mere coincidence. I question very much the recovery of the child by the other means used.

Dr. Reese, in his latest edition of "Medical Jurisprudence and Toxicology," states that "atropine has long been regarded as specifically applicable, but the trend of opinion at the present day is against this view." Reichert, who studied the physiological relations of the two drugs carefully, regards atropine as applicable only in the second stage of morphine poisoning, and then only in limited use. He suggests that an antidote may be found in adrenalin. I have had no experience with adrenalin, but I am satisfied that if there were no antagonistic properties in these two drugs, the remedy used to cure the little patient would have produced the result I was so anxious to prevent. It is needless to mention that we used friction to the limbs and body of the child, as well as every means to keep her as warm as we possibly could, while dashing cold water on her.

My object in bringing this paper before the members of this Association is to draw attention to the age of the little patient, and the accuracy of the amount of the drugs used. Either of them would have produced death if given alone, proving that the one must be an antidote to the other, making very little difference which was used in the first place.

Selected Article.

DIETETICS: ITS APPLICATION TO THE TREATMENT OF CHRONIC DISEASES.*

BY WILLIAM HENRY PORTER, M.D.

Professor of Pathology and General Medicine, New York Post Graduate Medical School and Hospital.

All that will be attempted in this paper will be a general consideration of a few practical points, of value to the general practitioner.

As regards their origin, all foodstuffs are divisible into two general classes—vegetable and animal. These two are further divisible, chemically speaking, into four distinct classes, to wit: the inorganic, which includes water and salts of various kinds; two classes of simple heat-producing substances, one including cellulose, starch and sugar, the other composed of all kinds of fats; the fourth including the pure proteid and the proteid-like bodies, or the constructive, tissue-building protein compounds. For a still clearer understanding of the subject, this fourth class is divided into two; one including the purely proteid substances, the other the proteid-like compound, to which an atom of iron and phosphorus is attached in its synthetic formation. This latter subdivision or fifth class, for convenience and a better comprehension of the subject, is classed as a hemoglobin- and lecithin-yielding one. This particular form of proteid-like substance is absorbed from the lumen of the alimentary canal into the enterohepatic circulation and conveyed to the epithelial cells of the hepatic gland, where it is oxidized into hemoglobin and lecithin, thus furnishing to the system these two much-needed compounds. The hemoglobin thus formed replaces the daily loss, while the lecithin passes on to the nervous system, there to be oxidized into the protoplasmic masses constituting the nerve cells. When lecithin is oxidized in the nerve cells in this manner it yields heat energy directly to the cells of the central nervous system.

Outside the five classes here enumerated no others of importance are found in the food-stuffs.

It should also be remembered that all organic substances are

* Read before the American Therapeutic Society, May 8, 1903.

found in many different isomeric forms, but these isomers should not be mistaken for radically different compounds so far as the number of atoms is concerned. The difference is rather in the relation that the atoms bear to each other. This often causes the proteid bodies to assume different physical forms, thus apparently multiplying varieties while they all still remain proteid bodies. The same is true of the glucose molecule.

With this simple outline of the primary origin and chemistry of foodstuffs, we are in a position more closely to study their economic value, digestive and assimilative possibilities as applied to the dietetic management of chronic diseases.

Both the vegetable and animal foods contain these five essential classes, all of which are necessary for the maintenance of animal life. This being true, why is not one type of food just as available as the other? If it is not true, what advantage has one class over the other? These questions can be solved only by a close comparison of the relative proportions of the five classes as found in the two primary divisions, taken in conjunction with the demands of the physiological economy for these five different groups of substances. Chemicophysiological investigation has demonstrated that a certain amount of each of these five classes must be supplied daily to insure the best nutritive results. Water and salts, a sufficient amount of the purely heat-producing compounds, a certain amount of tissue-building or pure proteid material, and the requisite quantity of hemoglobin- and lecithin-yielding material must be supplied. All this must be accomplished and still keep well within the oxygenating capacity of the system. In this connection it is well to note that, in health, nature permits a quite wide latitude between the possible intake of food and the oxygenating capacity of the animal economy. Were this not so, it would be impossible to maintain a perfect state of health. In connection with disease, however, this latitude between the intake of food and the oxygenating capacity of the system is often reduced to a very dangerous point, so much so that it becomes one of the exciting factors in the maintenance of the pathologic process. Even with the largest possible latitude between the intake of food and the oxygen supply, neither the vegetable nor animal diet alone, so far as composition is concerned, is absolutely perfect. The latter, however, so far as the human economy is concerned, is more nearly perfect than is the vegetable class, as we shall see a little later in our analysis of the two.

Looking a little more deeply into the exact and comparative composition of the two classes of human diet, it will

be noticed that the vegetable class contains less water than the animal, while the salts are more evenly distributed between the two. The vegetable class contains a very high percentage of cellulose, starch and sugar, or glucose-forming elements; while the animal, excepting milk and its derivatives, is absolutely deficient in this respect. The vegetable class contains a very low percentage of fat, while the reverse is true of the animal foods. In the purely proteid group it is pretty evenly abundant in both classes. If there is any advantage as to quantity, taken as a whole, it will be found in favor of the vegetable class. With the fifth or hemoglobin- and lecithin-yielding group, the advantage is largely on the side of the vegetable class of foods; in fact the animal class is deficient in this respect.

Having found these five classes in both the vegetable and animal foods, the next question is, what are the requirements of the system as to the exact amount of each of these groups to maintain the highest grade of nutrition? Careful observation and close study of the chemistry and physiology of the animal economy seem strongly to indicate the necessity for a continuous and quite uniform supply of each of these five classes to secure and maintain the best nutritive activity. This applies particularly to the last four classes—the glucose-forming, the fats, proteids, hemoglobin- and lecithin-yielding substances. If anything, it is more important with the last two of the four than with the first two; they being tissue-builders, while the others are only heat-producers. How the first three of this group of four—or the glucose, fats, and pure proteids—shall be proportioned, is the all-important question.

If we turn to nature and the composition of milk, it will be found that the three are quite near together in percentage amounts, but with a slight preponderance in the glucose column. This is true also in a large measure in the more acute processes and even in perfect health. The vegetable class is so constructed in its synthetic formation that it is very difficult of digestion, while all animal substances are easy of digestion. The difference is so great that from 16 to 80 per cent. of the vegetable foods pass through the alimentary canal undigested, while with the animal foods the loss ranges between 2 and 9 per cent. From this fact alone, it is easy to understand the greater economic value of the animal as against the vegetable class. It shows also why eating too abundantly of animal food is followed by conditions of suboxidation, especially if there is lowering in the oxygenating capacity. At the same time it has been proved conclusively that neither class is absolutely perfect in all respects

for general use during the whole period of human life, that is, if the aim be to secure the highest results, both mentally and physically. While it is true that some animals are so constructed that they can handle to better advantage vegetable foods than is the case with other species, it is not true that man can digest vegetable food easier than the animal class. Therefore, between these two extremes there will naturally be found two other forms of dietaries, one which deserves to be classified as a well regulated or ideal mixed diet, the other an imperfectly regulated diet, in which the vegetable and animal class are less perfectly adjusted.

FOR AN ABSOLUTELY RESTRICTED DIET.

Buttermilk, skimmed milk, or milk, or some of the fermented milks (kumyss, zoolak, kefir, sumal). Beef tea, bouillon, and plain mutton, chicken, clam or oyster broth.

AN IDEAL MIXED DIET.

For Breakfast.—Two eggs, eight ounces of milk, two ounces of wheat bread and butter.

For the Mid-day Meal.—From one-quarter to one-half pound of beefsteak, eight ounces of milk, three ounces of wheat bread and butter.

For the Night Meal.—From one-quarter to one-half pound of beefsteak, eight ounces of milk, two ounces of bread and butter.

At Bedtime.—Eight ounces of milk.

Beefsteak is taken as the working standard among the meats, as it is the most easily digested of all the foodstuffs. Under the heading of meat is included lamb, mutton, occasionally veal; all kinds of fish, including the shell forms, such as oysters, clams, lobsters, and crabs; poultry and game of all kinds.

The meats to be broiled, boiled or baked.

The fish to be boiled or baked.

The oysters and clams to be eaten raw or stewed. The lobsters plain boiled.

A little crisp bacon may be taken from time to time, also ham and corned beef, *without cabbage*.

Eggs may be taken boiled, poached or scrambled.

The milk is best taken warm, or with a little lime-water added.

Wheat bread is taken as the standard, because it is the most easily and perfectly digested. It should be at least twenty-four

hours old, or toasted; rye, graham, zwiebach, or the health food breads may at times be substituted.

Weak coffee, without milk or sugar, or with a dash of milk, may be taken freely as a beverage. Coffee taken clear aids digestion, but with milk and sugar often disturbs digestion.

ADDITIONS TO ENLARGE THE ABOVE DIET.

In the line of vegetables: string beans, green peas, lima beans, spinach, lettuce, asparagus and cauliflower. These are chosen because they are the least likely to excite intestinal fermentation of an abnormal character. They should be well cooked, and only one vegetable at a meal.

When a vegetable is taken with the meal there must be a reduction in the quantity of meat or milk as given in the above table.

FOODSTUFFS TO BE AVOIDED.

All fruits, either cooked or raw; all cereals and breakfast foods, nuts, sweets and pastry of all kinds, potatoes in all forms, onions, tomatoes, turnips, parsnips, carrots, celery, radishes, cabbage, egg- and oyster-plant, corn, etc.; pork in all forms, except as above stated. Rich gravies and all forms of soup are excluded. The latter, first, because they tend to destroy the keen appetite which makes possible the eating of plain and substantial food; second, because they destroy the appetite and stimulate a strong desire for the entremets and highly seasoned foods; and, third, because the mixed, cream and rich stock soups tend to excite undue and putrefactive fermentation in the intestine. Rich gravies, because they disturb the digestion.

Potatoes, that are so commonly used, are excluded for three reasons: first, because they have a high percentage of starch and a low percentage of proteid; second, because they are so apt to be taken three times daily, and are so often eaten fried; third, and chiefly, because of the ease with which the starch contained in the potato is digested and assimilated within the system. In consequence of this rapid utilization of the potato starch, which yields to the animal economy only heat, the oxygenating capacity of the system is exceeded, and there is not a sufficient amount of oxygen left within the body to perfectly oxidize and assimilate the proteid constituents of the food that must be accomplished if a perfect state of health is to be maintained. In the repair of the diseased conditions it is still more necessary that the proteids shall be perfectly oxidized and assimilated, hence the absolute necessity to exclude the potatoes and food products enumerated.

Fruits are excluded, first, because they are usually picked before they are fully ripe; second, because they are in a state of partial putrefaction, and are often covered with bacterial life when eaten, and often taken in excessive quantities. Having reached the alimentary canal in this state, they excite undue and putrefactive fermentation of proteid constituents contained within the intestinal canal, and thus prevent the perfect digestion and assimilation of the proteid elements of the food.

When these rules are followed, a good variety in the dietary can be secured, and a high grade of nutrition established and maintained. Disregard of these rules will sooner or later result in disease of one kind or another.

The close adherence to these rules, with suitable medication, will result in the cure of many a diseased process, which otherwise will make life miserable and ultimately cause an untimely death.

The ideal mixed diet of the author is so adjusted that it contains the requisite percentage of the five classes supplied in the most easily digestible and assimilable form possible. It furnishes the requisite amount of heat production equally distributed between the hepatic and pulmonary circuits to bring about a harmonious and automatic balance of action between innervation and inhibition of all parts of the body, thus producing perfect physiologic action in this respect; it supplies the requisite amount of pure proteid material for tissue construction and regeneration; it supplies the full amount of hemoglobin- and lecithin-yielding material, all of which is fully accomplished well within the oxygenating capacity of the system. This form of diet is best secured by preponderance of the animal class, and by keeping the vegetable class well in the minor quantity. The less perfect mixed diet is one in which the reverse is true. This latter form is often spoken of as a vegetarian diet, implying thereby that vegetables only are eaten; but a truly vegetable diet must exclude absolutely all animal foods, even in the process of cooking. In like manner, the animal diet must absolutely exclude all substances of a vegetable nature. It is the loose manner in which these terms are used that has led to much error in the discussion of this very important subject, and hence many of the deductions have been erroneous.

From the foregoing it is but just to argue that a well-regulated or ideal mixed diet must yield the highest grade of nutritive activity, both in health or disease, be the latter either acute or chronic. With such diet, in conjunction with scientifically applied therapeutics, marvelous and at times almost miraculous

results are often secured in the management of chronic diseases. Just how the details of this dietetic adjustment can best be accomplished must be left, in a large measure, to the judgment of the individual practitioner; for he alone knows the idiosyncrasy of the patient under treatment. By selecting from the general dietary, which is here given, such of the allowable foods as will best agree with the individual case, and ruling out absolutely those excluded, an ideal and easily digestible and assimilable diet can be secured; one that will furnish the right amount of proteid, fat, glucose-forming material, and a full supply of hemoglobin- and lecithin-yielding material. At times the quantities here given may have to be shifted a little in accordance with the weight, oxygenating capacity of the system, and work to be accomplished.

From this brief study the following deductions naturally follow:

1. That all foodstuffs are divisible primarily into two distinct classes; purely vegetable and purely animal.
2. That both are further divisible into five distinct groups of chemical substances.
3. That neither class is absolutely perfect in composition as regards the five subdivisions.
4. That the animal approaches more nearly to perfection than does the vegetable class.
5. That the animal class is more easily digested and assimilated than is the vegetable.
6. That the animal is more economic than the vegetable.
7. That to secure a perfect or the ideal diet the two must be used together.
8. That between the two extremes, we have two other dietaries, one in which the two classes are perfectly blended, the other in which the two are less perfectly adjusted.
9. That the latter is often spoken of as a purely vegetable diet, while in reality it is only a form of mixed diet, hence there is much confusion in the minds of many who discuss this subject.
10. That this inaccurate use of terms has also led to misconception and error in deductions.
11. That when an ideal diet is secured, one which just suits the individual, marvelous results can be secured when used in conjunction with scientifically directed therapeutics.—*The Post-Graduate*.

Progress of Medical Science.

MEDICINE.

IN CHARGE OF W. H. B. AIKINS, F. A. CLARKSON, AND BREFNEY O'REILLY.

Postural Lung Dullness.

Albert Abrams, in the *Medical Record* of April 3rd, 1909, describes what he designates "atelectatic zones" in the normal subject, which are demonstrated both by X-rays and percussion. They correspond roughly to the points of election of tubercular infections of the lungs, and are frequently present in "pulmonary anemia." In healthy persons, Abrams also describes "acute lung dilatation," a condition in which a hyperresonant note on percussion is obtained in the varial individual. It is essentially an emphysema; on applying a solution of cocaine to the nares both this and the atelectatic zones can be made to disappear, the dilatation fibres of the bronchioles being inhibited reflexly and the normal note substituted for hyperresonance, on the one hand, as, if in consequence of a nasal anomaly, the constrictor fibres are irritated, cocaine, by inhibiting this action, will transform dullness into resonance. The pretuberculous lung, according to the author, is essentially an emphysematous lung, is hyperresonant, and on deep inspiration no extension of its borders can be demonstrated, the author believes that as resonance is usually found in early phthisis, and that, as this resonance is in part due to the vibrations of the sternum, providing the osseous note can be eliminated (either by pressure of the hand on the lower sternum or by means of a vibro-suppressor, an instrument much like an old-fashioned tourniquet, provided with a pad and screw apparatus which can be adjusted over the sternum and tightened at will), dullness, say, of an apex can be elicited much earlier in the progress of the disease. The author also draws especial attention to the effect of posture (in the normal) on the percussion note, for example, on leaning forward the anterior zones of the thorax show a defective resonance, the reverse occurring on leaning far backwards, lying on one side, and leaning to one side. The recumbent posture will also yield characteristic changes on percussion. These alterations involve usually a large portion of lung, are markedly influenced by

position, whereas in the atelectatic condition above described the phenomena is localized and can be made to disappear by the "cocaine test," and by eliciting the "lung reflex" (a forcible massage over the involved lung). Abrams attributes Grocca's sign to a passive hyperemia, disappearing as it does on the patient assuming the prone position. He also recognizes the value of applications to the thoracic wall in disease being justified by the action of the "lung reflex," and the use of amyl nitrite in hemoptysis from exsanguination of the lung by promoting the lung reflex of contraction.

B. O'R.

Treatment of Heart Disease.

Barr says that there are very few chronic diseases so amenable to treatment and so compatible with a long life of comfort, if judiciously handled, as those of the heart. Rheumatism holds the first place in its causation. In rheumatic fever there is a marked increase of sarcolactic acid, therefore all foods, such as starch and milk, which give rise to formation of lactic acid, should be omitted. There is also a tendency to fibrin formation, so that everything containing lime, *e.g.*, milk, and its preparations, cheese, gelatin, and animal jellies, should be interdicted. Also, lime raises the blood pressure. An excellent diet for rheumatic fever consists of plenty of hot water, mincemeat and poached eggs, pounded chicken, steamed sole, and other nitrogenous foods. If a carbohydrate is required, well-boiled porridge may be given. Oranges and lemons may be freely used, and later, a fair amount of farinaceous food with plenty of fruit and vegetables, but no milk. Patients with mitral lesions should drink as little fluid as possible, not more than two pints a day, and should be kept on a light dry diet. Alcoholic drinks should be interdicted, tea and coffee with cream may be taken. Lemon squash is a good drink. Tobacco should be forbidden, and in any tendency to edema salt should be eliminated from the diet. Barr then discusses the hygiene, particularly recommending the morning bath from 60 to 90° F., followed by coarse friction. He goes at length into the questions of rest, exercise, and medicinal treatment, under which last head he particularly warns against excessive lime salts in the blood. There is no condition of the heart in which alcohol is beneficial, save spasmodic affections, and in these nitroglycerin, morphine and atrophine are better remedies. Patients with heart disease do better without tobacco. By the method of treatment he details—which should be read in its entirety—Barr asserts that not only may the progress of degenerative heart lesions be stayed, but often their onset may be prevented.—*B. M. J. and J. A. M. A.*

OBSTETRICS AND GYNECOLOGY.

IN CHARGE OF ADAM H. WRIGHT, K. C. M'ILWRAITH, FRED. FENTON
AND HELEN MACMURCHY.

Treatment of Puerperal Endometritis.

Prof. E. C. Dudley writes in his "Principles and Practice of Gynecology": "The endometrium, after an irrigation with a 1:500 formalin solution or some other disinfectant, is swabbed out (using fresh gauze on the forceps), with a 10 per cent. creolin solution or some other disinfectant, and then one-half ounce of Crede's ointment of argenteum colloidal introduced. Thereafter the uterus is not invaded unless some special indications arise.

A dram of Crede's ointment may be rubbed in thoroughly for twenty minutes each day over the back or abdomen. Intravenous injection of 15 grains of a 2 per cent. solution of argenteum colloidal, once a day, is a recent and promising therapeutic resource.

In the treatment of general infections of the peritoneum after operations, Crede's ointment of argenteum colloidal, one dram a day thoroughly rubbed in for two to twenty minutes, and intravenous injection of a 2 per cent. solution of argenteum colloidal once a day in doses of 15 grains, are among the strongly recommended measures.—*Buffalo Medical Journal*.

Diagnosis and Therapeutics of Pyelitis in Pregnancy.

W. Stoeckel (*Zeit. f. gyn. Urologie*) describes three cases of pyelitis in pregnancy, and comments on the diagnosis and treatment. He says that there is no doubt that pyelitis occurs in pregnancy as the result of the condition. The obstruction of the ureter plays a marked part in its causation. In general pure cultures of the colon bacillus are found in the urine from such kidneys. The condition occurs much more frequently on the right side, and is much more severe than on the left. The etiology is not absolutely clear. The manner of the advent of the colon bacillus, whether by ascending infection from the bladder or by wandering of the germs from the intestine into the blood, cannot as yet be determined. The pyelitis is not the result, but the cause of the general infection. There are three locations in which the ureter may be compressed—one at the pelvic entrance, the second where the ureter passes over the

linea innominata, the third where the ureter enters the bladder wall. There is a typical pain on pressure at McBurney's point. By catheterization of the ureter there is found, at a distance of ten to thirteen centimeters from the bladder, a location where the catheter is not allowed to pass, and this is just beneath McBurney's point. The first symptoms may be pain in the back and side. The difficulties of diagnosis vary; it is easy when there are bladder symptoms, difficult when these are absent. Lesions of the gall bladder and infection may be suggested by the symptoms.—*Amer. Jour. of Obstet.*

Treatment of Dysmenorrhea.

In Dr. Herman's paper on the above subject, he sets a definite limit to the meaning of the word "dysmenorrhea." It would seem to me that he holds the view that I have for a long time past entertained, and have only seen set forth in one work on gynecology—(American)—namely, that *all* dysmenorrheas are really due to spasm—and hence, I think, a more expressive word would be "menorrhspasm."

I believe that true dysmenorrhea or menorrhspasm—whether in virgins or married women—arises through nerve causes; that from the consequences of some illness, from anemia, from overwork, worry, or, perhaps, from a condition of the general nervous system, normally prone to over-excitability or want of balance, the nervous mechanism of the patient is functionally upset, and the generative organs are among the first to feel the strain, and a tropho-neurosis is set up, giving rise to a spasm of the uterine muscular fibre at the time of the period. What is required, therefore, for a rational plan of treatment is to co-ordinate these irregular spasmodic uterine contractions, and, accepting Dr. Herman's theory of imperfect development of the spinal or sympathetic centre, to adopt some method that will stimulate this centre to full function.

I know that to many gynecologists the mere mention of electricity is "anathema"; but I can assure Dr. Herman or any other practitioner who has to deal with cases of true dysmenorrhea that if they will try the constant current, in conjunction, if possible, with the static wave current, in the manner that I will describe, they will find that they will often obtain the most gratifying results. I am certainly not going so far as to say that *all* cases will yield to this treatment any more than to any other, but (especially in the case of unmarried girls) there is a natural and proper repugnance to any direct uterine manipulations, and it is well worth trying to relieve the intense pains that so many

girls suffer at the times of the menses, when the attempt can be made without outrage to their feelings.

The method that has given me such satisfactory results on the whole that I think it worth bringing before the profession is as follows:

I first apply the wave current from the negative side of a static machine by means of a long metal electrode inserted into the rectum and pushed well forward in apposition with the posterior wall of the uterus. This procedure is perfectly painless—indeed, it is hardly uncomfortable—and treatment lasts for from ten to twenty minutes. I next apply the constant current, and here the method varies according as one is treating a virgin or a married woman.

In the former case two large copper electrodes (8 by 5 in.) are placed one over the abdomen and the other over the lower lumbar region, with four thicknesses of moist Gamgee tissue between them and the skin, and a current of from 20 to 60 milliampères passed for ten to fifteen minutes. Three treatments a week for one or two inter-menstrual periods will often entirely relieve the pain for many months, and, should there be any return, one or two treatments just before a period will be sufficient. In the case of a married woman, after employing the static wave, I apply the constant current by means of the same two abdomino-dorsal electrodes, only that now both are connected to the same pole of the source of current—usually the positive—while the negative pole is attached to a suitable electrode, which is passed into the uterine cavity. In these cases a current of 10 to 30 milliampères for ten minutes three times a week will in nearly all cases give relief.

I trust that a fair measure of success in my own practice in relieving this most common cause of suffering will be considered a sufficient reason for advocating a form of treatment not usually favored by gynecologists, to supplement those suggested by Dr. Herman.—J. Curtis Webb, M.B., B.C., Cantab., in *British Medical Journal*.

Causes of Mortality in Cancer of the Uterus and its Treatment by Hysterectomy.

F. Jayle (*Presse Med.*, Dec. 2, 1908) says that one of the principal factors in the fatality of cancer of the uterus is the rapid march of the disease. There is an acute form, so rapid that we are unable to combat it, which occurs in women under thirty-five years of age, and acts as if young tissues had not the power

to resist its advance, and offered an extraordinary predisposition to its occurrence. In these cases recurrence is to be expected.

All the cases that the author has seen operated on before the age of forty years have recurred. Another form may be called latent; here the cancer is almost without symptoms. When the first symptom, hemorrhage, appears, the disease is already too far advanced to give hope of cure by removal. This form occurs at the menopause and is a cervical epithelioma. The author believes that every woman over thirty-five years of age should be examined every three months by a competent physician in order to be sure of avoiding cancer. The chief obstacles to diagnosis are the deep-rooted opinion among women that pain, leucorrhœa and hemorrhage are all natural at the menopause. Another obstacle is the failure of the physician to appreciate the significance of the hemorrhage at the menopause. This symptom is never natural at that period, and always demands a careful examination by the physician. Another unfortunate circumstance is the feeling among physicians that cancer is incurable. Most cases of cancer of the uterus are curable by operation, if diagnosed early enough, before the growth has become generalized. Cancer of the body of the uterus gives brilliant results from removal. So does cancer of the cervix, which has not invaded the broad ligament.—*Amer. Jour. of Obstet.*

The Edema of Pregnancy.

Rudaux writes that edema in obstetrical practice is generally regarded as a symptom of albuminuria requiring the treatment suitable for this affection, or as the result of impeded circulation due to the increase in the size of the uterus and consequent abdominal pressure. There is another form of edema which is not accompanied by any trace of albumin, and which appears too early in the pregnancy to be due to the presence of the enlarged uterus. The patient will be found to be suffering from some minor ailment of the liver, kidneys, intestines, or possibly the thyroid or suprarenal bodies. Or she will have gastric disturbance, headaches and neuralgia. A careful examination of the urine will show that, although there is no albumin present, the quantity excreted is below normal. A pregnant woman should excrete from a pint and a quarter to a pint and a half of urine in twenty-four hours, and this quantity often falls to less than a pint. When edema appears it should be systematically measured. Further examination will show a diminution in the amount of urea and chlorates present, while the arterial tension is higher than normal. Treatment entails rest in the recumbent

position, a daily morning dose of magnesia, and diuretic beverages during the day, such as *uva ursi*, with two teaspoonfuls of lactose. Salt must be omitted from the diet, which, however, may include pepper, lemon and vinegar, as well as the following articles: Vegetable soups, white meats, fresh-water fish, eggs, potatoes, rice, peas, haricots, carrots, artichokes, and salads, cream and cooked fruits, bread without salt, and as drinks, milk, Evian water, or some other mineral water.—*La Clin.*

Pregnancy and Phthisis.

Neitner (*Zentralbl. f. Gynak.*) has collected, in a Strassburg thesis, 27 severe and 34 milder cases of tuberculous pulmonary phthisis detected in a series of 5,720 pregnant women. In 41, or 67 per cent., of the cases, the lung symptoms grew worse during pregnancy. In every case where the larynx was involved the patient's condition became aggravated in the puerperium. In 18 cases pregnancy was interrupted by an obstetric operation; in 3 by Caesarean section, for pelvic contraction in 2, and for cancer of the cervix in the third; in 8 by induced abortion, and in 7 by induction of premature labor. In 16 abortion or premature labor occurred simultaneously. In Neitner's series induction of abortion gave the best results, but this obstetric operation was mostly practised on patients where the lung disease was not advanced. The stage of phthisis in any particular case is of great importance in regard to artificial interruption of the pregnancy.—*British Medical Journal.*

Editorials.

ONTARIO MEDICAL ASSOCIATION.

The Twenty-ninth Annual Meeting of the Ontario Medical Association has come and gone. There is a general consensus of opinion that the meeting held in Toronto, June 1-2-3, in the year 1909, was successful in all respects. Great credit is due to Dr. Hamilton and his local Committees for their work in preparing for the meeting, and their methods of conducting both the general sessions and various sections. We cannot say that any one man did as much as Ingersoll Olvsted accomplished for the Hamilton meeting of 1908, but we can confidently assert that the officers on the whole worked with a vigor that has never been excelled during the existence of the Association. We have much pleasure in congratulating Dr. Herbert Hamilton, not only upon his restless energy, but also because of the splendid generalship which he showed during the whole campaign, which, under his leadership, commenced immediately after the meeting in the City of Hamilton. He chose his officers at once, and it was soon apparent that their zeal and energy were likely to produce admirable results. They were extremely fortunate in getting such valuable assistance from our dear friends of the United States, and also from physicians and surgeons of Canada outside the Province of Ontario, especially the cities of Montreal and Winnipeg.

The arrangements for the work in sections were probably the most satisfactory that have been known in connection with any medical meeting in Canada, with the exception of the two meetings of the British Medical Association. The section meetings were held during the forenoons of the three days, and the interest in all was maintained up to the end of the forenoon of the third day. The only remarks of dissatisfaction which were heard during the various morning sessions were from members who wished to attend two or three sections at the same time, but even the all-powerful President could not provide any remedy for such inconvenience.

While we have nothing but praise for the work done during the morning sessions, we have to acknowledge that the papers and discussions of the general sessions during the afternoons and one evening were the most successful features of the meeting. A grand commencement was made on the first afternoon, when Dr. J. B. Deaver, of Philadelphia, read his able paper on "Diffuse Peritonitis." The discussion on this subject was one of the most able and one of the most interesting that the Association has ever known. We have not space in this editorial to refer to this discussion in detail, but we may have something further to say in a future issue. Quite on a par with Dr. Deaver's paper was that of Dr. Emmett Holt, of New York, which was listened to with breathless attention and very deep interest. The subject of his address was, "Results of the Serum Treatment of Cerebro-spinal Meningitis." We sincerely hope that we have not seen the last of Dr. Holt. We can assure him that he will always receive a very warm welcome from any part of the little Province of Ontario. Dr. A. R. Robinson, once a country boy in the county of Peel, in this Province, who has made a great reputation for himself in New York, is of course well known to the members of our Association. His paper during the general session of the second afternoon on "Tuberculosis and Tuberculides of the Skin" proved both interesting and instructive.

The President was exceedingly fortunate in securing one who is well known, highly respected and dearly beloved by all kinds of folks, scientific and otherwise, in this part of the world, Professor William Osler. It was found that the largest lecture room of the University Medical Building would not be sufficient to accommodate those who wished to see and hear 'Osler.' On application the Superintendent of the University Buildings very kindly placed the large lecture hall of the New Physics Building at their disposal. It is needless to say that Osler's address delighted his hearers.

Among the other distinguished visitors there is one especially who will always be welcome to this city, Dr. W. P. Manton, of Detroit. He read a very interesting and very practical paper on "The Ultimate End of Surgery, with Special Reference to the Surgery of the Pelvic Organs in Women," which created a very

interesting discussion opened by Dr. Algernon Temple. Another Canadian, who has made a reputation as an operative surgeon in Buffalo, paid his first visit to the Ontario Medical Association, Dr. Herman Hayd. He read an able and instructive paper on "Umbilical Hernia and Its Operative Treatment, with Special Reference to the Mayo Operation." The members of the Association hope that our dear and genial friend will visit us frequently in the future. While making special mention of our distinguished visitors from other countries, we desire to say on behalf of the Association that the members appreciated very highly the valuable assistance rendered by Drs. Blanchard and Vrooman, of Winnipeg, and Drs. Lockhart and Little, of Montreal.

In our comments thus far we have referred only to the work accomplished under the supervision of the Committee on Papers and Business, under the direction of the President and the Chairman, Dr. Herbert Bruce. We desire to say that the Committee on Arrangements, under the guidance of the President and the Chairman, Dr. Bruce Riordan, did valuable and satisfactory work. The general arrangements were good, and the proceedings carried out without a flaw of any sort. Of course it is well understood that the local profession made no attempt to equal the magnificent and expensive hospitality shown by the profession of Hamilton to outsiders at the last meeting. However, we are pleased to say that the profession of Toronto, in a general way, showed a disposition to extend some kindness and courtesy to our visitors, and especially those who came from a distance. We hope that Toronto is improving to some extent as the years roll by, and that in the near future it will know how to entertain properly all visiting physicians.

There is a general feeling of satisfaction respecting the decision to hold the meeting of 1910 at Niagara Falls. It has been supposed in the past by many living in other parts of Ontario that the profession of Toronto wished all the meetings held in that city. This is not correct, however. So far as we know the majority of physicians in Toronto have always voted for holding the meetings in outside places when they had the opportunity. While there are many reasons for holding all meet-

ings in one city the physicians of Canada appear to prefer the arguments which may be brought forward from the other side, and like some variety as to place of meetings.

The total attendance at the meeting was the largest on record, *i.e.*, 347. The largest number at any previous meeting was 307, at the meeting in Hamilton. We congratulate our dear friend, Dr. H. S. Casgrain, on his election to the Presidency. We are pleased to say that his election to this position was very popular. The following is a complete list of the officers elected: President, H. R. Casgrain, Windsor; 1st Vice-President, H. B. Anderson, Toronto; 2nd Vice-President, J. M. Rogers, Ingersoll; 3rd Vice-President, J. C. Connell, Kingston; 4th Vice-President, J. R. Arthur, Collingwood; General Secretary, F. A. Clarkson, 471 College Street, Toronto; Assistant Secretary, G. S. Strathy, Toronto; Treasurer, J. Heurner Mullin, Hamilton.

The following members were added to the Standing Committees: Credentials, W. H. B. Aikins, Toronto; R. R. Wallace, Hamilton. Public Health, M. I. Beeman, Newburg; J. Sheahan, St. Catharines. Publications, W. A. Young, Toronto; J. Ferguson, Toronto. By-Laws, J. W. S. McCullough, Alliston; E. S. Ryerson, Toronto. Ethics, J. L. Bradley, Creemore; J. D. Ivey, Cobourg.

FLIES AND MOSQUITOES AS CARRIERS OF DISEASE.

We are glad to note that the laity, as well as the profession, are commencing to realize the fact that flies and mosquitoes are not only exceedingly unpleasant companions, but each is also a serious menace to health.

One of our Toronto papers, the *Mail and Empire*, recently published an article on the house fly, and stated (quite correctly) that an outbreak of typhoid fever in Trenton, N.J., was attributed to house flies. It has been known to the profession for some time that the fly carries typhoid germs, tubercle germs and other infectious bacteria, and distributes them over our food. We are told that one investigator found 100,000 bacteria on the legs

of our fly. We are told by Dr. Lindley, in an address delivered by him before the National Conference of Charities and Correction at Richmond, Va., that Dr. Daniel D. Jackson says the common house fly causes 7,000 deaths annually in New York City.

Our careful housekeepers have been in the habit for many years of fighting the fly in various ways. The old-fashioned fly paper is found to be of but very little use. They depend largely now on the use of screens, and keeping their rooms as dark as possible. If the room is kept dark and small apertures are left the flies will leave the darker room for lighter quarters.

We fight the mosquito in various ways, but chiefly by screens, nets, smoke (smudge) and anointing our faces and hands with some oil preparation, but generally speaking the mosquito beats us in the long run.

It is somewhat remarkable that in a city like Toronto they are increasing rapidly, and we have no doubt that during last year our citizens, but especially young children, suffered more from this pest than for many long years before. The menace to delicate young children is very serious, and the poison from the mosquito sometimes causes death.

We hope that the laity will soon learn that the important method of fighting these serious pests is the adoption of methods of prevention. The flies come from accumulations of filth, and the mosquitoes from foul, stagnant waters. Ordinary cleanliness about our premises and ordinary drainage of all ordinary pools will abolish house flies and mosquitoes.

LISTER'S WRITINGS.

Lord Lister was 82 years of age last 4th of April. It will probably be remembered by most of our readers that some time before he had completed his 80th year many of his friends were anxious to convey to him on his birthday some token of their admiration and affectionate regard for him. On the suggestion of Dr. C. J. Martin, Director of the Lister Institute, a republication of all his scientific papers was decided upon. The following

Committee was appointed to collect and publish all his original papers: Sir Hector Cameron, Sir Watson Cheyne, Mr. Rickman Godlee, Dr. C. J. Martin, and Dr. Dawson Williams. Of these gentlemen three were intimately associated with Lister in his surgical work. Sir Hector Cameron was his dresser, then his house-surgeon, and afterwards his colleague. Sir Watson Cheyne was his house-surgeon first at Edinburgh and then at King's College, London, where later he was his colleague.

We are told by the *British Medical Journal* that the Committee had the advantage of Lord Lister's help, and has done its work with a reverent care worthy of the object on which it has been based. The introduction which they have contributed is a masterly summary of Lister's work, in which the sequence and relation of his varied researches are clearly pointed out. This collection of Lister's writings has now been issued from the Clarendon Press, Oxford. The work is published in two volumes. Price, two guineas.

The writings are arranged under four main heads—Physiology, Pathology and Bacteriology, the Antiseptic System, and General Surgery. Some special addresses and lectures, which could not fittingly be placed under any of these headings, are given a fifth heading at the end of the second volume.

The *Journal* also tells us that the papers in each of the five parts are arranged chronologically, and the reader is thus enabled to follow the evolutions which are culminated in the present methods of septic and antiseptic surgery. The *Journal* goes on to say: "Listerism, it must be repeated, is not a system of dressing, but a principle. That principle is the exclusion from the wound of all agencies which have the power of causing putrefaction. So far from the aseptic system being, as is still said by some, the negation of antiseptics, it is the logical outcome of the principle on which the antiseptic system was based."

We are glad to be able to say that Lord Lister is now enjoying fairly good health, although his naturally strong constitution has been to some extent enfeebled by rather serious attacks of influenza in recent years.

NOTES.

The Sixth Annual Meeting of the Graduated Nurses' Association of Ontario was held in Toronto, May 22nd.

The Annual Meeting of the American Medical Editors Association was held at Atlantic City June 5 and 7.

The International Congress of Nurses will be held in London, England, in July. We are glad to know that there will be a large representation of Nurses from Canada, including Lady Superintendents of General Hospitals.

It is announced that Mr. John Beresford Leathes, M.B., B.Ch. Oxon., F.R.C.S. Eng., Lecturer on Physiology at St. Thomas' Hospital Medical School, has been appointed Professor of Chemical Pathology in the University of Toronto. Mr. Leathes, in addition to his appointment at St. Thomas's Medical School, has also been in charge of the Laboratory for Pathological Chemistry at the Lister Institute.

Dr. William Engelmann, Professor of Physiology in the University of Berlin, and distinguished for his researches into the neuro-muscular mechanism of the heart, died on May 20, at Berlin, at the age of sixty-five. Professor Engelmann was professor at Utrecht before his removal to Berlin.

Dr. Edward Liveing has resigned the Registrarship of the Royal College of Physicians of London, which he has held for twenty years. The Council of the College has placed on record its appreciation of the devotion and energy with which Dr. Liveing discharged the duties of his office during so many years.

In a recent address to the Psychiatric Society of Tokio, Dr. Lilienstein stated that he had found many of the Japanese hospitals constructed after German models, and well managed, but that he was astonished to find apparently no provision made for the insane. According to his calculations, there should be among the 50,000,000 inhabitants, at least some 750,000 demented persons who should be in asylums; but even taking into account the private places, there is room only for about 2,000. Notwithstanding its wonderful army medical service, Japan seems to be very backward in comparison with Europe and America in this important department. As regards the different varieties of mental diseases, there seems to be little difference between Japan and our own country.

Personals.

Drs. F. A. Drake and H. Meek, of London, leave the latter part of this month to attend the Budapest Congress.

Dr. A. W. Macpherson has been appointed Medical Health Officer and City Physician of Peterboro in the place of James Bingham, resigned.

Professor William Osler remained a few days in Toronto after delivering his address before the Ontario Medical Association, and sailed for England June 12th.

Drs. O. M. Jones, of Victoria, S. T. Tunstall, Vancouver, and J. M. King, Cranbrook, are delegates to the International Medical Congress from the College of P. and S. of British Columbia.

Miss Kilgoure, a graduate of the Class of 1892 (T.G.H.), who lived in Cincinnati for many years, has been appointed assistant superintendent of the Training School for Nurses, Toronto General Hospital.

Dr. James S. Sprague, after a very successful practice of over thirty-five years at Stirling, has removed to Perth. The doctor is well known as a contributor to journal literature and is the author of "Medical Ethics and Cognate Subjects."

The following physicians have been elected officers of the Canadian Purity Education Association at its Annual Meeting held June 18th: Dr. A. D. Watson, President; Dr. J. E. Hett, 2nd Vice-President; Dr. W. J. Fletcher, 3rd Vice-President.

We learn from Dr. J. N. E. Brown, Superintendent of the Toronto General Hospital, that a series of Clinics has been established at the Hospital. A number of cases are shown every Saturday morning at 10.30, and some member or members of the Staff will make clinical remarks on the cases. These clinics are open to all members of the medical profession.

Drs. H. A. Bruce, G. S. Ryerson, H. Harris, A. McPhedran, A. Primrose and W. H. B. Aikins, of Toronto, leave for Europe this month. They are accredited as delegates to the International Congress at Budapest.

It is expected that Drs. H. S. Birkett and F. Shepherd, of Montreal, who have left for England, may also attend this meeting.

We learn from the *Canadian Journal of Medicine and Surgery*, that Dr. Roy Thomas, assistant to Dr. N. A. Powell, and Dr. Harold Clark, son of the Dean of the Medical Faculty of Toronto University, have, after competitive examination, been appointed to the House Staff of the City Hospital on Blackwell's Island, N.Y. Among other gentlemen appointed were two from Hartford, two from Johns Hopkins, two from Columbia, and one from McGill University.

Obituary.

J. N. ANDERSON, M.D.

Dr. Anderson, of 5 College Street, died suddenly of apoplexy June 10th, aged 65.

GEO. LLOYD MacKELCAN, M.D.

Dr. Geo. MacKelcan, of 110 N. Catherine Street, Hamilton, died June 9th, aged 74. He graduated from McGill College in 1860, that is, fifty years ago.

INTERNATIONAL CONGRESS OF MEDICINE AT BUDAPEST.

We have received from the Grand Secretary of the Grand Lodge of Canada a copy of an invitation from the Grand Secretary of the Grand Lodge of Hungary to meet any brethren who may attend the International Medical Congress at Budapest in August and September next. The substance of the invitation is as follows: "From August 28th to September 4th, there will be held at Budapest the Sixteenth International Congress of Medicine. Thousands of physicians have announced their intention to attend, and we hope that many brother Masons from Canada will also be at the Congress.

"In order to proffer the visiting brethren our fraternal greetings, we have arranged a solemn meeting. At this meeting we will take up the history, development and organization of Hungarian Freemasonry.

"In order to facilitate our effort to greet the brethren from all parts of the world, we would request that all lodges working under your jurisdiction extend this invitation in our behalf to any members who contemplate attending the Congress, and ask them to advise the Symbolic Grand Lodge of Hungary, through the medium of their respective lodges, in addition to personally informing the office of the Congress.

"Many of the physicians who are active in the direction of the Congress are also members of the Grand Lodge, and they will do their utmost to render assistance to visiting brethren, procuring comfortable lodging, and doing everything possible to render their visit agreeable, that they may return to their homes with the best impressions and fortified in the fraternal love which unites all the Freemasons of the world.

"Visiting brethren are requested to come prepared with regalia, and to address their certificate of membership to Otto Trautmann, Vi. Podmaniczky St., Nr. 45, Budapest, Hungary.

(Sgd.)

BAKONYI,
Grand Secretary.

DR. ARPAD, of Bokay,
Professor of Pharmacology, University of Budapest. Grand
Master.

(The Canadian Craftsman.)

Meetings of Medical Societies.

THE CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

The ninth Annual Meeting of the Association was held May 19th and 20th at Hamilton. Two sessions were devoted to general business, consideration of reports and election of officers.

On the first afternoon the Association was addressed by Dr. Wm. Charles White, of Pittsburg, Pa., on the subject of "Municipal Supremacy in Tuberculosis." It was an address replete with interesting points, and the manner in which the fight is being waged against the disease in Pittsburg elicited hearty applause.

It was well for every city to find out the amount of tuberculosis within its boundaries and then commence a systematic attack on it, not letting up until the foe was conquered. The city should look at the question in a purely businesslike manner, and as a business proposition. Until the city took up the struggle in that way, there was a small chance, indeed, of the fight being successful. In the disease there were many things to be considered besides the victims being made well—there was the protection of others, the protection of the children of all the homes. Tuberculosis, it had been ascertained, was to be found in every person to some extent. The State of Illinois was interested in the matter, and it had ascertained that it was paying \$1,200,000 per year in educating children who died of tuberculosis before they reached the age of 18 years. That was a startling figure, but there was a way to reduce the cost to a yearly minimum. People sat down selfishly in their arm chairs and paid no attention to the disease, but just as soon as a member of their family became affected they would be the first to demand why such things were allowed to exist. The reason the question had not been taken up systematically by municipalities was that it was nobody's business. The responsibility was with three groups—the state, the municipality and charitably inclined people. Those three should get together. Another thing that should be advocated was playgrounds for the children.

The speaker thought that a municipality should have a central officer—the entire business of fighting the disease centralized in one office. It was the business of a city to carry it on

there. One of the frequent things, however, was that a city health officer was a political officer and the office was frequently held there for life by men who had no business to be there.

He pointed out that where hospitals where incipient cases were treated were concerned, the patients could not be turned out suddenly to do a full day's work. They had to be given work gradually, say, fifteen minutes the first day, and so on. Each individual in the sanatorium owed something to the state for the education he received about the disease, and it was economically wrong to keep them in such institutions for nothing. He thought the problem was best provided for by the establishment of farm colonies, where the patients could be given easy work until they had arrived at that condition where they were fit to go out and do a full day's work.

To the speaker, there was nothing more important in that connection than the outlook for the future, and to that end he advocated each municipality being saturated with knowledge of the disease and its workings. He had very little sympathy for meetings drummed up for special occasions. Each adult person had his or her own ideas about tuberculosis, and it was next to impossible to change those ideas. But in the schools and Sunday schools all municipalities had the making of the future municipalities, and without much expense the children could be educated about the dangers of consumption, day after day, year after year, until they were made to understand the disease and its dangers—saturated with knowledge of it. And what they said in their homes might influence their parents, so that all along the line more care would be taken and better measures promulgated for the prevention of the disease. In ten years, were those measures followed, the entire community would be saturated with an all-important knowledge of tuberculosis, and the worth of that knowledge could not be over-estimated. That was being done in Pittsburg, and the idea was to get the city to take over the work. In that connection a health officer must sink his personality, and no names should be allowed to get into the newspapers. It had been found that the press was always open to fair and frank dealing, and he considered that the press was a potent factor in the fight, along with the profession. In Pittsburg, after securing the consent of the 37 school trustees to introduce the subject into the schools, the sanatorium people had got the clergy together, and through that source had given the fight an added impetus. The public mind was being educated, and by that education the public was being made to understand that the medical profession was not the stumbling-block which it thought it to be.

The speaker said he had not been in a hospital in Canada where they took proper precautions against tuberculosis. They said that they did not admit tuberculosis patients, yet they admitted operation and maternity cases without a murmur. Furthermore, the nurses were not instructed in the nature of the disease. In Pittsburg the hospital nurses had been given that instruction. Sputum cups had been installed at every bedside in three hospitals, no matter what the malady. The nurses were next tackled. But it was not the fault of the nurses so much as of the authorities of the institutions which undertook to instruct them. Then the sanatorium officials had got after the orphan asylums, the asylums for insane and other institutions. So far as the insane were concerned, the patients could not be made to understand the danger of the disease, and the only course open was to segregate them. Visitors and doctors and nurses were exposed at such places unless care was taken along that line. But it should be understood that tuberculosis patients were not dangerous if they were properly cared for. He asked his hearers to banish that fear from their minds.

The sickly children in the Pittsburg schools were also being looked after. The city is going to build a \$5,000 open-air school for them, and possibly provide them with milk and rolls at 11 o'clock every morning to keep up human resistance. One of the most important things was to keep up human resistance. A hospital had also been established for confinement cases. The speaker advocated the municipal supervision of the milk supply, and in the summer months the pasteurizing of all milk in the homes. In concluding his talk about Pittsburg, Dr. White said it was the custom of the sanatorium authorities to use the mails in their campaign against the disease, setting forth the facts as pertinently and concisely as possible in pamphlet form.

So far as Ontario was concerned, it seemed to him that Mr. Downey's bill should have passed. But the legislators could not be asked to pass what they could not understand. The way it should be done was to arouse public opinion, and then the Government would do what the people wanted. He suggested that the people in Hamilton should get systematically working in a campaign against the disease, and then the Government might follow suit. It was a municipal work, but the Government could give dollar for every dollar raised locally. He pointed out that subscriptions could be raised to engage a man with brains as a central officer. The central officer could then go to some large American city and see what was being done there in the fight. He would then return and the fight would be on. But it must

be done on a central office basis, and on the strength of that the municipality could apply to the Government for aid. The money so spent would be returned in later years by a thousand-fold. In conclusion, Dr. White stated that the crowning achievement of the sanatorium officials in Pittsburg had been the securing of the appointment of a municipal health commission.

There was a brief discussion on the address, and Dr. White was tendered a hearty vote of thanks.

ECONOMICS AND SUCCESS IN THE TUBERCULOSIS CRUSADE.

At the evening session Prof. Adami, of McGill University, spoke on "Economics and Success in the Tuberculosis Crusade" to an audience which completely filled the auditorium. He spoke of the present knowledge of tuberculosis, and of the practical application of that knowledge in stamping out the disease. The problem he considered essentially a pecuniary one. The main data or factors in the problem he stated thus:

"The infection is singularly widespread throughout the community. It is conveyed in the main from individual to individual, but only when the disease is what we may term open—that is to say, when it attacks the lungs and provokes a discharge of bacilli—is it within the limits of the possible to eradicate the disease. That being so, what are the more economic methods? How can we insure thorough action with the least cost to the community? For, admittedly, if the disease and the danger of infection be so widespread, the cost of eradication cannot but be a very serious matter. The disease is so widespread that, save for the benefit of the individual, it is useless to keep data of individual cases; so many centres of infection are thereby left untreated that no material benefit accrues to the community at large. The magnitude of the problem and of the work before us is appalling, and it is necessary that at the outset we should realize it.

"A large general hospital post-mortem examination here in Canada reveals that every other case shows evidence of having been infected with tuberculosis. The observations of Nageli and others show that in certain crowded communities of the old world practically every individual who attains to the age of 30 bears evidence, slight or extensive, of having been affected. I do not believe that here in Canada conditions are quite so extreme. It is amply sufficient for present purposes to be able to lay down positive evidence that here at least one out of every two adults has experienced a tuberculosis infection. The Canadian census of 1901 gave a mortality of 18 per 10,000 of the population from

consumption, and, as pointed by Dr. J. H. Elliott, of our present population of 6,500,000, over 777,500 are destined ultimately to succumb to the disease. Montreal statistics for the year 1908 give 945 deaths, or over 10 per cent. of the total mortality. The problem before us in Montreal is, leaving out of account altogether the cases of arrested tuberculosis, how are we to deal with 2,800 active cases of the disease? Is it possible to accomplish anything? Those cases, it will be seen, divide themselves into two groups—those in which the arrest of the disease is still possible and those that are incurable. The treatment of these groups is very different.

“ Thus in the first place we have in Montreal, a community of between 400,000 and 500,000, at least 2,800 cases of active consumption. Naturally, our first thought upon establishing the League was that we should embark upon the sanatorium treatment. We knew how effective this was. A very short study of the problem showed us that to cope with the disease by means of sanatorium treatment was out of the question. The initial cost and the yearly expense would be far and away beyond what either the Provincial Government, the city government or the charitable institutions or all of them combined could be expected to offer. The only course open to us at first appeared to be a campaign of education. We compiled and distributed by the thousands leaflets in French and English, instructing the community as to the nature of tuberculosis and best methods for its prevention. Possibly we frightened some people; possibly for a time some of those already suffering suffered yet more, in fear for those in their neighborhood not affected. Nevertheless, we made it our object to proclaim, first and foremost, that the disease was curable, and, secondly, that with care on the part of the patient, infection is easily prevented. Thus, we feel now that the first step has been accomplished. We very soon realized that this was inadequate, and the sanatorium method of procedure being ruled out on account of expense, we looked about to determine upon a practical course to take to aid those in the earlier stages of the disease. We determined to establish a tuberculosis dispensary. Such a dispensary we found could be run at a very moderate expense. We worked in co-operation with our city Board of Health. From it we received reports of every case of death from the disease, and also the services of one of the health inspectors, who was detailed to visit every home where a death had occurred, to disinfect, and report upon conditions there if necessary, and provide the family with literature. The city doctors were invited to report to the dispensary all known cases

of tuberculosis, more particularly among indigents. The general hospitals, which do not accept consumption cases into their wards, co-operate by sending such cases to attend the dispensary, and city doctors are invited to send their indigent patients for treatment, and as the work of the dispensary has become more widely known, patients with long-continued coughs present themselves for examination. The work accomplished has grown steadily, until accommodation is altogether too restricted, and now at the psychological moment generous donors, Col. Burland and his sisters, have presented us with a fully-equipped building, admirably situated in the centre of the city, which we hope to open in the early fall—a gift which will certainly represent not less than \$50,000.

“But will a campaign of popular education or dispensaries master the disease? The dispensary can, it is true, ameliorate the condition of the patient in the earlier stages of the disease; it cannot cure. What it can accomplish is this: Through its inspectors it can detect the chief danger spots in the city, the region of overcrowding where whole families live in a single room, or those most fatal centres of infection—the dark rooms without windows opening up on the exterior, and without adequate ventilation. It can be a potent factor in rousing public opinion and doing away with those hot-beds of infection. But this is not sufficient. The dispensary, as such, has no means of dealing with cases in which the means of a family forbid a patient from being isolated. Unless he is isolated, unless he sleeps in a separate room, the rest of the family is constantly exposed to danger. I do not hesitate to say that these cases constitute the gravest problem in the whole situation. Could we effectively isolate the sick from the well, we would remove the great source of infection. It is sheer impossibility to segregate all. Think of the cost of building and maintaining a hospital for 2,800 people. Even to provide for 100 male and female patients, to give each three months' treatment—and that is inadequate—would, cost of building apart, if the sanatorium were run at ordinary hospital rates, demand a yearly expenditure of more than \$70,000. This consideration of cost alone absolutely bars the sanatorium method as a wholesale system of solving the tuberculosis problem. The same considerations rule out the cheaper so-called shack system, even though the initial cost of building and some items of the cost of maintenance are very materially reduced to the extent that wooden huts are cheaper to build and maintain than modern hospital buildings. There is, however, no material reduction in the cost of food or of the staff.

“ I am arguing, you will see, not against the sanatorium as such, but against the sanatorium as an unduly expensive and, in fact, an impossible method of fighting the disease at large. There is, I believe, no better method of treatment for those who can afford or whose friends can afford it, than to undertake a six or nine months' treatment. I would, in passing, call attention to the one great difficulty of running a sanatorium—that of not adhering to the primary object of such an institution of treating curable diseases. If the bowels of compassion of the committee of management be stirred, or political influence be brought to bear, there is terrible danger that the institution will become filled up with hopeless cases, so that, instead of being a sanatorium, it becomes a hospital for incurables. Inasmuch as patients who should be treated at such an institution are absolutely indigent, I hold that the state and the municipality are bound to make provision for their maintenance. Private effort and charity have abundant field to exercise in other directions.

“ The last few years have seen a notable advance, and it has become fully realized that home treatment is perfectly feasible and possible in crowded cities, like New York. Then, there is the class method. This was introduced by Dr. Joseph Pratt in connection with the well-known Emmanuel Church of Boston. It has, in our opinion, the most in its favor and the least against it. It encourages a patient with hope and confidence; it interests the largest number of individuals in the work of arresting the disease; it presents excellent results, and finally it is the least costly, and comes within the range of practical politics. To those not acquainted, let me rapidly indicate the broad outline of the scheme. As regards the treatment, it resembles the first method in that it is conducted at the patient's home, but has these peculiar features. A given congregation assumes responsibility of the treatment of from ten to fifteen early cases of tuberculosis, appoints a committee to have charge of financial arrangements and to take a personal interest in the patients and their families, a doctor to investigate and to choose the cases, and a nurse to visit and instruct them. Only these patients are accepted for the class who promise solemnly to carry out the treatment in all its details. Failure to do this entails dismissal from the class. When the condition of the patient has become satisfactory, he joins with the other members of the class in meeting the doctor and the nurse once a week in some room provided by the congregation. Here, each in turn reports the number of hours spent in the open air during the week, weights are taken, the gains com-

pared, and a pleasant hour spent comparing notes of progress. Emmanuel Church, Montreal, has followed the example of its namesake in Boston, and has established the first class of this kind in Canada. I would add that the patient so treated should be encouraged to regard expenditures made by the committee as a loan, to be paid back in installments when his health has been regained.

“It must be realized that incurable cases are the most dangerous. They can be rendered harmless when they can be given a room apart, when the bed linen can be boiled and sterilized. When these things are not possible, then for the safety of the community the only place for them is in the hospital for incurables. Here, as with the completely indigent early case, I hold that the care of these patients is not a matter for private charity, but devolves upon the state and municipality. The municipality, whether aided by the state or not, is responsible for the care of these, as for all other highly infectious cases.”

After Dr. Adami's address, the medical men in attendance at the meetings were the guests of the Hamilton Medical Society at the Hamilton Club. After supper had been served, Dr. J. Heurn Mullin, President of the Society, took the chair, and an informal discussion took place on the medical treatment of tuberculosis, led by Dr. Adami and Dr. White.

At the final session of the Association on Thursday morning, the subject taken up was “The Responsibility of the People in the Tuberculosis Crusade,” opened by a paper from Dr. R. J. Lockhart, of Hespeler, and discussed by Dr. J. D. Lafferty, Dr. R. M. Simpson, and Mayor Dingman, of Stratford.

The following officers for the ensuing year were then elected, as follows:

President—Prof. J. G. Adami, Montreal.

Vice-Presidents—Hon. Senator Edwards, Ottawa; H. H. Miller, M.P., Hanover; William Southam, Hamilton; James Manuel, Ottawa; Sir J. A. Grant, Ottawa; J. G. Rutherford, Ottawa; G. H. Perley, Ottawa; Hon. Senator Beique, Montreal; Col. Jeffrey H. Burland, Montreal; Dr. J. A. Hutchison, Montreal; Dr. Gordon Bell, Winnipeg; Hon. W. R. Motherwell, Regina; Hon. W. H. Findlay, Edmonton; Dr. L. Laberge, Montreal

Treasurer—George Burn, Ottawa.

Secretary—Rev. W. Moore, D.D., Ottawa.

Executive Committee—Bishop Hamilton, Sir Hugh Graham, Hon. F. A. Lawrence, J. W. Daniels, M.P., Dr. R. W. Bruce Smith, Dr. J. H. Elliott, Dr. R. M. Simpson, Rev. T. Hunter Boyd, Dr. Lafferty, Dr. C. J. Fagan.

The meeting agreed to meet next year in Montreal.

On Thursday afternoon a visit was paid to the Mountain Sanatorium, where the guests were received by Mrs. Crerar, J. J. Evel, and Dr. Holbrook, the resident physician. This Sanatorium, which cares for the incipient cases of the City of Hamilton and the County of Wentworth, is an almost ideal institution, and shows what can be done in any municipality to provide for its tuberculous cases. It is but a part of a complete work now organized by the municipality and the Hamilton Health Association, whereby poor patients in any stage of the disease are sought for and cared for, including medical inspection of schools, a dispensary in the city, the Sanatorium for early cases, and a hospital just completed on the grounds of the city hospital for the care of advanced cases.

The meeting was one of the most successful yet held, and under the presidency of Dr. Adami the Association is bound to make a great forward step during the year.

J. H. E.

Bromide Eruption.

Knowles summarizes his article in the *New York Medical Journal* as follows:

1. Bromide eruption may occur in those who are susceptible, independent of the dose of the drug or the length of the administration. The larger the dosage, and the longer the ingestion, the greater is the chance of an outbreak.

2. There are practically no constitutional or subjective symptoms in most cases.

3. Because of the slow elimination, the eruption may continue to appear for some weeks after the drug has been discontinued.

4. Almost any type of eruption may be present; in childhood the lesions are usually larger and more persistent than in adult life. The extremities and the face are the parts most frequently attacked; the most extensive eruption, in the majority of the cases, occurs on the legs.

5. Lesions have a great tendency to occur at points of previous inflammation, such as on vaccination scars or injuries.

Book Reviews.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Twentieth Session. Held at the Water Gap House, Delaware Water Gap, Penn., on May 25th, 26th and 27th. 1908. Edited by Linnaeus Edford LaFetra, M.D. Volume XX. Reprinted from *Archives of Pediatrics*. 1908-1909. E. B. Treat & Co., Publishers, 241-243 West 23rd Street, New York. 1909.

BACKBONE. Hints for the Prevention of Jelly-Spine Curvature and Mental Squint. A Straight-Up Antidote for the Blues and a Straight-Ahead Sure Cure for Grouch. Collected from Various Sources and Arranged by S. DeWitt Clough, Ravenswood, Chicago. December, 1908. Price, 50 cents.
A very interesting collection of odds and ends.

THE NAUHEIM TREATMENT OF DISEASES OF THE HEART AND CIRCULATION. By Leslie Thorne Thorne, M.D., B.S. Durham, M.R.C.S. Eng., L.R.C.P. Lond., Consulting Physician (in London) to the St. John's House of Rest, Mentone; late Medical Examiner, London County Council, Technical Education Board. Third Edition. London: Bailliere, Tindall & Cox, 8 Henrietta St., Covent Garden.

A very excellent little book, which in clear language outlines the administration of the Nauheim baths and the Schott exercises. There is also a classification of the cases suitable for treatment.

PHYSIOLOGICAL AND MEDICAL OBSERVATIONS AMONG THE INDIANS OF SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO. By Ales Hrdlicka. (Smithsonian Institution Bureau of American Ethnology, Bulletin 34.) Washington: Government Printing Office. 1908.

This most interesting volume is of great use to any physician who makes ethnology a hobby. Dr. Hrdlicka's observations would do credit, in their thoroughness and care, to a German research worker. The study of these Indians is most exhaustive, and almost every physiological function has been examined. The work does great credit to the author.

TEXT-BOOK OF GYNECOLOGICAL DIAGNOSIS. By Dr. Georg Winter, O. O. Professor and Director of the Kel. Universitäts-Frauenklinik in Königsberg, Prussia. With the collaboration of Dr. Carl Ruge, of Berlin. Edited by John G. Clark, M.D., Professor of Gynecology, University of Pennsylvania. After the third revised German edition. Illustrated by four full-page plates and three hundred and forty-six text illustrations in black and colors. Philadelphia and London: J. B. Lippincott Company.

Few books have come to our desk with a greater welcome than this interesting volume. Printed on good paper and well illustrated, the text is in excellent English, and so fully covers the subject that there is nothing more to be said.

The chapter on the microscopic appearance of uterine neoplasms is the best we have ever seen, and shows everywhere the work of a master hand.

Everyone doing any gynecology will find this a very valuable book, and one which has stepped aside from the beaten track.

TUBERCULIN IN DIAGNOSIS AND TREATMENT. A text-book of the specific diagnosis and therapy of tuberculosis for practitioners and students. By Dr. Bandelier (Senior Physician to Dr. Meicher's Sanatoria for Pulmonary Disease in Görbersdorf) and Dr. Rolphe (Medical Director of the Sanatoria for Railway Employes in Melsuger). Translated from the second German edition by Egbert C. Narland, M.B., B.Sc. Lond., M.D. Berne. Published by John Bale, Sons, and Danielson, Ltd., Oxford House, 83-91 Great Titchfield Street, Oxford Street, London W. 1909.

In this monograph we have embodied practically all knowledge that is of value in respect to Tuberculin. In the first section the cutaneous, ophthalmic, percutaneous and subcutaneous methods of applying tuberculin as a diagnostic agent are fully dealt with: the various locations of tubercular lesions receive attention, and the special peculiarities and difficulties encountered in each group are individually discussed, especial attention being directed to the fallacies encountered. Next, the specific treatment is taken up, the status of tuberculin from the present-day view as a remedial agent, the various preparations used to produce passive and active immunity, not only in the pulmonary organs, but in the other systems, are fully analyzed, and con-

clusions drawn, as far as possible, from the results known up to the present. We most heartily congratulate the authors on their production.

THE ETIOLOGY AND NATURE OF CANCEROUS AND OTHER GROWTHS.

By W. T. Gibson, A.R.C.S. Published by John Bale, Sons, and Danielson, Ltd., Oxford House, 83-91 Great Titchfield Street, Oxford Street, London W. 1909.

The above is a preliminary analysis of the results of the author's investigations, both original and bibliographical. It is embodied in a neat volume of about 100 pages, and will prove of peculiar interest, especially to pathologists. The various etiological factors, such as local irritation, the results of various occupations, decomposition products, the neurotic hypothesis, etc., have received full attention, as has also the effect of arsenic in regard to the results of its local action on the skin, in addition the X-rays, sunlight, and extremes of temperature, as possible causes of cancer, are dealt with. The author has not confined himself strictly to the consideration of carcinoma, but has included in his researches the benign growths, thus widening the field and taking a more comprehensive view of the whole subject of tumors.

A banquet given at Philadelphia some time ago in honor of Dr. John B. Deaver, the well-known surgeon, was unique enough to satisfy the most exacting lover of novelty. All the 113 guests were physicians, each of whom had been operated on by Dr. Deaver either for appendicitis or some other serious disease. The fifteen waiters were laymen who had also been patients of Dr. Deaver. The waiters were dressed as Red Cross orderlies, and the punch was served in mannikins, each of which had a miniature knife stuck in it at the spot where the incision for an operation had been made. The banquet hall was beautifully decorated with flowers and plants. Many of the guests came from a long distance to pay their respects to the great surgeon, eleven States being represented. The occasion was a delightful one, and not one of those present regretted the experience that had qualified him for attendance.—*Ex.*