the appearance of being well nourished. There was marked arterial tension, with increase of the area of precordial dulness. No heart murmurs; no evidence of atheromatous degeneration; pupils normal; vision very imperfect, and could not be remedied by glasses. His gait was very paretic—equally so on both sides, and hand pressure was greatly diminished. There was some anæsthesia. The urine contained albumin and a few small hyaline casts. Dropsy was never present, even in small amount. His stay in the Asylum was marked by no special mental symptoms, occasional attacks of bewilderment being the most prominent mental manifestations. Less than a month following his admission a sudden oedema of the lungs overwhelmed him, and he died, within two hours, of suffocation. This oedema of the lungs was accompanied by several profuse watery discharges from the bowels. For several days previous to his death he had complained of constant and severe headache. He had become accustomed to brief attacks of dyspnoea coming on after rising in the morning.

"Insanity of Bright's disease" is not meant to designate a new form of mental disease. However, as indicating a probable origin of many cases hitherto not fully understood, it is an admissible term. It offers indications for temporary relief, establishes a prognosis in certain cases which, but for the presence of albumin and casts, might offer delusive hopes, and provides an explanation for the persistent downward course of many cases which have the outward appearance of uncomplicated cases of melancholia.

In conclusion, I present a brief summary of what I have attempted to consider in the foregoing pages.

1. The frequency with which evidences of chronic Bright's disease are found associated with mental derangement leads to the belief that the latter condition is often dependent upon the former as its cause.

2. This belief finds support and explanation in the present accepted ideas of the pathology of chronic Bright's disease, according to which the disease is no longer regarded as confined to the kidneys, but as possessing features which make it essentially vascular. These consist in structural alterations in the blood-vessels of the brain and spinal cord, as well as in the vessels of other organs of the body.

3. There are cases of insanity with chronic Bright's disease which are of uro-toxic origin, but in the majority of cases the mental manifestations must be regarded either as an expression of lowered nutrition or, as is more frequently the case, due to vascular changes in the brain, attended often by convulsions of other than uræmic origin; disturbances of speech and of locomotion.

4. Finally, in many cases of dementia with paralysis it will be found that the destructive brain

lesion, with subsequent decay of the mental faculties, is the result of an alteration in the vascular coats of the brain, coexistent with an hypertrophied heart, and with structural changes in the kidneys.

ON THE MICROSCOPICAL DIAGNOSIS OF CANCER.

*Read before the Medical Society of the District of Columbia,
November 28, 1888.*

BY EDWD. M. SCHAEFFER, M.D.,
WASHINGTON, D. C.

Cancer is a disease which is, unfortunately, but too common in all parts of the world; and whether, as some have asserted, there is a higher percentage of deaths from this cause in the District of Columbia and the adjoining States than elsewhere, or whether there is a tendency of these cases to gravitate hither from other portions of the country, certain it is, that the records of our Society, as well as the vital statistics of the District, show that we have at least our full proportion of deaths from this disease. To the theories as to its cause I shall but briefly refer, leaving also the practical subject of treatment to the physician and the surgeon.

A somewhat particular study of morbid growths, extending over upwards of twenty years, and observations founded on many microscopical examinations, as well as such clinical notes as I have recorded in my note-books, wherever such were obtainable, would seem, however, a sufficient basis upon which to offer some practical points which may be of advantage to the general practitioners, as well as to the surgeons included in the membership of our Society.

The minute structure of malignant growths has always attracted the attention of the most eminent pathologists, ever since the improvement of the microscope has enabled them to be studied under a magnifying power sufficiently strong to give those details of cellular structure on which their classification in modern pathology is founded. To a certain extent this classification has given us results in harmony with the clinical history of such growths, and been of practical use to the physician, whom it enlightens on obscure cases of internal growths, often enabling him to make a correct diagnosis when other signs fail, in such cases as afford an opportunity for the study of the morbid products expelled by the natural outlets of the body. When these chances do not occur, it is but too often, it must be admitted, that it only proves of *post mortem* benefit to the patient and his friends, in ascertaining after death the exact nature of the disease. Even here the aid of the microscope is frequently invoked, and clears up many otherwise doubtful cases of diagnosis where the unaided vision would leave the case in uncertainty, and the practical advantage

in the diagnosis of future cases presenting similar symptoms is not small.

In the majority of cases of external cancer of pronounced types, and especially in epithelioma, we are able to make the diagnosis with much precision, and a prognosis based upon such results is of a high degree of certainty. The surgeon is encouraged to act boldly where an operation is practicable, and the patient is induced to submit to an operation the arguments in favor of which might otherwise fail to carry conviction.

But there are some forms of morbid growth resembling in some particulars malignant disease in structure, where the natural history is widely different from that of the true malignant types, and in spite of the elaborately illustrated works on the subject, the physician will frequently come across forms not distinctly referable to any of the classified types. This is to be expected, because we now know that cancer is not, as was formerly supposed, an entirely foreign and separate entity, having its seat among the healthy tissues of the body, from which it draws nourishment while it destroys them, but rather the cellular manifestation of certain modifications produced in previously normal tissue by a process of disease not apparently governed by such well-defined and definite laws as would lead us to expect uniformly similar results in similar growths observed in different cases.

The possible production of cancer by a minute parasitic form of a vegetable nature has recently been again discussed, and though the omnipresent microbe has not yet been traced to its lurking-place in this disease, there is much plausibility in the theory of such an origin for benign as well as malignant growths.

The curious distortions of leaves, flowers, and other parts of the plant under the irritating influence of insect punctures, and the tumors and hypertrophies of limbs of trees and shrubs evidently due to extraneous causes at first, cannot fail to suggest to the student of nature a certain analogy to similar distortions in the animal structure, which, while it may be fanciful, is possibly a suggestion of a somewhat similar cause in both, modified in its results in the animal by its differing and more highly organized systems of nutrition and growth.

As far back as 1854, a member of the Royal Microscopical Society of England, Mr. Jabez Hogg, in his work on the microscope, expressed a belief in the "fungoid origin of cancer." But taking our knowledge of the structure of cancer as it stands, the question arises whether, in spite of the acknowledged ability of the microscope to distinguish its principal types, the surgeon is using that instrument to the extent of its power in diagnosis. Whether in fact, disgusted by a few contradictory results, he is not inclined to consign it to the category of wholly unreliable tests? While

but few are willing to put themselves on record to this effect, the less guarded private utterances of some of our own members would seem to indicate such an opinion.

Let me briefly advert to the causes which I believe have induced this mental attitude on the part of some members of the profession. In the first place, as some one (Huxley, I believe), has remarked, the value of microscopical observations depends much more on the quantity and quality of cerebral tissue *behind* the visual organ of the observer, than it does upon the excellence of the lenses *in front* of that expressive feature. Some men seem never able to acquire the faculty of intelligent and discriminating observation. But this should no more discredit true microscopical work than the erroneous observations of early writers in ascribing certain diseases to microscopical germs, as malarial fever to the Palmella, for instance, should be used as an argument for the fallaciousness of all later work by other observers in the same direction. And it would be illogical for the surgeon to take the ground that because the electrical indicator gave erroneous results in the localization of a metallic missile in the case of President Garfield, therefore all future appliances of electricity as a guide to the surgeon in doubtful cases should be condemned.

Really good observers are sometimes overawed, as it were, by a previously announced diagnosis by men of high reputation, to the extent of modifying their own observations to accord with the weight of opinion among those who have viewed the case from an entirely different standpoint. The result is apt to be a sort of composite opinion, from which all true original judgment has been eliminated. But I take it to be the function of the microscopical observer, when appealed to in doubtful cases, to ignore all collateral evidence as much as possible, and pronounce an opinion independently of any other considerations on the case before him. Whenever I have allowed myself to be thus biased it has subsequently proved that my judgment would have possessed more value if entirely free from such influences, and it has been my habit for years, when called on to examine a case of suspected disease, whether cancer or other morbid process, to request that all information as to the case be withheld until I have written my opinion. Another advantage of this method is, that whereas the human memory is often treacherous, the *littera scripta manet*, and the possession of written copies of all opinions, has been of value in case the loss of the copy given the patient or his medical adviser might lead to dispute as to what such original opinion had been. After this has been done I endeavor to obtain for my notebook all points of peculiar interest in the case, and the final result whenever practicable.

I have in my cabinet sections of a thickened band of the mucous layer of the rectum in a case

in which the patient had procured the opinions of eminent surgeons in this city and New York. The identical piece from which my sections were made had been examined microscopically by different pathologists, and pronounced epithelial cancer. One of the observers who gave this opinion was the author of a valuable work on the diseases of the rectum. Yet this was a case where a thorough acquaintance with the normal structure of the part seemed to justify my opinion given in writing to the patient, that there was not a single spot in the section which could not be duplicated from a section of the normal rectum, a hypertrophy and somewhat abnormal position of the mucous follicles of the part having however produced in the sections an appearance somewhat resembling certain forms of glandular neoplasm, but certainly *not* the structure of epithelioma. The sections on which I based my judgment were, some of them, submitted by the patient to several expert microscopical diagnosticians in Baltimore and elsewhere, who without being informed of my opinion already given, coincided in their judgment of the case with the view taken by me. Had I been previously acquainted with the array of surgical talent that had pronounced the case one of cancer I might have been frightened out of my diagnosis, yet the patient, who had no doubt for some time carried the growth which was first submitted to me in April, 1886, has since been perfectly restored to health, after a not radical operation by electricity as I have been informed, and when last heard from had experienced no return of the growth.

This case serves to illustrate the importance of another requisite in microscopical diagnosis, for want of which the best powers of observation and the most cultivated judgment will sometimes fail, viz., a sufficient experience not only with morbid growths, but with all the normal tissues of the body. No one can be reliable as a pathologist in the study of the more evident changes which the unaided eye detects in disease, unless familiar with all the variations in health. This seems a truism, yet it is apt to be lost sight of in the applications of the microscope. A section through a Paccinian or tactile body in the finger of an infant, perfectly normal, was once submitted without remark to a microscopist, who unhesitatingly pronounced it to be epithelioma. Yet, the gentleman whose more particularly pathological studies led him to pronounce this opinion, was an eminent observer, so eminent that the ingenious youth who had interrogated him, being an official subordinate, was afraid to inform him of his error, and he never consequently derived the due benefit from that object lesson.

Besides a knowledge of normal tissues, the observer should be familiar with the changes produced by simple inflammation, hypertrophy, lesions of particular diseases, such as syphilis,

etc. An acquaintance with the modifications due to chemical re-agents is sometimes useful, as well as considerable experience with vegetable and other extraneous structures, when discharges supposed to be from the bladder, uterus, etc., are searched for indications of cancer. Altered membranes and clots from the uterus are often of a very puzzling description, and without much familiarity with these discharges serious error may arise.

A rock on which many observers are wrecked is the improper selection by the surgeon of the portion of tissue to be examined. For fear of taking too much tissue, a small piece may be excised which on examination will show the effects of inflammatory induration, or hypertrophy of the part such as commonly occurs in the neighborhood of malignant growths and yet no true cancerous structure be included. The diagnosis is correctly made, but upon imperfect data, and the result is that the microscope, in common parlance, gets "a black eye" as an instrument of accuracy in diagnosis. In other instances a growth which in its initial stage has not fully attained the structure of carcinoma, if not removed, may subsequently proceed to develop its typical character and a diagnosis founded on an early examination be thus discredited.

In conclusion I will briefly relate a case of peculiar interest to me, in which at the first examination of the patient's urine I made the diagnosis of cancer, which has since been confirmed by the subsequent history and an autopsy.

A man, about 60 years old, was sent to me May 4, 1888, by Dr. N. S. Lincoln, for the purpose of having an examination of his urine. Patient was tall, dark complexioned, rather sallow but not cachectic in appearance, said he had pain in his back. Had not yet been examined by Dr. Lincoln, who wished to learn the condition of his urine he said. He sent for report the same afternoon, but it was not completed. The report sent to Dr. Lincoln was as follows:

Anal. 3720. May 4, 1888.—Color of urine natural, nearly clear, moderate amount of deposit, of a whitish flocculent character, moderately acid, spec. grav. 1.014. Quantity in twenty-four hours not stated, but patient had observed no change in that respect of late. Albumin about one-half of volume when coagulated. No excess of phosphates, no sugar, urea not below normal average per oz. *Microscopical examinations:* No casts. No fresh blood, but shreds of fibrin (from blood-clot?). The deposit contained a large proportion of pus, and epithelium from the bladder, and also numbers of large, many-nucleated cells, *not normal*. No crystalline sediment.

In a note to Dr. Lincoln accompanying the report I said: "As this patient was apparently very anxious about his case and might want to see the report of analysis, I write you separately in order

not to needlessly alarm him, to say that there is no doubt in my mind as to the character of the many-nucleated cells, viz., that they are typical cancer-cells. If any small clots are observed in his water, it might be well to have him drop them into weak spirits and let you see them."

May 10, 1888. *To Dr. Lincoln*: "I gave Mr. J.'s son the result of the second analysis in his father's case, and see no reason from the microscopical appearances in this analysis to change the opinion of the case formed at first. Absence of local pain and hæmorrhage may indicate a favorable form or early stage of the growth, if one exists."

The case progressed and I made frequent examinations of the urine up to July 18th. The albumin was always found, but diminished in amount ultimately. The color was for some time natural, and no clots or increased deposit to attract the eye, at first, but subsequently the urine became turbid, and the deposit more abundant, and pinkish in color, and toward the last a few blood corpuscles appeared. No casts were found at any time. The urea gradually fell below normal average. The many-nucleated cells were at first all separate and distinct, but in Analysis 3818, July 16th, they were also found in small continuous fragments of tissue, the largest of which were distinctly visible to the naked eye. Death occurred on the 3d of November, and an autopsy was made by Dr. D. S. Lamb.

[The right kidney was found, at the autopsy, to be converted into a cancerous mass, which under the microscope showed the structure of epithelioma.]

A CASE OF PERITYPHLITIS.

*Read before the Medical Society of the District of Columbia,
December 12, 1888.*

BY T. E. MCARDLE, A.M., M.D.,
OF WASHINGTON, D. C.

T. K., male, white, æt. 34 years, consulted me at my office on the evening of November 15, 1888. He complained of general malaise, with localized pain in the lower part of the abdomen towards the right side. He had a short, harassing cough. His bowels had been freely moved from some purgative pills taken the previous night. His pulse was 100, temperature 102.6°. I ordered him home and to bed at once and prescribed codeia and quinine, together with a strict liquid diet.

On the following morning (November 16), I found that he had passed a very comfortable night. A thorough examination revealed a tumor in the right inguinal region. The pulse was 80 and the temperature 100° F. Poultices were ordered. When I saw the patient again in the evening his pulse was 100 and his temperature 102°.

On the morning of the 17th Dr. J. Ford Thompson saw the patient with me. He had enjoyed a

fairly good night and his bowels had moved naturally. The pulse was 100 and the temperature 101°. Pus easily detected. Poultices continued. Evening pulse 110, temperature 103°. On the morning of the 18th the pulse was 100 and the temperature 101°; the patient had passed a comfortable night.

Chloroform was given and laparotomy performed. After the evacuation of the pus, a drainage tube was introduced and the wound was dressed antiseptically. The patient took the anæsthetic badly; the nausea was distressing and the vomiting continued until 3 or 4 o'clock in the afternoon. At 9 o'clock in the evening, when I saw him, his pulse was 100 and his temperature 97.4°. I gave him some whisky and water, which he immediately vomited, together with a quantity of dark-green fluid. A hypodermatic injection of morphia $\frac{1}{4}$ gr. and atropia $\frac{1}{150}$ gr. was administered. He spent a very restless night and vomited at midnight after taking a pill of morphia gr. $\frac{1}{4}$ and atropia gr. $\frac{1}{150}$. The fluid was not dark as before. At 10 in the morning the wound was syringed with a carbolic solution, the drainage tube removed, an iodoform tent substituted, and the wound redressed antiseptically. Champagne, milk and lime-water were ordered. Pulse 100, temperature 97.4°.

At 5 in the afternoon the pulse was 96 and the temperature 98.6°. As he had vomited the champagne twice its use was discontinued. At 10 in the evening his pulse was 96, temperature 99.4° in the axilla. He had vomited at 8 o'clock. Suffered from hiccough and had been slightly delirious.

The wound was again syringed on the morning of the 20th and found to be cleaner than on the preceding day. The pulse was 76, the temperature 97.8°. He had had a bad night, as the vomiting and hiccough had continued. He was now better and able to retain a small quantity of champagne. Poultices were ordered. In the afternoon the pulse was 100 and the temperature 99.6°. The wound was syringed and found to be cleaner. An iodoform pad was applied and the poultices were continued. A suppository of morphia gr. $\frac{1}{4}$ and belladonna ext. gr. $\frac{1}{8}$ was ordered.

At 10 P.M. I found that the patient had vomited before using the suppository, but not since. Meanwhile he had slept three hours. He felt much better. His pulse was 88, temperature 98.4°. The iodoform gauze was changed, another suppository ordered, and the poultices renewed. He slept well during the night, but vomited clear fluid at 7 in the morning. At 10 o'clock the pulse was 86, the temperature 97.6°. The wound was cleansed and dressed, and the poultices were continued. A bottle of citrate of magnesia was ordered to be taken in four doses at intervals of an hour each. He retained the first two doses but vomited the others. Whilst I was at his bedside at 5 o'clock in the afternoon he vomited a