

orderly normal structure, greatly multiply themselves and accumulate in masses. These masses project and infiltrate into neighboring parts, whose nutrition becomes impaired and whose mutual pressure leads to ulceration and degeneration. Then comes absorption and transfer of germ cells to distant parts, when all hope of cure must be abandoned.

The cure by removal of malignant tumors depends on the fact that first they are of local origin. If they can be removed at an early stage of growth, together with all the neighboring cells which have a morbid tendency, they may never recur. Perseverance in removal after successive recurrences in the same place has also been greatly rewarded. Paget refers to cases where the tendency to recur was exhausted after many successive operations. Such patients had unusual intelligence and courage, with perfect reliance upon their surgeon, and deserved success.

My own observation of cures effected by the removal of malignant tumors has been limited to cases occurring in private practice, yet is sufficient to establish a favorable judgment. In such operations, two general principles have been influential: 1, to operate early, or as soon as the new growth showed signs of activity or irritation; 2, to remove with the tumor, a large amount of neighboring tissue, especially if the tissue had similar minute structure to that in which the neoplasm began. Thus, in several cases of epithelioma of the lip, I have not trusted to the curette or cautery, but have excised the growth with considerable tissue on each side of it. In no case did the disease return. In one instance, where the cancerous growth had spread from the lip to the gums and alveolar process, the lower jaw was excised and a new lip made by a plastic operation. Four years afterwards, the man died of delirium tremens with no sign of recurrence of the malignant growth.

In malignant tumors of the breast, I invariably remove the entire gland, as well as any affected glands in the axilla. Of eight cases, but two have recurred. One of these was a scirrhus cancer, whose removal was succeeded after some months by carcinoma of the liver. The other was a large sarcomatous tumor followed a year after removal by osteosarcoma of the thigh. After amputation it recurred again in the stump, with fatal result.

In February, 1891, I reported in the *Pacific Medical Journal*, a new method of hysterectomy by enucleating the inner and middle layers of the uterine wall. This operation commended itself to me on histologic grounds as a safe, easy and effective way of thoroughly removing an epithelial growth of the uterine cervix. Neither the peritoneum, or the uterine or ovarian arteries are disturbed by this method, but the new growth, together with the entire follicular layer in which such growths begin, and the muscular layer adjoining, are entirely removed. This is a more thorough operation than the ablation of a cone of tissue around the morbid neoplasm, as advised by some writers. In the *Medical News* of Feb. 10, 1894, Prof. Reyburn, of Washington, D. C., describes an operation somewhat similar, but in his case the entire uterus was stripped from the peritoneal layer. I leave a portion of the outer muscular layer, which contracts so as to prevent hemorrhage. Prof. Reyburn's case was perfectly successful, but he suggests that in a younger woman the ovarian arteries might require ligation. This would be quite unnecessary

in my method, as sufficient uterine tissue is left to avoid opening the peritoneal cavity.

I have operated in this way upon three cases of epithelioma and one of sarcoma, confirmed by both clinical and microscopic examination, and with no recurrence. One of the patients has been under observation for six years, and as she had passed the menopause before the operation, the remnant of the uterus has atrophied to a mere nodule. In the other cases the menstrual function continues as aforesaid.

This method of hysterectomy (for so it may really be termed) may be available in other gynecologic conditions, but it is referred to here as affording a practical and easy way of effecting a radical cure in a large class of malignant new growths if undertaken early, but which, if left long to themselves, or treated only by palliatives, are among the most distressing of maladies.

THE VALUE OF INOCULATIONS WITH SEPTIC OR TOXIC AGENTS IN THE TREATMENT OF MALIGNANT NEOPLASMS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOHN A. WYETH, M.D.

NEW YORK.

My first experience with the action of toxic or septic agents upon malignant neoplasms was in 1884. J. W. Phillips, an innkeeper of Gainesville, Texas, at that time (May 20, 1884) 33 years of age, was directed to me by Dr. Conson, his home physician. Four months before he had noticed a small lump in the wall of the abdomen on the right side, about four inches above Poupart's ligament, just where he had been struck some weeks previously by the end of a billiard cue. The tumor grew rapidly and enlarged in all directions, but was not painful. In the last few weeks he lost flesh considerably. History of specific urethritis ten years ago and sores on penis six years ago, but no symptoms of constitutional syphilitic infection followed. He had always been a vigorous and healthy subject.

When he came under my care the tumor in the wall of the abdomen was about four by six inches in measurement, and seemed deeply attached or glued to the muscles of the belly. Under anesthesia I found it impossible to make a thorough extirpation of the mass without sacrificing so much of the abdominal wall that the patient would have had an enormous ventral hernia and been incapacitated from any business.

I removed a large section from the tumor and packed the wound thus made.

The specimen was studied carefully under the microscope by Prof. Wm. H. Welsh, now of Johns Hopkins University; by Dr. Wm. L. Wardwell, a pupil of Conheim, and an excellent pathologist, and by myself. Each of us agreed that the tumor was a sarcoma, confirming the diagnosis which had been made from the history and gross appearance of the neoplasm.

I had read in a German journal, about that time, of three cases of sarcoma reported as cured by injections into the substance of the tumor of arsenious acid, and advised my patient to permit me to try it on him, which was done. I injected a small quantity every day for about ten days into various parts of the growth. The injections were quite painful and established a very severe degree of inflammation and suppuration, to such an extent that the patient begged the discontinuance of the treatment and it was abandoned. By this time his condition was very bad. I had no hope of his recovery. He was carried to Virginia, his native State, where for several weeks the process of suppuration continued, gradually ceasing until finally the tumor disappeared.

It is now ten years since he was treated, and there has been no recurrence of the growth. He is in excellent physical condition and I think he may be considered as cured.

The caustic action of the arsenic could not account

for the destruction of the tumor, for not more than one-twentieth of the mass was reached by the injections. The suppuration which ensued filled the inflamed area with shoals of streptococci and other septic products, and these destroyed the elements of the sarcoma.

There was no erysipelas in this case up to the time he left me, and I do not think the cocci of Fehleisen had anything to do with the cure. It was a positive case of sarcoma cured by the action of septic or toxic agents, the ordinary products of inflammation.

Shortly after this there occurred another remarkable case in the wards of Mt. Sinai Hospital:

A young girl was admitted on account of a sarcoma of the leg, for which an amputation was performed on the middle of the thigh. Several months later the growth recurred in the stump and Dr. Gerster removed the remaining portion of the extremity at the hip joint. A second recurrence took place in the line of amputation at the hip, and presented as it developed an extensive cauliflower-like mass, dirty, foul, granulating, and from which bleeding occurred at intervals. This patient was abandoned to die, but was accidentally inoculated with erysipelas in the stump. Large sloughing masses were cast off, the wound finally healed, all traces of the sarcoma disappeared, and she is now, more than five years after the attack of erysipelas, living and healthy with no sign of the terrible malady from which she so narrowly escaped, excepting the loss of the extremity.

A third case of large lympho-sarcoma of the neck in a man about 60 years of age in my service at Mt. Sinai Hospital in 1891, was accidentally inoculated with erysipelas, but perished in three days from the onslaught of the disease. When attacked he was in low condition, and died before any noticeable changes had occurred in the new formation.

The following case has been under my care since August, 1893:

J. J. L., 37 years of age, lawyer, of Pennsylvania, with excellent family and personal history. Two and one-half years ago a filled molar tooth in the right upper jaw began to ache, and the gum to swell. The nerve was killed by his dentist and this stopped the pain, but the swelling persisted and the tooth was extracted. Later the antrum was opened, and in August, 1893, I opened freely into this cavity and curetted it with Volkmann's spoon.

The presence of sarcoma of the upper jaw of this side was suspected, and Professor T. Mitchell Prudden, of New York, confirmed this diagnosis by the microscope.

Hoping to spare the patient the mutilation which the surgical removal of his jaw would cause, on Jan. 31, 1893, I inoculated him with the toxic products of erysipelas cultures. Under the influence of these injections the temperature would rise from 1 to 4 degrees (and on one occasion to 104 degrees F. within three hours of the injection), and then gradually decline to the normal. The pulse never went beyond 90. By February 16 the ptomaines secured by filtration of Fehleisen's coccus ceased to produce any impression and the pure serum drawn by aspiration from an erysipelatous bleb was inserted under the skin, but without producing erysipelas or a temperature above the normal. This was repeated on three occasions in one week with a similar result. A plug of cotton saturated with erysipelas serum introduced into the antrum also failed to give the patient erysipelas.

On February 21 pure cultures of Fehleisen's coccus of erysipelas caused a red blush in the skin on the leg, the point of injection, and this spread on the body into a well marked erysipelas lasting for several days. As no impression had been made upon the sarcomatous jaw, the treatment was discontinued, and two weeks later I removed the upper jaw, pterygoid process of the sphenoid, and the floor of the orbit. The patient recovered.

The limitations of this paper will not permit me to give minute details of cases. Suffice it to say that the literature of surgery, especially within the last five years, contains a number of cases which prove that septic inflammation, and particularly the sepsis of erysipelas, has a remarkable curative effect upon sarcoma.

In the application of these agents the observations already made show that pure erysipelas produces the

most desirable curative effect, but that sarcomata will disappear as a result of inoculation with non-erysipelatous septic products.

As erysipelas is not without danger and since several cases of death are on record following the injection of the pure cultures of Fehleisen's coccus of erysipelas, even when these do not produce typical erysipelas, it is advisable at first to try thoroughly the injections of the sterile toxic products.

Dr. Wm. B. Coley, of New York, and Dr. Alexander Lambert, of the Laboratory of the College of Physicians and Surgeons, have obtained a perfectly sterile liquid by cultivating cocci of erysipelas in bouillon for three weeks, and then filtering. No heat is employed in this process. This fluid with the occasional addition of a certain quantity of the *bacillus prodigiosus*, I have employed in several recent cases.

Upon carcinoma the influence of erysipelas or of the toxic products is not so appreciable. That the growth of cancer is retarded and in some instances the neoplasm disappears under the influence of these agents, there is no doubt, but in my limited experience, and in the cases reported so far, these happy results are rare.

In 1893 an elderly gentleman consulted me in regard to a small epithelioma developed from a congenital mole or wart on the face, immediately over the right zygoma. A few days later he accidentally acquired erysipelas in the ulcer, which spread over an area of several inches, and was arrested by scarring the skin just outside the limit of redness. The epithelial ulcer disappeared entirely with the erysipelas, but returned eight weeks later.

Dr. Wm. B. Coley has collected a series of nineteen cases of carcinoma in which eight, or 42 per cent., were well from one to seven years after the attack of erysipelas. In twenty cases of carcinoma three were permanently cured. Professor Spronck, of Utrecht, reports experiments on twenty-five inoperable neoplasms, eight sarcomata and twelve carcinomata. He employed a product made by "heating liquid bouillon cultures to 100 degrees Centigrade after adding 5 per cent. glycerin, then evaporating to one-tenth the volume and finally filtering through porcelain."

The results following the injection of this liquid were not so satisfactory as those reported by Coley, who obtains the toxic product without heating, while in Spronck's cases retardation was noticed and marked diminution in one or two instances, in no case was there complete disappearance of the neoplasm. In six recent cases of sarcoma reported by Coley, one entirely disappeared and had not returned in four months; another tumor of the pelvis and abdominal wall was reduced in six months from a diameter of seven inches to a small mass not over two inches in diameter. In four cases no well marked improvement was noticed.

Conclusions: Sarcoma may be cured by septic infection. The sepsis of erysipelas exercises the most powerful curative influence. Infection from the streptococcus pyogenes aureus will, in my opinion, also cure sarcoma. The injection of the sterile products of Fehleisen's coccus will also cause these neoplasms to disappear.

These agents act through the blood. Thus erysipelas attacking a breaking down sarcoma of the back, caused this to disappear simultaneously with a simi-

lar growth in another portion of the body of the same patient not locally infected. It is probably better to inoculate in the mass and get the local action of the inflammatory process when this is possible.

The lower the order of the structure of the sarcoma the less likelihood of a successful result. Thus in tumors of a myxomatous character the prognosis is less favorable.

Epitheliomata may also be made to disappear or their growth retarded by septic infection.

Adenoid carcinomata are only slightly, if at all susceptible, to cure or retardation in growth by these agents.

AMERICAN MEDICAL ASSOCIATION.—SECTION ON SURGERY AND ANATOMY.

The Section was called to order June 5 at 2 P.M., by its chairman, DR. JOHN B. ROBERTS, of Philadelphia, Pa. In the absence of the Secretary, Dr. Floyd W. McRae, of Atlanta, Ga., Dr. Reginald H. Sayre, of New York, was appointed temporary Secretary.

The Chairman read his address, "Some Surgical Sins."

The next in order on the program was the reading of papers pertaining to the subject of malignant growths. In the absence of DR. E. LAPLACE, of Philadelphia, his paper on "The Pathology of Malignant Growths" was read by title and referred to the Committee on Publication.

DR. J. H. WYTHE, of Oakland, Cal., read a paper on "The Radical Cure of Malignant Tumors by Operation."

"A Critique of the Sporozoan Theory of Malignant Neoplasms from a Micro-technical Standpoint," by DR. A. P. OHLMACHER, of Cleveland, Ohio, was read by the Secretary in the absence of its author.

Papers on "The Clinical Recognition of Malignancy in Tumors," by DRs. C. A. WHEATON, St. Paul, Minn., and HENRY W. COE, Portland, Oregon, were read by title.

DR. R. A. McLEAN, San Francisco, Cal., followed with a paper on "The Necessity of Early Surgical Interference in Malignant Tumors."

In the absence of its author, DR. JOHN PARMENTER, Buffalo, N. Y., his paper on "The Value of Caustics in Malignant Growths" was read by Dr. H. O. MARCY, of Boston, Mass., and the Secretary did a like service for DR. L. DUNCAN BULKLEY, of New York, his paper being on the same subject.

DR. JOHN A. WYETH, New York, being absent, his paper on "The Value of Inoculation with Septic or Toxic Agents in the Treatment of Malignant Neoplasms," was read by title.

The same course was taken with the paper of DR. X. C. SCOTT, Cleveland, Ohio, and for the same reason, his paper being on "Non-Malignant Stenosis of the Pylorus and Duodenum."

DISCUSSION.

The discussion on the foregoing group of papers was opened by DR. H. O. MARCY, Boston, Mass., who said—Your presence in these large numbers shows the wisdom of the selection of this class of topics as a symposium for the day. It seems to me that hardly any subject could be brought up with greater profit for discussion than the accurate and proper understanding of what we might term the malignant growths by the common professional physician, as well as what shall be done with them by the surgeon.

As we are looking into it I take great pleasure in referring to the instructions, in this connection, of the late Dr. Bennett, of Edinburgh who, so far as I know, was the first to declare that malignant growths were 1, local; 2, constitutional. As I look around me I suppose the majority of

those I see were taught the contrary—that malignancy was a disease of the body and had its local expression, and consequently it mattered not how we cared for it, it would be sure to come back. Thanks to Dr. Bennett, as I believe, the profession is indebted to the great progress which has been made in this respect, and it is now accepted as the general consensus of surgical opinion, on both sides of the Atlantic that malignant disease is 1, local; 2, constitutional. Now, if this be true, it seems to us that we can have no two opinions regarding its early treatment. Dr. McLean was extremely fortunate in reading his paper and stating the views with such emphasis as he did in reference to the early diagnosis of malignant disease by the general practitioner, and he should then be equally competent and careful as to what should be done with the same. I am glad to feel that in a very large class of cases the general practitioner may help the surgeon because if he does his early detecting, as has been suggested to-day, you need not demand to be very extreme and need not demand that higher class of skill which belongs to the specialist in this direction, and would give further emphasis to the earnest work of the general practitioner upon whom we must all depend much for the early knowledge of this class of diseases. The question has been discussed with real interest by two of the writers as to what it is and how it is disseminated, and it becomes of equal interest to us all. I can not help believing that it is disseminated in large measure, whatever it is, through the lymphatic system, and hence the importance of our understanding, as has been already pointed out by one of the writers, the relationship of the local growth and the lymphatic system.

One word further; some of us have made careful preparations for attempting experiments that we might determine something in contribution to this subject, and there is one paper that was read that is of real vital interest to myself. In my early studies I had no difficulty in differentiating a certain growth, a growth not alone to be detected in microscopic knowledge, but that could be detected in bacteriology; as to its reproduction in animals, and I feel very sure I should not have been sorry if I had been made a committee of one to make the experiment upon criminals, for I can not help feeling that there is not so much difference between animals and the human race, so far as malignant growth is concerned. However, that is one suggested problem that has not been given to the profession to solve. But in its solution by local attack, shall we use the caustics? The paper which I had the honor of reading, the paper of Dr. Bulkley, an authority whom you all recognize in this country as of primary type, so far as disease of this kind is concerned, I can not believe that you will fail to accept. At the most the argument for this has been for limited conditions; disease of the ear, of the lip, those superficial, of the skin. May we not equally well and with a great deal better results effect those local operations by the use of the knife, carefully eliminating the use of so much of the tissue as Dr. McLean showed you that he had done, that we may be quite certain that the surroundings are removed in such a way as to make it far more intelligently corrected, more certainly effective than by any application of caustic, no matter how wisely made? What does the caustic do? Both the writers have told you that in many instances they are utter failures. You and I have seen it over and over again—no matter if you grant that they are carefully and thoughtfully and scientifically applied—we have seen utter failures in the control of this disease; and why should we subject the patient to this painful suffering? Why should we make an open wound subject to further infection? Why should we attack that growth on the superficial tissues when any permanent good results are so uncertain and it causes so

much suffering, when it is so easy with the knife, and we may expect permanent results almost without failure, with the aseptic measures which are at our disposal, and leave our patient practically cured the moment he or she shall leave the table? And if this is true, the plea for caustics is one that should be relegated, and will be, only to the men who do not thoroughly understand the subject, and such men I am sure you will agree with me have no right to practice upon this class of surgical patients, with the dangerous means of sure delay and sure death. (Applause).

DR. GEORGE F. SHIELS, San Francisco, Cal.—In the paper read by Dr. McLean he narrowed down the differential diagnosis, leaving aside tuberculosis, to syphilis and malignancy, and in reference to it spoke of the method of differentiation by treatment. Now we all know perfectly well that the differentiation between syphilitic growth and granulum, and of malignant growth of epitheliomas especially, may be made in a large majority of cases; but I want to call attention to a particular kind of condition which exists at times, and which makes this means of differential diagnosis impossible. Sometimes there exists gumma which do not undergo dissolution in the face of treatment by any of our known remedies. Large doses of iodid of potassium have been found to fail utterly in getting rid of a gummatous growth. Combined with mercury it has failed and even with arsenic it has failed in getting rid of real gummatous growth. I have seen such growths occurring in the tongue. Now, as we all know, in diseases of the tongue you sometimes have a tumor with enlargement of the submaxillary gland and where you have a great difficulty in making a differential diagnosis. In some of these cases you might give iodid of potassium in large doses and still fail utterly in getting a differentiation. You may have had a series of points brought to your attention which make you think or suspect that that condition is gummatous, and yet in spite of your iodid of potassium it does not appear. In other words there is a particular form of gumma, which is almost a simple primary type and without danger to life, and yet if you take this method of differential diagnosis described by Dr. McLean as your guide you might possibly cut out a man's tongue, when you perhaps could have saved it by other means. I do not believe much in throwing in any new method of treatment here, but I will give you a case. You have a case of ulcerating tumor of the tongue and enlargement of the glands. It seems to grow a little larger; you give all these medicines; you fail to make it go away; you have reason to suspect that it is a gumma—I have seen such a case, and have used different decoctions, Zithen's decoction—I don't care what decoction—what I want to point out is this: That there is a condition in post-syphilitic gummatous growths which does not allow of immediate cure by the use of iodid of potassium, and that one should give a very careful consideration, especially to tumor of the tongue of syphilitic history before he proceeds to remove the tongue.

I had intended to make some remarks concerning this question of caustics, which ought to have been entitled, the lack of value of caustics in malignant growth, but Dr. Marcy has covered that subject pretty thoroughly. One thing I would like to say is, that whenever you apply a caustic to a part, no matter how slight or how strong that caustic may be, with the hope of curing a malignant disease you are applying it to a tissue which is undergoing rapid cellular change, you change the cellular growth and are liable to make a non-malignant growth a very malignant one.

DR. E. GRISWOLD, Pennsylvania—Dr. McLean has remarked a fact in regard to the necessity of excision, and I think his remarks are very correct, but there are conditions—we

find cases in which it would seem that they ought to admit of a little variation. I have a case in mind. A patient comes to me with a tumor upon the breast, which is open, with the axillæ enlarged, and the patient seemingly can not live more than a year. She came to me five years ago last March and said: "Doctor, I have a lump on my breast and have come to you to get it cured, and if it can not be cured in any other way I will have it taken out." I looked at it and was obliged to tell her that she could not be cured at all, in any way. Well, couldn't anything be done for her? Yes, very likely your life may be prolonged by an operation, but a cure is impossible; your system is wholly involved—and, by the way, she was almost going to bed; her pulse was accelerated, she was emaciated and her appetite largely gone. I said: "If you choose to have the operation done I will do it." She thought it over three or four days and then sent for me. I performed the operation, took out a very large mass, the whole breast, and took out so much of the tissue that it was impossible to bring the wound together in any ordinary way. I put in wire sutures and made a slight incision in the skin at one point so as to make the cut surfaces come together, took out all the axillary glands, and after six weeks the cuts are completely healed except, at this point where there was so much tension on account of the silver wires—and, by the way, the silver wires cut more than an inch before they were taken out. It all healed in a short time—the operation was done antiseptically—except at that one point. That woman is alive yet, and that operation was done five years ago. Now, that operation was optional. She had it done because I said it would prolong her life; nothing more was promised, nothing more was expected. She can't live a great while longer, but she has lived two or three years longer than she would have lived had no operation been done. I have had similar cases done by their wish after the patient had been told what could be expected and what could not be expected.

With reference to caustics, I have had a great many patients who had epithelioma mostly on the face, and sometimes on the hand and on the lip, and so forth, who would not submit to the knife—the knife was always my method if I could get the patient to submit to it, but rather than let them go on to destruction I would adopt any other method which I thought was practicable—and I got hold some years ago of a method of applying caustic, I scarcely know how, but better in my opinion than anything that has been presented to us to-day, and the treatment by it is done at one seance; one sitting does the work. It has to be done, however, in a peculiar and careful manner. The caustic made of sulphate of zinc, dried so that the water of crystallization is all driven off by heat, till it bubbles up after the water of crystallization is driven off, and then powdered in a mortar promptly and quickly so that it shall not absorb water from the air; put it in a bottle and pour in enough pure sulphuric acid, chemically pure, so that when it stirs up, it will make a paste so thick that when you put a little stick or little glass rod in it, a good sized drop will adhere to that stick or glass rod, and not drop off. Have plenty of absorbent cotton or plaster, and apply that all over the surface. It is a little painful but in about ten minutes it destroys the tissue to the depth of about one-eighth of an inch. Then take the point of your penknife and scrape it off until it begins to bleed, to the quick; then apply it again, and after four or five applications I have to use my judgment as to whether I have got all the cells out or not. I believe I have never failed in perhaps fifteen to twenty operations in getting a complete success the first time, except once, and that was on the hand where I was afraid of injuring the tendon. While scraping it that way you get all the cancer cells out and destroy them completely; it may take from an hour or an

hour and a half to two hours, according to the size of the epithelioma. Then you use any simple ointment you may happen to have and the pain is all over and there is no further trouble.

DR. MACLEAN, Mich.—I very much regret, indeed, that I was unavoidably detained and missed the principal part of this session, the more so that this is a subject which I think of the very utmost importance to the practicing physician and surgeon. There are one or two thoughts suggested to my mind in what I have heard since I came into the room that perhaps are worth presenting. In the first place, the question of diagnosis between benign and malignant tumors. A great deal of time and a great deal of genius and work have been devoted to this subject, and the profession has labored earnestly and honestly, early and late towards that point where we could be able to say, This tumor is malignant, and this tumor is simple and must be treated as a simple tumor. Of course the microscope and all the resources of histology and of chemistry, as well as those of the ordinary practice of surgery have been called to the aid of the practitioner in this matter. And after all I am afraid we must admit that we are far from having attained to a definite conclusion. Dr. Marcy referred to the teachings of Dr. Bennett, of Edinburgh, as to the local origin of cancer or malignant tumors. Now, I am perhaps the only man present who had the pleasure of listening to Dr. Bennett's teachings and arguments on that subject, and I remember also at the same time Prof. Symme was teaching on the same subject, and he had a very illustrative class of cases, namely the Highland shepherds, the men who spent a great part of their lives herding sheep in the Highlands, and the sole comfort of their days was their little clay pipe, which soon got broken down pretty nearly to the bowl, but it was all they had, and they had to use it. And the most common everyday cases that we met with in the Royal Infirmary in Edinburgh when I was a student there, was the Highland shepherd with his epithelioma of the lip. He smoked this little short clay pipe with the bowl close to the skin, and the epithelioma always appeared on the side of his mouth on which he carried his pipe. That seemed to be a very strong argument in favor of the origin of malignant disease from local irritation. If these cases came early enough and were excised clean and clear by the surgeon's knife and closed up, they healed within a few days, and we hardly ever saw the patient again; but if they were too late in coming, if the time had been allowed to pass on, and when the poor fellow arrived at the hospital he had enlarged glands under his chin or in the neck, no matter how carefully or how thoroughly the excision was made, a few months saw him back again with a great mass on his neck. There seemed to be a direct, straight, clear, undeniable history of malignant disease, commencing locally from local irritation and becoming gradually, general, constitutional, uncontrollable and fatal. But it is a curious fact that cases of tumors on the breast, cancers on the breast, tumors of various kinds come across our path every once in a while, where there seem to be all the characteristics of malignancy, and in which the result demonstrates that after all they were local, non-constitutional, treatable and curable, when other cases very similar, almost entirely impossible to draw the line between them, take an entirely different course. Now, then, what is the difference? What is the microscopic, physiologic, chemic condition which confers malignancy on one tumor and benignancy on another? In that direction I believe that sooner or later some great revolutionary discovery will occur by which we will be able to recognize the difference. I do not believe that at the present time, with any means we have at our disposal, we can speak with positive certainty as to the prognosis of a large class of tumors.

Certainly we can not say what makes one tumor malignant and another benign.

Now, as to the treatment of tumors by caustic. I have always been taught and always believed that that is a system of treatment used before the days of exact knowledge, in the days when the surgeon was afraid to use the knife because he did not know what trouble he might produce, and that he might get beyond his depth. And it has always seemed to me to a very large extent an unscientific, cowardly, unsurgical method of treatment. I have always thought it myself and I have always believed it and at the same time I am ready to acknowledge that under certain circumstances, in certain cases, the treatment by caustics may be the best that we can use. The treatment just described by my learned friend, by the use of sulphate of zinc, which he says himself he accidentally stumbled across, I think, in fact I have no doubt of the absolute fact, was taught in a little different way by Sir James Simpson when I was a student in Edinburgh. Sulphate of zinc was prepared in the same way but used as a fine powder, and used for ulcerating, open malignant growths; and while it was temporarily painful it certainly did tend to stay the growth and prolong the patient's life. And besides that I believe that we did once in a while come across a little growth, or at least of a suspected character, a growth in which we had reason to believe that there may be a basis of malignancy, in which an operation with the knife is difficult and unsatisfactory, where it is so situated that you can hardly make a proper or satisfactory incision with the knife, and where by some such method as has just been described, by the use of caustic carefully applied, it can be got rid of very thoroughly, very rapidly and very efficiently; but my own impression is that that class is small. I think it would be unjust for us as surgical authors to lay down the doctrine that the treatment of cancerous growths by caustics is always unjustifiable. While I do believe that in a vast majority of cases it is abused and misused and improperly used, I believe that the larger number of men who use that form of treatment are men who do not know anything about what they are doing, further than that they have got hold of some kind of treatment, and they are going to relieve the patient and get what money they can from him. I think it cruel and unscientific treatment in a majority of cases, but it is like a great many medical and surgical applications. I do not think it is possible to lay down a hard and fast cast-iron law and say, You shall not use caustic, you shall always cut, or *vice versa*. I do not think we are in a position to do that at the present time. I believe in caustics. I believe in the doctrine of the local origin and local nature of malignant growth to a very great extent. Still there are exceptions. I was going to explain one single case, and then I have done:

A patient came to me with a tumor which involved all one side of the lower jaw. It had grown rapidly. It started in the submaxillary gland and involved the jaw. I removed more than half of the jaw, and the patient apparently recovered and was in good health for twelve years; went about his ordinary avocations and had no trouble. At the end of that time he returned to me, his jaw healed up; he had a wire plate and false teeth and the scar was hardly perceptible. No person could see that there was anything wrong with him at all, but away back behind his tonsil, the same side from which I had removed his jaw, there was a great malignant growth, a lump that it was impossible to cure. After twelve years of good health between the two tumors. Now I say it is very hard to reconcile such a case as that, and I can stand here and give you many such. I think it is hard to reconcile that with the theory of a simply local nature of malignant disease. The fact is in my opinion that we do not know just exactly what we do mean by ma-

lignancy. I believe that there is something more for us to learn in that direction; I am perfectly certain of it. I believe that there is something yet beyond the reach of the microscopic lens or the chemic test, but something which the rapid and magnificent progress of modern science, surgic, pathologic and anatomic, will clear up and we will be able to apply more effective and more satisfactory treatment to them.

DR. J. W. COPENOR, Iowa.—I do not wish to enter into any discussion nor to report any cases, but I do wish to do this; to give briefly my conclusion upon this subject from my observation and experience. I believe that these cases of cancer that have been cured were not malignant cancer. I believe that we have to look beyond any local application or the knife for any permanent cure upon cancer. Further, that the cases that are supposed to have been prolonged to any great extent or possibly cured by the means that have been suggested were not malignant cancer, and the means had not been used prior to their treatment to ascertain definitely as to whether they were or were not, which can only be done, not by the naked eye, not by any observation, but by the microscope and if necessary, even a more critical examination than we could get from the microscope, and that is the only way we have of ascertaining definitely what we have. In 50 per cent. of the cases you will find that it is simply some other tumor aside from a malignant tumor. Then your local application, then your knives will be of some benefit. But if it be truly malignant then we have to look for something beyond all local treatment and the knife for a permanent cure, and I fear that it will be some time before we ascertain that.

DR. L. DUNCAN BULKLEY, New York—I am sorry I could not hear the discussion entirely, but I am glad it has taken the turn that it has, because no one feels more than I do its importance; there is no one who has thought more than I have of the danger of caustics as they are commonly applied. I believe in my paper I stated that many a case which would have proved a very simple affair has been urged on by caustics until it became malignant and beyond control of either the knife or caustics. I believe there is no one who more strongly than myself, in a large number of the cases that have come under my observation, urges instant operation. Many cases I have shown in clinics where there has been harm by the light application of silver, and as I mentioned in my paper in most cases I have advised against the use of it in any possible way for fear of tumor that I thought might be epithelioma. It should never be done. But in epithelioma of the face or the hand you certainly can get results with Marsden's arsenic paste. Long before there is any danger of infection, I certainly should allow the paste to be applied in many a case in its early stages. But in many cases it is harmful, because the caustic has not been removed, because they have tinkered with it one way and another with irritating salve, and it has gone on until it has become too late for anybody to cure. In many of those cases you can get a better result than with surgery. As I stated in my paper, I believe the arsenic penetrates further than the surgeon will penetrate with his knife. I have had several cases operated on by surgeons—I do not operate myself—and I have repeatedly stood by and urged the surgeon to go further and he would decline to. I believe and I know that the arsenic follows down further than the surgeon will go. If you are going to cut out one of these things, go clear around it, beyond all possible penetration of that epithelioma, if you are willing to make a big scar—but upon the face and upon certain other localities you will not make a scar sufficient,—you will make the incision too small, and it will certainly come out on the outside as I have seen it time and time again. Suffi-

cient paste put on rightly according to directions which are well recognized will penetrate further than the surgeon's knife. The scars from arsenic paste, used rightly—because every one has his own way of using these things, and he may not follow out all the details as another man would—the scar, I am sure, is preferable in a large number of instances to that left by operation. I have seen it leave a cicatrix that you can hardly see. The only point is to discover the proper paste, using it early and using it thoroughly, and I believe that you err greatly in supposing it, as some gentlemen have supposed it, below surgery.

DR. RANSOHOFF, Cincinnati—The cases of cancer that get well are cases of epithelioma, and some get well without treatment. Cases of epithelioma will sometimes run on ten or twelve years and finally get well. It has been stated by the gentleman from Iowa that cases of carcinoma never continue after this operation, and if I remember the words rightly, that we still have to proceed somewhere beyond the operation in order to effect a cure. Dr. McLean in his paper stated that when we see these cases of malignant disease appear early an operation, not very extensive, is possible, that it is justifiable—I do not remember his exact phraseology, but that is the impression that I obtained from his very admirable paper. I think in that remark he follows Bangs very largely in that particular, though Butlin as determined by his work, shows that it has been very largely corrected and destroyed by what he says concerning the treatment of malignancy by incomplete operation; in other words, by the mere removal of the tumor itself, leaving the parts overlying the tissues, leaving a part behind of the underlying tissue, and not investigating the axillary glands. We know very well that recently Dennis has made an admirable collection of cases from his hospital and private practice in which he had obtained a recovery in 15 to 25 per cent., which was a good deal higher than the recoveries obtained through the work of Gross. Now, say that all these cases were not cases of malignant disease, 15 to 25 per cent. of recoveries can hardly be within the limit of fact, because unless there had been a microscopic section of every tumor that had been removed in that way, in that case there could be no question at all as to the malignancy of the growth. Now, regarding the removal of the tumor, leaving the breast. It is not nearly so difficult to remove the tumor. Everybody knows that, but we know that such cases usually occur at a time of life with patients when the breasts are no longer so important, there is no longer very much physiologic need for that part of the anatomy. In the next place, to remove only the tumor leaves the integuments over it, and leaves frequently some important fascia, and it is here we have the secondary local developments of the case. One of the speakers suggested to be careful about palpating; one certainly can not do it in the axillary region through the integuments. Most of these cases happen with women with a fair or excessive development of adipose tissue, and you can not do this through the layers of much adipose tissue. For that reason, the disease being of the lymphatic glands, they ought to be opened invariably. It has been shown that not more than 2 per cent. of women die after the operation of amputation of the breast, simple amputation of the breast, and the mortality from opening and removing all the axillary glands is not excessive; the operation is not at all difficult. So I think that every woman who is unfortunate enough to be subjected to this operation ought to have not only the breasts removed, but the integuments over it. We do not have the large open wounds any more, because they can be skin-grafted at once, and the axillary region at the same time cleaned thoroughly. It is ordinarily in the axillary glands that the lymphatic disease produces its secondary consequences. From 15 to 17 per

cent. of the cases of carcinoma of the uterus have this result, because all of the glands involved are not removed, and the same is true of carcinoma of the rectum, which when it is thoroughly removed does not ordinarily produce metastasis. I did not hear Dr. Wyeth's views here upon this subject, but I feel quite certain that if Dr. Wyeth had read his paper upon the radical treatment of malignant disease, it would not have been upon the use of superficial applications with caustics, but upon the use of methods; that he would have told us something about a method like amputating at the thigh, that is to say, going up just as far as you can, and then the mortality will be diminished to a minimum. I did not hear the paper which was recently read before the Maryland State Medical Society by Halstead, of Johns Hopkins, but somebody stated that Halstead presented quite a large number of cases of malignant disease operations in which the mortality was not more than 6 per cent. But in these remarks I merely wanted to take exceptions to the remarks made by one of the speakers namely, that in cases of recoveries from malignant disease of this class they are in the nature of an Irish bull; they are not malignant diseases at all.

DR. JULES ROSENSTEIN, San Francisco—In the discussion about malignant tumors, I have missed a necessity which I think is of paramount importance, in knowing which tumors are malignant—we have been talking here mostly of cancers. Cancer to my mind does not convey a very distinct histologic meaning. There are different kinds of malignant tumors, epithelioma, carcinoma; there are sarcomas, and among the sarcomas there are again different degrees of malignancy, the round-celled sarcoma and the spindle-celled sarcoma; we all know that the round-celled sarcoma is a much more malignant growth than the spindle-celled sarcoma; also that certain kinds are of local origin—in fact, originate from some local irritation. We have the epithelioma of the chimney sweepers in some parts of Germany, caused by sliding down the long chimneys and coming in contact with the soot, and which is removed without the danger of recurrence; the parafine epithelioma of the workers in parafine factories, which attacks only certain parts of the body that come in contact with certain material used in the manufacture of parafine. In fact, we have a theory which can be fortified by a great number of facts that constant irritation, be it by whatever cause, can stimulate the growth of the epithelial cells; that they become malignant. We know that at different orifices of the body, orifices that are exposed to constant irritation by the passage of food or other material, the different passages of the stomach, rectum, the mouth, and even the cervix uteri—all these are liable to be the first or the original seat of certain kinds of carcinoma. To throw all this together without any etiologic differentiation, without saying, this kind of tumor is malignant, this kind of tumor is easily infecting the general system, while that one is growing slowly, I think is a scientific matter. The fact is, that kind of tumor, epithelioma, slow-growing epithelioma, can be treated by early operation, and if the lymphatic glands are not infected we have a certain moderate assurance of a permanent cure. We can certainly not guarantee that after a time, be it long or be it short, the lymphatic glands in the neighborhood of the tumor will be free from infection from the original point, and we will not have any secondary growth of the same kind of tumors. Indeed, as one of the talented speakers just now remarked, it is certainly dependent upon the nature of the tissues, upon the anatomic relations. Some parts that have no great connection with the lymphatic glands in their immediate neighborhood will form their growth slower; others are surrounded by a network of lymphatics that will certainly be apt to make the infection more general.

As to treatment with caustics, I believe that ought to be relegated to ancient history. We certainly can not say that our caustics shall do effective work, shall penetrate the lymphatic glands and channels and shall clear out all the infected ones, and leave the others perfectly sound and perfectly unaffected. We must rely on a very much extended operation to protect our patients, operations that can be done with safety now with the antiseptic treatment, and operations which ought to be done to protect them against infection, operations that go into all the possible channels of infection and thereby extirpate all that we can reach, and then trust that the infection has not gone any farther. That is all we can do; all we ought to do, but not any more than we ought to do. Anything that we do less is a crime against the patient. And I think the more extended the operation in early cases that come into our hands, the more benefit we will do the patients that are intrusted to our care.

DR. BISHOP, Pennsylvania—It seems to me that there is a belief on the part of this Section, and we ought to be decided in the expression of our opinions in regard to the question of the use or non-use of caustics; and I think that we owe it to our practitioners, and to our patients both, that we should be decided in the expression and assume the responsibility so that we shall be deterred, you might say, from the use of caustics. Certainly the tendency is to do more hurt than it is to do good. The percentage which would be relieved will certainly be less than the percentage relieved by operative measures, and it looks like a measure in which the practitioner either is afraid to assume the responsibility of an operation, or he is afraid that he will lose a patient, and he makes concessions to the patient and lets the patient select the operation instead of having the courage to select it himself. It is a cowardly act, it seems to me, and the man ought to assume the responsibility, and the Society ought to assume the responsibility, and give a decided expression. I think we would make no mistake by doing that, and we do make mistakes by leaving it an open question as to whether the one or the other should be used.

DR. I. M. QUIMBY, Jersey City, N. J.—I think this differential diagnosis should have an important bearing. You take the case in which a local irritation has brought out or developed the disease, as by tobacco. These are the cases in which a different form of treatment frequently may be had. You take a case, on the other hand, where it seems to grow, a sort of imperceptible growth, without any definite or any positive local irritation there; I think you have something of a constitutional disturbance, and so you can not make your diagnosis more exact of all diseases. It has been laid down by some writers on tumors that they are all of local origin. I think that is a mistake. There are some that certainly are constitutional. You can not treat those with the same line or kind of treatment. I had a case of exuberant granulation that came to me—a burn after six or eight years' treatment with all sorts of mild caustics, burnt alum, and nitrate of silver; the local physician had used that for several years—the case came to me, and I found that I could do nothing with it and advised amputation. However, I sent him over to the hospital, thinking that Dr. Bulkley with his experience in a cancer hospital might say differently, but he thought nothing could be done but amputation. I simply mention this case to show the damage that may be done, a benign tumor, a non-malignant trouble, a simple burn that had been tortured into a malignant growth, and the man lost his arm. So we want to be right on the thing to be used, and use it thoroughly. I think the plan laid down by Washington Atlee several years ago is a good one, that all patients should be treated in a constitutional way, and if it is by the arsenical operation, for one or two or three months take the Powers' solution, which I have done

in several instances with marked success, and where there was no return. I operated upon a lady twenty-five years ago for a malignant growth on the lip. I treated her with mercury for a while, and then the potassium iodid, and then I put her on the treatment of the arsenical operation and kept her on that for three months. That was twenty-five years ago and the trouble has not returned, and I could give you a number of instances to illustrate what I think is the success of constitutional treatment after that operation, whatever it may be. As far as local treatment is concerned, I do not think we ought to be like machines to follow any one treatment, although I believe in the knife. It is the quickest, and I think it is the safest, especially with epithelioma of the lip. In flat cancers of the face perhaps paste may be important, but where you can amputate, excise, I think it is better, and the patients do not suffer so much. I have noticed in several instances where the patient has been treated with caustics his health seems affected from the constant irritation, and that does not occur with the knife. Therefore I give preference to the knife, and then constitutional treatment afterward.

The Chair appointed as a Nominating Committee, Drs. D. W. Graham, Chicago; H. M. Sherman, San Francisco; and D. Root, Connecticut; and as alternates on the Business Committee to supply vacancies, Drs. Joseph Ransohoff, Ohio; and R. H. Sayre, New York.

Adjourned.

SOCIETY PROCEEDINGS.

Colorado State Medical Society.

The twenty-fourth annual convention of the Colorado State Medical Society was held June 20, in Denver.

Dr. E. J. A. Rogers called the convention to order shortly after 10 o'clock. At that time there were present E. J. A. Rogers, S. A. Fisk, A. M. Bucknum, A. S. Lobingier, E. R. Axtell, V. P. Munn, W. F. McClelland, W. E. Wilson, J. N. Hail, John Chase, John N. Foster, J. W. Collins, Howell T. Pershing, I. B. Perkins, Jesse Hawes, Greeley; E. C. Rivers, Herbert Work, Pueblo; C. F. Shollenberger, J. W. Exline, A. Nickerson, T. M. Burns, J. Kelly, J. E. Waxham, D. E. Wetzel, George Cleary, C. P. Conroy, W. Weist, O. A. Pfeiffer, O. W. Mill, P. F. Gilder, Colorado Springs; A. J. Baker, P. D. Rothwell, W. J. Rothwell, C. K. Fleming, E. H. Fish, O. H. Simmons, Leadville; J. T. Beatty, Lupton; J. W. Collins, H. B. Whitney, J. N. Vroom, G. M. Black, E. H. Allison, F. D. Green, E. C. Rivers, E. M. Marbourg, Robert Levy, W. C. Bane, W. W. Bulette, Pueblo; R. F. Le Mond, E. J. Rothwell, Mrs. Exline and Mittie Bradner, J. C. Herrick, G. B. Packard, Una G. Roberts.

Dr. Hubert Work, of Pueblo, read the annual report, which showed healthy branches of the Society to be in existence in the principal towns of the State. Reports were also read from the Treasurer and the committees on publication, and medical societies.

The main business of the convention was then proceeded with. Papers on various diseases and their various methods of treatment were read, among them being these: "Operative Treatment of Granulated Lids," by John M. Foster, Denver; "Some Cases in Ophthalmic Practice," by F. D. Green, Pueblo; "Report of Two Cases of Removal of Cataract and of a Piece of Steel at the Same Operation," by E. C. Rivers, Denver; "A Report of Eleven Cases of Intubation of the Larynx in Denver, Colo., with Exhibition of a Lamp for the Sublimation of Calomel," by F. E. Waxham, Denver; "Dacryo-Cystitis and Its Complications," by E. M. Marbourg, Pueblo; "A Valuable Artificial Membrana Tympani," by Geo. Cleary, Denver; "The Treatment of Empyema of the Antrum of Highmore," by Robert Levy, Denver; "The Use of a Modified Nasal Trephine in Hypertrophic Rhinitis," by G. M. Black, Denver; "Ophthalmic Memoranda," by W. C. Bane, Denver; "Acute Otitis Media," by W. W. Bulette, Pueblo; "What a General Practitioner Should Know About Eye Troubles," by R. F. Le Mond, Denver; "Eczema Marginatum and Eczema Seborrhoeicum," by D. E. Wetzel, Denver.

The afternoon session opened with a symposium on obstetric difficulties. Dr. Jesse Hawes, of Greeley, read an interesting paper on "Rigid Os," which was followed by Dr. W. S. Bagot, of Denver, with an able and argumentative paper on "Extra-uterine Pregnancy." Another carefully prepared and statistical paper was that by Dr. Herbert Work, of

Pueblo, on "Maternal Impressions." The preponderance of opinion quoted by Dr. Work appeared to favor the theory that unusual mental or physical agitation of the mother during her term of pregnancy was almost certain to be transmitted to the child.

"Unusual Operative Procedures" was the title of an exceptionally practical paper by Dr. Neil McPhatter, of Denver. The woman and babe whose lives Dr. McPhatter saved were present at the session. Dr. McPhatter said: I believe the part assigned to me for discussion this afternoon is a consideration of the unusual methods or extraordinary measures that may legitimately be resorted to in difficult parturition, when the difficulties assume such proportions that the woman can not be delivered by any of the ordinary means. My sphere is limited to a still narrower margin than this, for I have been informed by the gentleman who so kindly invited me to participate in this discussion to endeavor to confine my remarks more particularly to that part of the obstetric art which calls for the use of cutting instruments, *i. e.*, when there exists such a disproportion between the natural passage and the size of the fetus as to render it absolutely impossible for the child to be delivered in the ordinary manner. Then we come upon a peculiarly interesting and tremendously responsible situation, for it is one in which the lives of mother and child are placed in imminent jeopardy, and one which calls for the highest and at the same time most evenly balanced judgment on the part of the attending physician. In the remarks to which I give expression I trust I shall approach the subject free from the thrall of preconceived ideas, and unbiased in the advocacy of any one method of procedure only in so far as the merit of such a method demands.

Fortunately for mankind, more particularly for those who are obliged to bear the burdens and dangers of parturition, nature in her own inimitable ways and by ordinances that far surpass in beauty and perfection of design the imagination, is usually quite competent to fulfill this trying ordeal. Occasionally, however, the ordinances of nature are disregarded. Morbid influences in the pelvis of the mother or unnatural development on the part of the fetus may render it absolutely impossible for the woman to be delivered normally, and it is here that the cunning hand of the surgeon may be of the utmost importance to life. It is highly commendatory to the standing of the profession at the present time that the principles we advocate have been so beneficial to mankind. The method in vogue not many years ago of resorting to the operation of craniotomy with the appalling disasters that followed in its wake, forms one of the darkest pages in the history of obstetrics. When one contemplates the frequency with which this operation was resorted to in preference to others much less dangerous, it would seem that the spirit of scientific midwifery was long lulled to sleep and that nature had become emasculated. The operation of eviscerating the yet warm and quivering body of an innocent babe from its mother's womb should be reserved for very rare and exceptional cases, such as hydrocephalus, or where the child is already dead. Much more satisfactory and humane methods are the Cæsarean section and Porro's method of operating.

Porro's operation, unlike the majority of recent triumphs in surgery, is not one which has been resuscitated after having been performed and discarded many years before, but is of comparatively recent origin. The first successful case on record was performed in the year 1876 by Porro of Bavaria. It has since been performed a great number of times with comparatively good results. Heretofore, and even at the present time, this operation and the Cæsarean section had been indiscriminately advocated when the condition present called for one or the other method. I believe this to be a mistake. Whether the Cæsarean section can have any advantages over its recent rival rests wholly upon a question of morals. Certain it is that there are well defined conditions and complications in pregnancy when Porro's method is the only scientific course to pursue.

Each method may possess well-defined advantages over the other, and in estimating the relative values of Porro and Cæsarean sections a number of important conditions should be remembered. In all cases where pregnancy is complicated by tumors, such as fibroid of the uterus, ovarian, or dermoids, as was the condition in this case, hysterectomy is the preferable operation. Where labor has proceeded for a long time and the uterus becomes putrid, Porro's operation ought to be selected. In certain operations begun as Cæsarean sections, but which become complicated by difficulties in the detachment of the placenta, uncontrollable hemorrhage or complete atresia of the vagina, Porro's is the