J. E. SUMMERS, JR.,
President Nebraska State Medical Society, 1895-'96.
PROCEEDINGS

OF THE

Nebraska State Medical Society

TWENTY-EIGHTH ANNUAL SESSION,

1896.

PUBLISHED BY THE SOCIETY.
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LINCOLN, NEBRASKA.
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The Nebraska State Medical Society does not hold itself responsible for, or necessarily endorse, any of the papers printed herein.

George H. Simmons,
Secretary Nebraska State Medical Society.
OFFICERS
OF THE
NEBRASKA STATE MEDICAL SOCIETY.

1896–1897.

F. D. Haldeman, Ord..............................................President
O. Grothan, St. Paul..............................................Vice President
George H. Simmons, Lincoln..............................Recording Secretary
H. B. Lowry, Lincoln..........................Corresponding Secretary and Librarian
W. M. Knapp..................................................Treasurer
MINUTES
OF
TWENTY-EIGHTH ANNUAL SESSION
OF
NEBRASKA STATE MEDICAL SOCIETY,
Held at Lincoln, May 19, 20, 21, 1896.

AFTERNOON SESSION.

LINCOLN, May 20, 1896, 5 p. m.

Society convened in the United States court room at 5:30 p. m. and called to order by the President, J. E. Summers, Jr.

Officers present: President, J. E. Summers, Jr.; Corresponding Secretary, W. R. Lavender; Recording Secretary, George Wilkinson; Treasurer, W. M. Knapp.

The following members registered during the session:

C. E. Coffin, Asylum, Lincoln; Jos. H. Miller, Gering; M. H. Everett, Lincoln; Geo. Roeder, Grand Island; J. W. Thompson, Strang; H. S. Bell, Kearney; J. W. Johnson, Geneva; W. M. Knapp, Lincoln; H. B. Lowry, Lincoln; George Wilkinson, Omaha; J. R. Haggard, Lincoln; A. R. Mitchell, Lincoln; J. H. Tyndale, Lincoln; Geo. H. Simmons, Lincoln; A. H. Hostetter, Douglas; J. O. Carter, Lincoln; J. O. Dawson, Lincoln; E. A. Benton, Central City; Ira G. Stone, Mead; M. J. Gahan, Grand Island; F. N. Dick, North Platte; W. R. Lavender, Omaha; J. W. Bullard, Pawnee City; R. M. Stone, Omaha; W. Ross Martin, Omaha; W. O. Bridges, Omaha; Jno. E. Summers, Jr., Omaha; Victor H. Coffman, Omaha; E. R. Fletcher, St. Paul; A. D. Wilkinson, Lincoln; Georgina Grothan, St. Paul; Ed-
ward Tanner, Battle Creek; W. B. Ely, Ainsworth; F. S. Owen, Omaha; W. L. Dayton, Lincoln; J. M. Hardy, Fontanelle; A. D. Nesbit, Tekamah; Henry D. Boyden, Grand Island; E. A. Smith, Fullerton; I. J. Chidester, Western; J. T. Hay, Lincoln; H. P. Hamilton, Omaha; J. Theo. Miller, Holdrege; F. A. Butler, Harvard; R. D. Bush, Ceresco; J. P. Lord, Omaha; J. V. Beghtol, Friend; W. H. Wilson, Table Rock; N. H. Wilber, Howell; G. W. Meredith, Ashland; A. S. v. Mansfelde, Ashland; S. A. Wright, Pawnee City; H. M. McClanahan, Omaha; E. H. Smith, Shelton; S. C. Beede, Surprise; W. C. Campbell, Creighton; M. D. Carter, Tobias; W. F. Reynolds, York; F. D. Haldeman, Ord; Jas. B. Hungate, Weeping Water; R. E. Giffen, Lincoln; A. F. Jonas, Omaha; Claude Watson, Nebraska City; W. A. Chapman, Hastings; B. F. Crummer, Omaha; G. W. Meredith, Ashland; J. C. Denise, Omaha; H. C. Manary, Carleton; Chas. Rosewater, Omaha; Richard C. Moore, Omaha; W. H. Parkhurst, Dunbar; C. S. Gafford, Wymore; D. C. Bryant, Omaha; S. E. Cook, Lincoln; B. B. Davis, Omaha; Frank G. Salter, Dannebrog; O. Grothan, St. Paul; N. J. Beachly, Lincoln; P. H. Salter, Norfolk; Lee Wilson Edwards, Lincoln; Albert P. Fitzsimmons, Linwood; Henry D. Boyden, Grand Island; F. W. Lester, David City; G. W. Shidler, York; Edward J. Angle, Lincoln; Minerva M. Newbecker, Asylum; J. A. Haggard, Unadilla; J. M. Aikin, Omaha; L. M. Shaw, Osceola.

The following new members were reported upon favorably for membership by the Committee on Credentials during the session, and elected to membership:

John A. Haggard, Kentucky School of Medicine, 1881, Unadilla.
A. W. Riley, University of the City of New York, 1880, Omaha.

Minerva M. Newbecker, Northwestern University, Woman's Department, 1893, Lincoln.
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HENRY D. BOYDEN, Louisville Medical College, 1894; University of Pennsylvania, 1895, Grand Island.

LEE WILSON EDWARDS, Omaha Medical College, 1893, Lincoln.

JOSEPH M. AITKIN, Iowa State University, 1887, Omaha.

CARL A. HOFFMAN, Creighton Medical College, 1896, Omaha.

EWING BROWN, Jefferson Medical College, 1883, Omaha.

C. FREDERICK STOCKERT, Rush Medical College, 1893, Weston.

EMMA WARREN DEMAREE, Northwestern University, Woman's Department, 1895, Roca.

EDWARD J. ANGLE, Medical College of Ohio, 1887; University of Pennsylvania, 1895, Lincoln.

ALBERT P. FITZSIMMONS, Omaha Medical College, 1895, Linwood.

FRED W. LESTER, Rush Medical College, 1879, David City.

GEORGE H. GILMORE, Rush Medical College, 1895, Murray.

ROBERT McCONAUGHY, Jefferson Medical College, 1875, York.

HENRY B. WILSON, Maryland University, 1889, Omaha.

W. T. MILROY, College of Physicians and Surgeons, New York, 1882, Omaha.

W. S. GIBBS, University of Iowa, 1879, Omaha.

R. E. GIFFEN, Bellevue Hospital Medical College, 1880, Lincoln.

P. H. SALTER, Royal College of Physicians and Surgeons, Edinburgh, Scotland, Norfolk.

J. M. HARDY, Columbus Medical College, 1887, Fontanelle.

W. D. JONES, Chicago Medical College, 1887, Risings.

JOHN BARNES JACK, Rush Medical College, 1895, Nebraska City.

Reading of minutes of last meeting dispensed with.

Committee of Arrangements reported through Dr. H. B. Lowry.

On motion of Dr. E. W. Lee, meeting adjourned until 7 P.M.
EVENING SESSION.

Called to order at 8 P. M. and the President delivered the following address:

PRESIDENT'S ADDRESS.

Ladies and Gentlemen:

Permit me to again express my acknowledgment of appreciation of the high honor conferred in selecting me to preside over your deliberations at our present meeting.

The brief communication which I have to make can hardly be considered in the light of an inaugural address, but if the few suggestions made are productive of good to the future prosperity of the society, we may have cause for congratulation.

To the student it cannot but be apparent that the past year has been one of wonderful progress in the medical sciences. The cause and prevention of disease being in the van—microbiology and physiological chemistry the keys. It is not my purpose to attempt to enumerate what may justly be considered the advancements; the problem would be too serious, but the educated world has awakened to a realization of the fact that the science of medicine is the greatest of sciences. It combines all of the higher sciences; its possibilities are beyond imagination. There is no thought so beautiful as that of a world without disease; where sickness, pain, and sorrow are prevented by a thankful appreciation of the greatest gift of God, the intellect. We of to-day owe a duty to those who have preceded us, and advanced medicine so as to place it among the sciences. We each can do our mite. Perhaps few have minds so trained as to participate largely in the more deeply scientific departments of the profession, yet we can do much by furnishing thought and material for these workers—harvesting the products of their labors, separating the grain from the chaff for the prevention and cure of disease. Second only to books and journals comes a medical
TWENTY-EIGHTH ANNUAL SESSION.

society, as our best post-graduate educator, and it is a lamentable fact that this is not appreciated. Throughout the Union not more than one in five physicians are members of their respective state medical societies, and, worse still, in many well populated districts, counties, and cities no local medical societies are organized. In a recent address by a well known surgeon the statement was made that in his state not more than one in twenty-five of the physicians were members of the state medical society. What a commentary on a commonwealth that had produced a McDowell, leaving a heritage recognized in both hemispheres! The medical profession of Nebraska has not done its duty towards the state society, only about one in five eligible physicians being members. From every point of view there is much to be gained in an active membership. "There may be ever so much fire in a flint, yet without friction it cannot be called forth. The medical society is designed to bring out the fire of thought from the reasoning centers."

For myself it can be truly stated that I never attend a medical society meeting that I do not learn something. Either an appreciation of ignorance or weakness in some particular subject is felt, or a feeling of pride and strength in my work urges me on to further endeavor, and this must be the experience of every one. Any member who will merely listen to the papers and discussions promised by the program of this meeting cannot fail to go home well repaid for his attendance; he will have a kindlier feeling towards his brother practitioner, and if made of the right kind of material, he will have a better appreciation of himself and a greater desire, by honorable means, to impress his community of this fact. I have been especially impressed that there are entirely too many good men not members of our organization; it is also noticeable that as a rule, in the communities which I have visited, the physicians having the best equipped offices and greatest evidence of professional prosperity were mem-
bers of the State Medical Society. The layman appreciates this as a time of progress; that the physician who is a student, is interested in his profession, attends the local and state medical societies regularly, goes to the medical centers for practical instruction occasionally, he is the safer man, and employs him in preference to the bigoted know-it-all, stay-at-home, non-interested, non-progressive barnacle of the profession. The great advance in medical knowledge has been necessarily accompanied by so great an increase in the requirements of a medical education that a proportionate increase in time of study demanded of students has become an absolute necessity. The medical schools of our states have kept in touch with the progress, and now require four courses of lectures, no two to be held in the same year. They also demand a good preliminary education prior to matriculation. This is as it should be. Although it may work an occasional hardship, it is for the common good, and we as a society should bend every effort to maintain this advance in medical education by impressing upon our law-makers to so modify our present state law as to demand of a physician wishing to practice in Nebraska that he shall have graduated from a school requiring four years of medical study in college before receiving a certificate from the State Board of Health. Undoubtedly it would be better still if, in addition, an examination by the Board were required, but perhaps we had better not try and ask too much now; past experience would indicate this. I would suggest that a committee of this Society arrange to confer with a like committee of the Homoeopathic and Eclectic State Medical Societies, with the object of so utilizing their combined strength that the standard of admission to practice medicine in our state will be elevated, as has been done in many other states. Otherwise, Nebraska will become the dumping ground for the short-time graduates. It is a vital matter to every legally qualified medical practitioner, and cannot fail of endorsement.
I would also suggest that hereafter our proceedings be bound in substantial form, and that they do not be given to any medical journal whose existence may be precarious. The old method of publication, that is, a bound transaction, as in most of the other states, is preferable. Every writer should be allowed the privilege of publishing his paper in any journal of his own choosing, handing a copy to the secretary of the society for publication in the bound transactions. By following this plan, writers may publish their papers either in local journals or those of a more special or cosmopolitan kind, in this way broadening the reputation of authors and of the society.

The bound transactions we will have as records of business, reminders of happy intellectual communion, monuments of progress. It is quite noticeable that too many papers are from members living in one section of the state. This breeds indifference and timidity among those living elsewhere, and does not give proper recognition. It is harmful, also, because proper knowledge of the natural history of diseases, as observed by our fellows under the different climatic influences of our state, is not recorded. For example, pneumonia and some other pulmonary lesions will not behave the same with a humidity and elevation of Omaha as they may in the more western sections, with less humidity and several times the elevation. The same is true of cardiac and renal diseases, as it certainly is of rheumatic and some so-called nervous diseases. Nature affords a better asepsis in the management of surgical diseases and injuries in the dry, pure atmosphere of Western Nebraska than can be expected in the dusty, smoke-laden atmosphere of its eastern cities. There is apt to be less putrefaction of discharges in infected wounds, and less likelihood of infection, because of the absence of those elements essential to the existence and propagation of micro-organisms. Surgical shock is not so soon recovered from in elevated districts as in sections nearer the sea level. The heart cannot
react so promptly; hence greater care is necessary in the preparation of the patient prior to and in the treatment after surgical operation, whether done for traumatism or disease. Personal experience has taught me the wisdom and truth of these practical subjects, which can easily be elaborated. The broadness of the field has merely been suggested. Would it not be well to have the President appoint a special committee, whose members come from all scattered sections of the state, whose duty it will be to secure new members, and also the readers of papers for the following meeting? Not that we require a greater number of readers of papers; on the contrary; but a more equal geographical distribution and fuller discussions. A perusal of the transactions of the medical societies in most of our sister states cannot but reflect credit upon the work done by our own Society; yet, if we would be among the foremost, the leaders, let us redouble our efforts, with the assurance that success in the broad field of medical science is not limited geographically, but is meted out to those who strive for it worthily.

Moved and seconded that a special committee be appointed to which is referred the President's address to embody in said report the suggestions presented and to report same to Society. Carried.

The following committee was appointed by the chair: W. M. Knapp, G. W. Johnston, W. O. Bridges.

REPORT OF CORRESPONDING SECRETARY.

OMAHA, NEB., May 19, 1896.

Mr. President, and Members of the Society:

During the past year the following copies of transactions, etc., were received:

American Academy of Medicine, bulletins, paper.
American Academy of Medicine, transactions 1894, paper, 686 pages.
During the past year your Corresponding Secretary forwarded copies of our transactions for years 1893–4 to the following state societies:

Two years ago the Society created the appointive office of Librarian, and in view of the fact that for the past two years your Corresponding Secretary has been fulfilling the duties which properly pertain to the office of Librarian, I would recommend the abolition of the at present useless office of Corresponding Secretary.

The office of Librarian should be elective and permanent, so that sister societies could forward directly to the incumbent, books, transactions, etc., thereby enabling an indexing of the subject-matter contained therein, to be embodied in that officer's annual report for future reference by our members. The incumbent should be a resident of Lincoln on account of the Society's rule in reference to the placing of transactions, etc., in the State University Library.

I would respectfully suggest for your consideration an earlier appointment, after the installation of our presidents, of the chairmen of the different sections than in the past; such an arrangement would enable the chiefs of sections to invite papers, etc., from the members at large upon some selected and important subject in that particular section and undoubtedly increase its value at our annual sessions. This rule has been adopted successfully by some of the leading medical societies of this and other countries.
1895.
To 50 copies of transactions 1893–4 mailed to sister societies............................................. $5 00
By cash received from G. Wilkinson, M. D., Recording Secretary ........................................... 5 00
Respectfully submitted,
W. R. Lavender,
Corresponding Secretary.

Moved and seconded that the report of the Corresponding Secretary be referred to same committee as on President's address. Carried.

ANNUAL REPORT OF RECORDING SECRETARY.

Mr. President, and Members of the Nebraska State Medical Society:

The year just past has been a repetition of the one gone before—Nebraska has suffered much.

I have been interested in the compiled reports of the different state societies and have always replied readily to questions concerning our state organization. This does not seem to be true of other secretaries, hence reports are very meager. The following from the president of the Texas State Medical Society is all there is of recent date:

"California: Number of physicians, 2,700; number who belong to state society, 360, 13.33 per cent; number who attend annual meetings, ——.

"Alabama: Number of physicians, 1,800; number who are members of the state society, 1,100, 61.11 per cent; number who attend annual meetings, 225, 20.45 per cent.

"Nebraska: Number of physicians, 1,100; number who are members of the state society, 350, 31.81 per cent; number who attend annual meetings, 150, 43 per cent.

"Mississippi: Number of physicians, 2,000; number who are members of the state society, 450, 22.50 per cent; number
who attend annual meetings, 150, 33 per cent. Mississippi has two state societies, and both are included in above figures.

"Georgia: Number of physicians, 3,000; number who are members of the state society, 450, 15 per cent; number who attend annual meetings, 175, 38.88 per cent.

"Texas: Number of physicians, 4,000; number who belong to the state society, 386, 9.65 per cent; number who attend annual meetings, 175, 45.33 per cent.

"Again, Texas is not behind in her membership in the American Medical Association. Virginia, with over 2,800 physicians, has 38 members. North Carolina, 1,600 physicians, has 17 members. Mississippi has 2,000 physicians, 21 members. Alabama, 1,800 physicians, 20 members. Nebraska has 1,100 physicians, 68 members. Texas has 4,000 physicians, 71 members."

This is not a bad showing for Nebraska, but the fact is the figures are much too high. They would be correct did our members remain in good standing, but there are many men who actually have not been able to keep up their dues. No one is in good standing unless his dues are all paid.

As secretary of the Committee on Publication I would state that the transactions of this Society have been all published. There remain with me a number of the volumes of 1893-4 not yet distributed. I have distributed many of them. With reference to the work of 1895: The proceedings have all been published in journal form. There remain the volumes to be bound, fifty for the use of the Society and those for members who order of the publisher. This binding should all be done at once, and as soon as the treasury is able the books had better be bound.


1895.

DEBIT.
May 22, Stenographer at Grand Island................. $5 00
July 20, To Corresponding Secretary.............. 5 00
TWENTY-EIGHTH ANNUAL SESSION.

July 20, Postage .............................................................. $10 00

1896.

Jan. 1, Postage .............................................................. 5 00
April 2, Postal cards and printing ................................... 7 00
May 3, Program and mailing .......................................... 15 00
May 3, Book for minutes ............................................... 3 00

1895.

CREDIT.

May 22, By cash ............................................................. $50 00

1896.

May 21, Fees from new members ...................................... 110 00

Balance on hand ......................................................... $110 00

Respectfully submitted,

GEORGE WILKINSON,
Secretary.

Moved that report of Recording Secretary be also referred to committee on President's report. Carried.

REPORT OF TREASURER.

W. M. KNAPP, TREASURER,

In Account with Nebraska State Medical Society.

Dr. Cr.

Balance on hand as per report 1895...........$190 82

1895.

May 22, Received from Secretary, fees 8
new members........................................ 40 00
Received from members during the year
on dues............................................... 250 25

Total receipts...........................................$481 07

1895.

CREDIT.

May 22, By amount voucher No. 1........... $50 00
July 11, By amount voucher No. 2.......... 25 55
Oct. 7, By amount paid on voucher No. 3, 100 00


Dec. 10, By amount paid on voucher No. 3, $35 00
1896.
Jan. 13, By amount paid on voucher No. 4, 58 34

Total paid out................................. $268 89
By balance........................................ 212 18

$481 07 $481 07

May 19, To amount on hand ...................$212 18

Report of Treasurer reported to Auditing Committee.
Moved and seconded that the report of special committee
on President's, Corresponding Secretary's, and Recording
Secretary's reports be made a special order of business for
7:30 p. m. Wednesday. Carried.
Report of Committee on Necrology read by Secretary.

REPORT OF COMMITTEE ON NECROLOGY.

Mr. President, and Members of the Nebraska State Medical
Society:
Your Committee on Necrology would beg leave to report
the death of three members, within the last year, with the
following brief biographies:

M. W. WALTON, M. D., was born the 5th of May, 1842,
at Thornton, Indiana, and died of apoplexy, July 11, 1895,
at Beatrice, Nebraska. His literary education was obtained
at Freeport, Illinois, whence his parents had removed while
he was in his twelfth year, and at Madison, Wisconsin. He
took his medical degree from the Chicago Medical College, in
March, 1868. He first located in Stephenson county, Illinois,
where he remained till 1879, when he went abroad, spending
two years in clinical work in Germany and France. On his
return to America he located in Chicago, Illinois, whence he
came to Beatrice, in 1885. While a resident of Illinois, he
was a member of the Illinois State Medical Society, and dele­
gate to the American Medical Association. At the time of
his death he was president of the Gage County Medical So­
TWENTY-EIGHTH ANNUAL SESSION.

Dr. Walton was well liked by his fellow-laborers in the profession, and enjoyed the confidence of the people to such a degree that his practice was large and remunerative.

METHA HELFRITZ JONAS, M. D., was born January 23, 1857, in Arlington, Wisconsin, and died in Johns Hopkins Hospital, October 28, 1895. At the age of nine years her parents located at St. Ansgar, Mitchell county, Iowa, which was her home, till she came to Omaha, in 1889, as the wife of A. F. Jonas, M. D., and where her burial was attended and mourned by a host of friends and admirers. She manifested a thirst for knowledge at a very early age, and not satisfied with a common school education, at the age of fifteen spent a year in the University of Wisconsin. Owing to pecuniary inability on the part of her parents she was obliged to leave college, and for some years devoted herself to teaching and other useful employments that brought revenue, till 1882 she entered the University of Iowa and took the degree of A. B. in 1886, and later that of A. M. on examination. She then studied medicine, and graduated from the Woman's Medical College, Chicago, Illinois, in the class of 1889.

After locating in Omaha she became a member of this Society, and also of the Omaha Medical Society and of the Missouri Valley Medical Society, in all of which she was interested, and to which she contributed valuable material. She was intensely devoted to her profession, was a conscientious, careful, safe practitioner, especially in diseases peculiar to her sex, while few, if any, could excel her expertness as an assistant in the operating room.

Dr. Jonas was a student in other fields besides that of medicine, and was constantly adding to herself attainments which fitted her for wider usefulness. In microscopy she was an expert, and was thoroughly up in pathological and histological laboratory work. She was an accomplished musician, and in her leisure moments took up photography, and succeeded in developing many meritorious productions.
For many years Dr. Jonas was an intense sufferer from pelvic disease, which was borne patiently and uncomplainingly, till released by death, following a surgical operation, at the time and place above mentioned.

Aurelius Bowen, M.D., was born January 30th, 1817, at Reading, Windsor county, Vermont. His father, Silas Bowen, was a physician of Welsh descent. Aurelius received his literary education at Bennington, Vermont, and April 10th, 1846, married Miss Isabella Forbes, of Windsor. He graduated in medicine in 1851, from the Castleton Medical College, Vermont, an institution long since suspended. He first settled in northern Illinois, but in 1855 went to Kansas, where he took part in the exciting scenes attendant upon the organization of that state. His sojourn there, however, was not of long duration, for we find him located in Nebraska City, Nebraska, in 1856, where he was ever afterward a prominent, honored citizen, and successful practitioner.

Subjected to influences that developed a scholarly and cultured physician in New England, he was always true to his convictions and maintained them even at times when nerve and muscle were more serviceable than culture. Though irascible, pugnacious, and energetic, he was humane, generous, and dignified, and his support was given to every enterprise that promised to add to the common happiness of his city and state. He was state senator from the third district of Nebraska, 1873-74, and was the author of the bill for an institute for the blind in Nebraska City. He was one of the incorporators of the deaf and dumb institute, located at Omaha, named in the act incorporating that institution February 7th, 1867, and was a member of the board of trustees from that date to 1875.

During the late civil war he was surgeon of the Second Nebraska Cavalry; was at the battle of White Stone Hills in the Sioux war, in 1863, under General Sully, and received honorable mention; was medical director of the district of
Nebraska, and after the war, up to 1880, was United States examining surgeon. As his ancestry served in the revolutionary war, he was a member of the Society of the Sons of the Revolution.

In his chosen profession, Dr. Bowen was always to the front. He joined the Nebraska State Medical Society at its first annual meeting in Nebraska City, 1869, and was chairman of the committee of arrangements at its last meeting held in Nebraska City, May, 1893; thus completing more than a quarter century of continuous and active membership. No member took more interest in the Society’s prosperity, as was attested by his frequent presence at its meetings, and his contributions from time to time. He was honored with the presidency in 1872-’73. He was also an active member of the Otoe County Medical Society, and also of G. A. R., Wm. Baumer Post No. 24, of Nebraska, under whose auspices he was buried at Nebraska City. His death occurred on the 5th of August, 1895, at the asylum for the insane at Lincoln, where he had been removed for treatment and care, in consequence of loss of mind following general paresis.

Your committee regrets that the above biography is not as complete, perhaps, as it should be, realizing that a “great man has fallen in Israel,” but it is the best that could be procured in the limited time at their command.

J. C. Denise.
M. L. Hildreth.
D. A. Walden.

On motion, report of Committee on Necrology adopted by a rising vote.

Under miscellaneous business, on motion, an invitation of Dr. Abbott to visit the State Insane Asylum was accepted and the hour fixed between 12 and 2 p. m. on Wednesday. Also invitation accepted to visit Dr. Brace’s laboratory to witness, at 9 p. m., Wednesday, experiments with Röntgen rays.
Motion to employ a stenographer at a cost not to exceed $40. Adopted. Said stenographer to take the discussions of Society.

On motion of Dr. Garten the Society allows the janitor $1 per day for services.

Adjournment.

MORNING SESSION.

WEDNESDAY, May 20, 9 A. M.

Meeting called to order by the President at 9:30 A. M., and the reading of papers was immediately taken up, the following papers being read:

Dr. W. O. Bridges, "The Significance of Blood Examinations in Disease."

Dr. W. Ross Martin, Omaha, "Anterior Poliomyelitis."

Dr. H. M. McAlanahan, Omaha, "Infantile Scorbutus."

Dr. G. A. Meredith, Crawford, "Notes of a Case of Suspended Volition and Locomotion."

Dr. A. N. Loper, College View, "Dyspepsia."

Session adjourned until 2 p. m. and a large number of the members visited the asylum during the intermission, where they were elegantly entertained by Dr. Abbott and his able assistants.

AFTERNOON SESSION.

Meeting called to order by the President, Dr. Summers, at 2:30, and the following papers were read and discussed:

Dr. H. P. Hamilton, Omaha, "Reports of Two Peculiar Cases, with Remarks on Each."

Dr. B. F. Crummer, Omaha, "Some Points in the Management of Empyema."

TWENTY-EIGHTH ANNUAL SESSION.

Dr. W. A. Chapman, Hastings, "Report of One or More Cases."
Dr. V. H. Coffman, Omaha, "Injections of Carbolic Acid in the Treatment of Hydrocele," etc.
Dr. J. H. Miller, Gering, "A Case of Stricture of the Esophagus."

EVENING SESSION.

Society called to order at 7:30.
Professor Ward, of Lincoln, elected an honorary member by acclamation.

The report of the Committee on President's Address, etc., being the special order for this time, this matter was taken up and the chairman of the committee, Dr. Knapp, read the following report, which was read section by section, and after considerable discussion as to the merits of publishing the proceedings in a journal or in book form, it was finally decided to adopt the full report of the committee and therefore to publish the proceedings in book form:

Mr. President, and Members of the Nebraska State Medical Society:

Your committee on the address of President Summers and the reports of the Recording and Corresponding Secretaries report favorably upon the following recommendations:

1. That the committee on medical legislation be requested to confer with like committees from the other state medical societies, to the end of agreeing upon a medical bill to be presented at the next session of the legislature, which shall at least require that only such diplomas shall be recognized by our state board as are issued by medical schools in good standing, requiring at least attendance upon four courses of lectures of not less than six months each, no two in the same year.

2. That the transactions of the Society be published in book form, such publication to be issued within three months after
adjournment of the session, and that a resolution be passed permitting the publication of any paper where the author desires.

3. That the President appoint and notify the chairmen of sections within three months after his election, that they may have sufficient time to prepare the section work.

4. That the offices of Librarian and Corresponding Secretary be united and elective; that said officer be a resident of Lincoln.

W. M. KNAPP,
Except second recommendation.

W. O. BRIDGES.

Dr. Geo. H. Simmons presented the two following propositions:

LINCOLN, NEB., May 19, 1896.
To the President and Members of the Nebraska State Medical Society:

GENTLEMEN—We beg leave to make the following offer:
We will print and publish the minutes, papers, discussions, and membership roll of this, the twenty-eighth annual session of the Nebraska State Medical Society, in the Western Medical Review, and charge for the same as follows: Two dollars ($2) per page for printing the papers, discussions, and membership roll, and two dollars and seventy-five cents ($2.75) per page for the minutes. We will also print and bind in cloth as many copies of the complete proceedings as may be needed by the members, and the society, at the actual cost of press work, paper, and binding. We will also send the Western Medical Review to each member of the State Society until May, 1897, free. We guarantee to give a good medical journal, well printed and free from all obnoxious matter, both in its advertising pages as well as in its columns. Size of page 8½ by 11 inches. Size of column 3½ by 9½ inches. Two columns to the page.

Signed on behalf of the Western Medical Review Publishing Company.

GEORGE H. SIMMONS.
LINCOLN, NEB., May 20, 1896.

We will print and bind fifty copies of the proceedings, papers, and discussions, containing as much matter as the proceedings of 1892, for $35. Same to be printed on first-class paper, bound in cloth covers, and embossed in gold. Extra pages pro rata.

We will also supply a copy of the above at the rate of 35 cents and postage to each member of the Society, provided he expresses a desire for the same within thirty days from adjournment.

GEO. H. SIMMONS,

Report of special committee read by section and each separately adopted by vote of Society.

REPORT OF AUDITING COMMITTEE.

Nebraska State Medical Society:

Your Auditing Committee respectfully report that they have examined the accounts of the Secretary and Treasurer of the Society and find them to be correct and satisfactory.

H. GIFFORD.
J. V. BEGHTOL.
E. H. SMITH.

Report of Auditing Committee adopted.

ELECTION OF OFFICERS.

Society proceeds to election of officers by ballot.

Dr. F. D. Haldeman, of Ord, receives the highest number of votes on informal ballot, and it is moved the rules be suspended and the Secretary cast the ballot for Dr. Haldeman for President for ensuing year. Carried.

It being 9 o'clock, the Society adjourned to Science Hall of the State University, where Professor Brace delivered a very interesting and instructive lecture on the Röntgen rays, exhibiting its use in various forms, especially as applied to surgical uses. After the lecture the Society adjourned to the Lindell Hotel, where a banquet, tendered by the Lincoln Medical Society to the State Society, was enjoyed by about 175.
The tables were set in the form of a hollow square and looked very pretty, covered with palms and potted flowers. The customary excellent service of the hotel was noticeable in the care taken of the guests. The menu consisted of five courses. During its service the Philharmonic Orchestra furnished some good music. Toasts were responded to in a happy manner by the following, Dr. M. H. Garten acting as toastmaster:

"The Pleasure of the Host"—H. B. Lowry, M. D. 
"The Pleasures of the Guest"—B. F. Crummer, M. D. 
"The Lincoln Medical Society"—A. R. Mitchell, M. D. 
"The Specialist (Rip Van Winkle, M. D.)"—Professor Williams. 
"The General Practitioner"—F. A. Butler, M. D. 
"Real Microbe Life"—A. T. Peters, M. D. 
"Science and Medicine"—Prof. H. B. Ward. 
"Legal Legislation"—F. D. Haldeman, M. D. 
"The Doctor and the Laity"—J. L. Sutherland, M. D.

MORNING SESSION.

Thursday, May 21, 9 A.M.

Meeting called to order by Dr. Lord, Dr. Mitchell acting as Secretary, in absence of regular officers. The continuation of election of officers was then proceeded with, with the following result:

First Vice President, Dr. J. Lee Sutherland, Grand Island. 
Second Vice President, Dr. O. Grothan, St. Paul. 
Corresponding Secretary and Librarian, Dr. H. B. Lowry, Lincoln. 
Recording Secretary, Dr. George H. Simmons, Lincoln. 
Treasurer, Dr. W. M. Knapp, Lincoln.

Dr. Lee moved that a vote of thanks be tendered the committee of arrangements and the Lincoln Medical Society. Carried, the society declining the offer of $100 in payment for banquet.
Dr. Bullard moved that a vote of thanks be tendered Dr. Brace for the exhibition of the Röntgen rays. Carried.

Dr. Beghtol moved that the next place of meeting be at Lincoln. Amended by Dr. Moore that $100 be appropriated to assist in defraying expenses. Motion was carried to meet in Lincoln next year, and to appropriate $100 for the expenses of banquet.

The following bills presented by the Auditing Committee were ordered paid:

- Secretary's office ...................................................... $50.00
- Stenographer ............................................................ 30.00
- Hall rent at Grand Island ............................................ 20.00
- Expenses of Treasurer's office two years past ............... 25.00
- Janitor ........................................................................ 3.00
- Tickets from Havelock .................................................... 4.60

Dr. Bryant moved that the Society be divided into two sections to facilitate business. Seconded by Dr. Miller. Lost.

Dr. Beede moved that discussion be limited to two minutes. No second.

Dr. P. H. Salter presented his paper on Syme's operation.

Dr. Stone offered the following resolution:

Resolved, That this Society again for the third time places itself upon record as favoring the passage of such measures by our state legislature as will cause expert testimony to be called by the court and not by the attorneys, and the Society instructs its Committee on Medical Legislation to urge this measure at the next legislative session.

Adopted.

A resolution was introduced to change the by-laws to make Lincoln the permanent place of meeting, which was laid over one year.

AFTERNOON SESSION.

Called to order by Dr. Butler.

The following resolution was introduced and adopted:

WHEREAS, A vacancy will occur on the Board of Secretaries of the State Board of Health on the first day of August,
by the expiration of the term of Dr. Beghtol's appointment: Therefore be it

Resolved, That this Society heartily endorse the work done by Dr. Beghtol during his term of office, and recommend that he be reappointed when his term of office expires.

Drs. Beghtol and Christie were appointed a committee to introduce the newly elected officers, who were duly installed for the ensuing year.

The following papers were then read:

Dr. F. A. Butler, "Pernicious Vomiting of Pregnancy; Report of a Case."

Dr. A. D. Wilkinson, of Lincoln, "Phlegmasia Dolens."

Dr. Henry B. Wilson, of Omaha, "Spastic Paraplegia; Report of a Case."

Dr. S. E. Cook, of Lincoln, "The Ocular Symptoms in Bright's Disease."

Dr. W. R. Lavender, of Omaha, "Marrow Changes in Pernicious Anemia," etc.

Dr. O. Grothan, of St. Paul, "The Role of the Staphylococcus Pyogenes Albus in Some Cases of Acute Rheumatic Infection."

Dr. H. Gifford, of Omaha, "An Unfortunate but Instructive Case of Middle Ear Disease."

Dr. J. E. Lamb, of Wahoo, "Micro-organisms and Disease."

The following resolution was adopted:

Resolved, That the sections for the future meetings of this society be divided into two, all subjects surgical be one and all others—medical, obstetrical, nervous, etc.—be the other, and that these sections be presided over by either of the Vice Presidents. In case of their absence, the President shall appoint a chairman at the executive session, which shall be the first order of business on assembling each morning.

Society adjourned sine die at 5:30 p. m.
THE SIGNIFICANCE OF BLOOD EXAMINATIONS IN DISEASE.

BY WILSON O. BRIDGES, M. D., PROFESSOR OF MEDICINE AND CLINICAL MEDICINE IN THE OMAHA MEDICAL COLLEGE.

In this brief paper I desire to call attention to recent progress in the examinations of blood in disease, in its bearing particularly on diagnosis, prognosis, and treatment. On a visit to John Hopkins Hospital in Baltimore, less than a year ago, I was impressed with the importance given this subject, and interested to note the scientific precision, not only in the diagnosis of diseases in which blood examinations have an important place, but also in determining the probability of complications, the influence of prognosis, and the indications in treatment.

In the days of that most eminent and most pleasing clinical teacher, Sir Thomas Watson, not longer than sixty years ago, much was considered of the appearance of the blood in different diseases, and pages were written upon the peculiarities of its behavior as regards "cupping" and the "buffy coat" in inflammatory and non-inflammatory affections, and of the interpretations which were to be given to the macroscopical appearances in the different conditions. It may be of interest in this connection to quote from Watson's Practice a few lines following a long dissertation on the changes occurring, as follows: "I have dwelt the longer on this peculiar appearance of the blood because it really is of very great importance in determining the nature of various complaints, and in directing our treatment to them. Speaking generally, when a given organ is inflamed, the buffy coat is more marked in proportion to the intensity of the inflammation. When the organ is not
known, it is more likely to be of a fibrous or a serous texture, in proportion as the blood is more decidedly buffed. The appearance of the buffy coat is especially valuable as an indication of treatment in cases concerning which we are in doubt whether they are inflammatory or not. On the other hand, if we have good evidence in other symptoms of the existence of inflammation, we are not to be shaken in our opinion by the absence of the buffy coat. Inflammation may certainly exist without it.” With the passing of the day when bleeding was resorted to as the first step in the care of the patient, regardless of the disease, passed also the importance of the buffy coat as a determining factor in diagnosis and treatment.

Laveran’s discovery of the malarial plasmodium in 1880 gave a wonderful impetus to microscopical work on the blood, and it may be stated that the present knowledge derived therefrom is of such recent date as to warrant the statement that we are but on the threshold of discoveries along this line. It is to the practical part of this subject, which lies in the power of any physician to apply who can and will use the microscope, which I desire to call your attention. We will therefore take up the diseases more commonly met with and those liable to be encountered in every-day work.

The work of Laveran, Marchiafava, Osler, Councilman, James, Carter, and others, has demonstrated beyond question the dependence of the malarial fevers upon a variety of germs which are designated the malarial germs, or hematozoa, and which are found in the blood in all cases of malaria and are not found in other diseases. The germs exist in the blood plasma, or in the substance of the red blood cells. When in the latter the germ is called the plasmodium. The different varieties found are believed by Golgi and others to represent the etiology of the different types of the malarial fevers. They are, as given by Osler: An impigmented hyaline body within the red blood corpuscle which displays active movements; a pigmented amoeboid body within the corpuscle,
which, under certain circumstances, may increase in size and form; a segmenting body in which the protoplasm divides into a number of small spheres; crescentic bodies which develop within the corpuscle; flagellate bodies and free flagella. Golgi has shown that corresponding to the paroxysm of malarial fever there is a process of segmentation in these bodies. According to Osler, "the relation of the different phases of growth to the varieties of malarial fever has not yet been thoroughly established, but the following points may be referred to: The typical intermittents are associated with large forms of the parasites, of which several varieties have been described. Golgi has described two distinct forms which he considers the causes of tertian and quartan fevers, and makes all other types depend on combinations of these. This probably holds good for a large number of intermittents. With the remittents, Marchiafava and Celli have described a distinct species, and look upon the crescents as representing a phase in its development. The pernicious malarial fevers are also associated with this variety, which the Italian observers call the small plasmodium. The crescents may also occur in acute cases, but are most constant in the cachexiae." The general symptoms and the morbid anatomy of malaria, Osler further states, are in harmony with the changes which this parasite induces.

With such evidence as is a matter of record, the existence of the plasmodium in the blood of whatever variety is of the utmost importance from a diagnostic standpoint. In the outpatient department of Johns Hopkins Hospital a diagnosis of any type of malarial fever is not entered on the records until the hematozoon is demonstrated under the microscope. I have even seen the time of the paroxysm correctly stated by the chief of the medical clinic from the process of segmentation noted in the examination of the blood. With these facts at hand, there is no longer reason for doubt in the diagnosis of the malarial fevers. It is in the power of any medi-
cal man familiar at all with the microscope, and with the literature at command, to qualify himself sufficiently for these blood examinations. I recall a case seen in consultation a year or two ago which aptly illustrates the point I wish to lay stress upon. It was that of a young woman several months pregnant who was taken with a fever while resident in a country town. There was some tenderness and pain in the vicinity of one of the broad ligaments. The attending physician and a consultant had diagnosed probable abscess and advised a laparotomy. The patient was brought to one of our hospitals for further consultation and placed in charge of our worthy president. Two physicians who saw the case were inclined to agree with the diagnosis and advice previously given. In the discussion a blood examination was suggested, and on being made by Professor Lavender the malarial hematozoon was positively demonstrated. The patient was placed on heroic doses of quinine and immediately responded, going on to complete recovery.

I believe there are many cases of typhoid fever mistaken for malaria, and again, probably more cases of malarial fevers mistaken for other affections. In all of these the microscope can clear up any doubt. Gilman Thompson, in Pepper's American Text-Book of Medicine, states: "It is certain, however, that the germ exists in human blood during and between malarial paroxysms in numbers sufficient to exert powerful effects, for it can often be found in almost every drop of blood drawn. Moreover, it is never discoverable in normal blood, or in disease other than some form of ague. In chronic forms of ague and in doubtful cases the presence of the germ in the blood it is of great value in diagnosis."

The anemias constitute a group of cases in which blood examinations are of the greatest utility. In these affections the three essential factors necessary to determine are: The proportionate amount of coloring matter, or hemoglobin; the number of the red blood corpuscles to the cubic millimetre
and the number of the leucocytes. The different characters of the latter, also, are of importance oftentimes in the differential diagnosis. The primary or essential anemias are divided into chlorosis and progressive pernicious anemia.

In chlorosis, the red globules may be present in normal amount, but in severe cases there is a considerable reduction. The hemoglobin, however, is much reduced, in fact, in all cases out of proportion to the reduction in the red corpuscles. This is peculiar to chlorosis, and serves to differentiate it from pernicious anemia, in which the globular value in hemoglobin is increased. In a recent case of chlorosis under my observation the percentage of hemoglobin at the first examination was only thirty-five. Under the use of Blaud's pills, in a week it had risen to fifty-five, and in three weeks to seventy-five per cent. Coincident with this increase was noted a marked change in the color of the skin and mucous membranes, and the disappearance of the "bruit du diable," which was the loudest I had ever heard. Under the microscope a pallor of the red corpuscles is manifest, and sometimes poikilocytes, or deformed red globules, are found.

In pernicious, or Addison's anemia the reduction in number of red corpuscles is always marked and generally extreme. In one case reported by Quincke there were 143,000 to the cubic millimetre, whereas the normal is represented at 5,000,000. The hemoglobin is not reduced in proportion to the corpuscle element, the percentage always being higher relatively. In one of Osler's cases this was noted by ten per cent. This point is of great importance in the differential diagnosis of pernicious anemia from chlorosis and the secondary anemias. It is considered by many a pathognomonic sign. Under the microscope the fresh blood slide reveals many large red globules called megalocytes. They are a constant feature in the disease, and, it is supposed, account for the relative increase in hemoglobin. The number of white blood elements is not increased. Ehrlich has pointed out the constant pres-
ence of two varieties of nucleated red blood corpuscles, one of normal size, containing a nucleus which stains intensely, and other larger forms, with large, faintly staining nuclei, called giganto blasts.

The secondary anemias, or those following acute diseases, ipanition, hemorrhage, and the like, always present a reduction in the number of red corpuscles, from a slight decrease in the milder cases to an extreme reduction in the severe, and with the decrease is corresponding diminution in the percentage of hemoglobin. The number of white corpuscles is always relatively, and sometimes absolutely, increased.

Among the more interesting blood phenomena which are now engaging the attention of the profession are what are known as the leucocytosis. By the term “leucocytosis” is meant a non-leukemic increase in the leucocytes in the blood. For many years this has been known to occur in inflammatory diseases, for we find in Watson’s Practice a notation by Condie, the reviser, as follows: “In nearly all the strongly developed acute inflammations there is an excess of fibrin and of the colourless or lymph elements of the blood.” Modern investigation has shown the importance of this subject, not only in the diagnosis, but the prognosis of some diseases. It may be stated that in all acute non-inflammatory infectious diseases there is no leucocytosis. In all acute inflammatory diseases there is a marked leucocytosis. A determination, then, of the number of white elements in the blood will in a given case assist materially in differentiating between these affections. Again, if in the course of an acute non-inflammatory disease there is at any time impending a complicating inflammation, there develops at once a marked leucocytosis.

In the acute inflammatory diseases the behavior of the leucocytosis is found to have quite a bearing on prognosis. Thus, its study in pneumonia indicates an increase, with the lung consolidation reaching its maximum just previous to the crisis, when coincidently with the fall of temperature there is
a sudden decrease in the leucocytosis. Osler states: "There is some reason for believing that the greater the degree of local reaction (of which the leucocytosis may be regarded as an index) in a disease like acute lobar pneumonia, the less is the virulence of the blood poisoning." Tschistovitch, supported by Von Jaksch, claims that in pneumonia, where the leucocytosis is slight, the termination is always fatal. In support of this, Ewing, in the New York Medical Journal, December 16, 1893, gives the report of an examination in 101 cases, of which there were thirty-seven fatal. He writes: "An examination of the deaths will show that in severe forms of lobar pneumonia a slight leucocytosis is a very unfavorable sign. In six fatal cases the leucocytosis was subnormal. In eleven fatal cases the average number was 9,000. Not one case recovered in which the disease was of even moderate severity when the number of white cells fell below 14,000. In several instances, again, a slight leucocytosis seemed at the time the only unfavorable prognostic sign in cases ending fatally." R. C. Cabot still further corroborates these conclusions in reports of sixty-five cases to the Boston Medical and Surgical Journal, August 3, 1893, and March 22, 1894. If in cases of pneumonia the leucocytosis does not subside at the time of crisis, whether the temperature falls or not, the prognosis is either unfavorable or some complication is imminent. In a paper (Medical Record, May 9, 1896) before the recent meeting of the Association of American Physicians, Dr. Andrew H. Smith refers to a case in point: Pneumonia, seventh day, temperature 103, leucocyte count 54,500. The crisis occurred the following day, with a temperature of 99, but there was still a leucocytosis of 42,000. Examination showed that empyema was developing.

The normal number of leucocytes to the cubic millimetre of blood is five to eight thousand. In acute disease, with inflammatory foci, this number is increased to forty, fifty, or even one hundred thousand. It may be stated also that the malignant neoplasms are also attended with a great increase.
In the varieties of leukemia, the utmost importance has been placed on examinations of the blood. It has been known for many years that in all cases of these affections there is a great increase in the proportions of white to red cells, this increase being so great as to represent one leucocyte to eight or ten red corpuscles, in place of one to five or eight hundred. In exceptional cases the white have been found to equal or exceed the red in number. The greater increase is found in the so-called myelogenic forms of leukemia. Frequently a slight glance at the fresh blood slide will be sufficient to establish the diagnosis. The color of the blood is often a reddish brown or chocolate. The blood differentiation of the varieties of leukemia necessitates a study of the varieties of leucocytes in normal blood. These are:

*Lymphocytes*—About the size of red blood corpuscles, with large, roundish nuclei, deeply staining, with non-granular protoplasm, making up twenty to thirty per cent of the whole number.

*Large Mononuclear Forms*—Having a large, oval, feebly staining nucleus, well developed non-granular protoplasm.

*Polynuclear Leucocytes*—Smaller than the mononuclear, having irregular forms of nuclei, with a granular protoplasm which is neutrophilic. These constitute about two-thirds of the total number.

In the myelogenic form of leukemia the lymphocytes are relatively diminished in number, the polynuclear are either diminished or normal. The striking peculiarity is the presence in great numbers of white cells, which are not found in normal blood. They are as large or larger than the mononuclear forms, but differ from them in having a protoplasm which is filled with neutrophilic granules. They were called myelocytes by Ehrlich, who first described them, and were supposed to be derived from the bone marrow. Nucleated red corpuscles are also found in this affection, and the number of red cells, as well as the hemoglobin, are reduced.
In the lymphatic leukemia the blood slide appearances are different from the above. The proportionate increase of leucocytes is not so great. The increase is entirely confined to the lymphocytes, all other varieties being decreased. Myelocytes are not found. Eosinophiles and nucleated red cells are rare.

The blood count in most acute diseases is becoming, in many hospitals, as much a matter of record as the temperature and the pulse. Notations of the decrease in red corpuscles and the percentage of hemoglobin makes up considerable in the judgment of a case from day to day. I believe the near future will demonstrate the significance of changes which have as yet no interpretation.

Among the diseases not commonly met with in which blood examination is of the greatest utility may be mentioned relapsing fever and the diseases produced by the filaria sanguinis hominis. In relapsing fever, during the paroxysm the spirillum of Obermeier is invariably found in the blood. In hemato-chyluria the embryos of the filaria are seen in the blood only at night. Osler reports a quite interesting case. In lymph scrotum and in some forms of elephantiasis the filaria are to be found.

In the last number of the Johns Hopkins Hospital Bulletin, Thayer refers to a case, yet unpublished, of malignant endocarditis, in which the gonococci were found in the blood in pure cultures at three different examinations. About one year ago I heard Professor Welch of Baltimore report the results of an autopsy of a case of malignant endocarditis developing upon a gonorrhoea in which the gonococci were found in the secretions of the vagina, in the blood, and in the scraping from the cardiac valves affected.

The discovery of the specific cause of infectious diseases opens up wonderful possibilities incident to blood examinations, and who can say that the secrets concerning scarlet fever, whooping cough, syphilis, and a host of diseases may
not be as clearly revealed as have those of malaria, diphtheria, gonorrhœa, relapsing fever, and others?

Dr. W. Ross Martin: I am very much interested in the subject of blood examination, and will use this opportunity to compliment Dr. Bridges for the able manner in which he has presented the subject to this Society. The paper is a valuable one and shows that neither labor nor pains have been spared in its preparation. For this reason it should receive due consideration. While I do not claim to be an expert I have had some experience in blood examination, and fully realize its importance in diagnosis. The reference made to the work done in the Johns Hopkins Hospital increases my interest in it, for in its laboratories, with Drs. Welch and Thayer, I studied and learned what I know of this interesting and important subject.

The microscopical examination of the blood is so important a factor in diagnosis that its technique should be mastered by every practitioner of medicine. It is the only positive means of diagnosis in the diseases the doctor has mentioned. Particularly has this been shown to be the case with malaria and the various forms of anemia. Apart from finding the plasmodium in the blood, it is necessary to appreciate the import of the several forms, and from the crescent to the flagellate these are many, the discussion of which I will not enter upon to-day, but will simply refer you to the chapter by Dr. Thayer in the "American Text-book of Diseases of Children," published in 1895. This is the latest and best article with which I am familiar. It very clearly and thoroughly cites the relation the different forms of these minute bodies have to the varieties of the disease.

In the anemias the microscope and the hæmometer come to our aid. For it is upon the relative diminution of one, and an actual increase of other, of the cell elements, or a falling off of both, with a marked reduction in the amount of hemoglobin, as well as the presence of abnormal cells,
myelocytes, and the nucleated red cells that our diagnosis hangs.

Thus in chlorosis the red cells may be normal in number but are very poor in hemoglobin and the leucocytes show a slight increase, while in pernicious anemia there is an actual destruction of the red blood cells. The hemoglobin is relatively increased, due to the relative increase in size of the red corpuscles. There is marked poikilocytes, and nucleated red cells are constantly present. Myelocytes are seen, also giganto blasts, which are diagnostic. Leukemia offers the best example of the utility of the microscope as a means of diagnosis, for here the blood examination alone offers distinctive features.

In his paper the doctor might have mentioned the various white cells and their transition forms, which by the novice are sometimes taken for signs of disease, when in reality they are normal. In order to detect the abnormal condition, then, one should know the normal, and to detect all the normal microscopical elements of the blood is by no means an easy matter. In lino-myelogenic leukemia the diagnosis must rest on the increase in number of the white cells, while in the myelogenous form the relative increase of the eosinophiles with their handsome eosinophilic granules form a beautiful picture, and the neutrophiles may be normal or relatively diminished in number while myelocytes are present. These, by the way, do not occur in normal blood. Eosinophiles and myelocytes are absent in the lymphatic variety and the white cells are not so much increased. In the earliest stage of inflammation there is an evident increase over the number of white cells. This fact, I believe, is a quite recent demonstration. In speaking of the malarial organism I forgot to say that a stain is not necessary to demonstrate it, but one of eosine and methylene blue may be used if desired.

In reference to relapsing fever, I think any one who has had experience might be able to demonstrate the organism in
the blood. At the same time there are certain appearances of organisms that are misleading. And again, the blood may be contaminated from the atmosphere, and that, too, when we have tried to be careful. The chemical tests used in these examinations are very delicate and also demand great care in handling, so I feel sure that one who is not experienced would be very liable to mistake.

Dr. W. R. Lavender: I have very little to add to this paper, it has been so thoroughly discussed. It is to me one of the most important as well as interesting papers which I have heard since my connection with the Society.

It possesses special importance for the general practitioner from the practical standpoints, (1) that very slight changes in the character of the blood-plasma lead to marked alterations in the cells and other tissues; (2) local infectious products entering the circulation may establish metastatic foci of infection in distant tissues or organs.

Whilst the general practitioner may not be an expert, yet I believe that we should encourage our members in a more extended use of the microscope for diagnosis, as quite a number of diseases can be recognized by its use by the ordinary observer, who can obtain good results in staining, etc., and who may not be in a position to take special courses in microscopy.

Read, Welch, and others, by investigation, have demonstrated the occurrence of focal necroses probably due to toxins in the circulation, such being capable of producing cirrhotic changes in the organs.

Dr. Barker, in a paper read before the Johns Hopkins Medical Society last January (Johns Hopkins Bulletin), noticed in one case the mononuclear leucocytes contained the majority of well preserved parasites, the polymorphonuclear contained segmental pigment; again, the macrophages in the liver and spleen take up the red corpuscles and pigment with parasites, the endothelial cells of the liver taking up pigment chiefly.
The importance of blood examinations in disease is also well shown by Deutchman, Furgir, and others, who found the biscuit-shaped gonococci in cases of arthritis secondary to ophthalmia neonatorum, both microscopically and in pure culture.

Investigators have shown conclusively that the so-called phagocytes may contain red blood corpuscles which may be healthy, infected, injured, or fragmented, blood-pigment, or parasites. This being possible, shows the significance that blood examinations in disease possesses in the diagnosis and treatment of cases by the practitioner of medicine.

Dr. Carter, of Lincoln: I would like to ask the reader of the paper if the filariae are not confined altogether to the southern states; if there are any cases originating north of the Mason and Dixon line?

Dr. W. O. Bridges: In answer to Dr. Carter's question I would say occasional cases of filarial infection have been found as far north as Philadelphia. I feel very much indebted to Dr. Martin for his opening the discussion on this paper, as he was asked to do so only just before the paper was read. The important point after all is the knowledge of what may be revealed by blood examinations in disease, and if the practitioner is not a microscopist, he can always find ready assistance in this line. The percentage of hemoglobin can be readily determined by any one. The instrument which I have used is Gower's hemoglobinometer, of simple construction, and costs only two dollars and a half. It is said to vary only about five per cent.
INFANTILE SCORBUTUS.

BY H. M. M'CLANAHAN, A. M., M. D., PROFESSOR DISEASES OF CHILDREN, OMAHA MEDICAL COLLEGE.

A very large number of diseases of infants have their origin in errors of diet. The paramount question during first year of life is proper, correct nutrition. A well-born baby of rich possibilities may, on an imperfect food, become stunted, anemic, and permanently deformed. The correct and complete nourishment of the infant is essential to perfect development. During this period growth is rapid, cell-proliferation abundant and of low resisting power, hence the lack of supply of correct nutritive material soon manifests itself in not only impaired nutrition but actual organic lesions. Mal-nutrition may come about in two ways—by the lack of some element or elements of food, or by impaired digestion or imperfect assimilation of ingested food. Both causes may, and usually do, operate conjointly.

From an important group of diseases, having their origin in want of perfect food supply, I select for your consideration one, to-wit, infantile scorbutus. The credit of giving this disease a distinct place in nosology belongs to W. B. Cheadle, of London, who described three cases in the London Lancet in 1878 as true scurvy. Previous to this, isolated cases had been noted in Germany by Moller, Bohn, Hirschsprung, and Senator, as examples of acute rickets, and one case in 1873 by Ingelev as infantile scurvy. The first case recorded in England was in 1876 by Mr. T. Smith, called by him hemorrhagic periostitis. Similar cases were described in 1881 by Dr. Gee, under the name of periosteal cachexia. In 1883 Dr. Barlow, in the Medico-Chirurgical Transactions, vol. 66, gave the
history of eleven cases under his care, also twenty from other sources. He also described very fully the morbid anatomy of infantile scorbutus. The disease is called by his name by a number of writers, Osler among them.

ETIOLOGY.

A search of the literature of this subject reveals the following: The disease is never seen in the infant nursed at its mother’s breast, and probably never in the infant fed on fresh cow’s milk. Of the cases reported by Cheadle, the larger number were fed on farinaceous foods; some on dessicated patent foods; a number on condensed milk; and several on pancreatized milk. In most of his cases the infants had no fresh milk; a few with a small amount only. Of the cases reported by American writers, I find a few where the infant had received a small amount of breast-milk; but the diet generally was some patent food or condensed milk.

An interesting question is, Can sterilized or Pasteurized milk cause the disease? I find a difference of opinion. Cheadle, Ashby, and Wright, in England, and Osler, in this country, say, yes. Rotch, of Boston, and Northrup, of New York, say there is no evidence to prove that it can. All writers agree that the real cause of scurvy is a lack of fresh food. Cheadle believes this lack of freshness is due to the want of organic acids. English writers on children, Ashby and Wright, Carmichael, Eustace Smith, Goodhart, Donkin, and Angel Money all refer to scurvy as a complication of rachitis, and speak of it as scurvy-rickets. It is probably true that rachitis is much more prevalent in England than in this country. Of the cases collected by Northrup scarcely one-half presented any symptoms of rickets. Rotch states that his individual experience has been derived from fifty or sixty cases, and that not more than a dozen presented any symptoms whatever of rickets. Now, as there are many cases of rickets presenting no evidence of scurvy, and many cases of scurvy, at least in this
country, presenting no evidence of rickets, it is clearly a misnomer to call the disease acute rickets, or scurvy-rickets.

Both are diseases of nutrition, both have for their cause improper food, but each has its distinct clinical course. An infant reared on a food lacking in fats and proteins will surely develop rickets. Let the food lack in freshness as well, and scurvy will manifest itself. On the other hand, a food abundant in fats and proteins will not cause rickets, but may, from lack of freshness, cause scurvy, with absolutely no evidence of rickets. The two diseases are often associated because of food defects, but they do not bear the relation to each other of cause and effect.

Age is an important etiological factor, the limit being four months and three years—nearly all cases occurring between six and eighteen months, just the period when infants are kept on an exclusive diet. We might reasonably expect to find the disease among infants deprived of fresh air and sunshine, and frequently such is the case. But let it be remembered that a number of cases have been reported from the homes of wealth, where the infant has had every comfort, everything needed for health, except proper food. These are usually cases where the infant has been reared on some patent food.

SYMPTOMS.

The clinical course of the disease is quite uniform. The precursory symptoms last from four to six weeks, and include the following: Anemia, with an earthy complexion; general and progressive muscular weakness; mental habitue; easily irritated; gastro-intestinal disturbances—usually diarrhea, sometimes constipation; loss of appetite and vomiting of food. Thus far there is nothing significant except perverted nutrition.

Among the symptoms especially significant are "pain on handling and excessive tenderness, especially on moving the limbs;" the child cries when approached, from fear of being
touched; swelling of one or rarely both thighs; more rarely still, swelling of arms. The swelling is fusiform in shape; purpura; in a number of cases hemorrhages into the subcutaneous connective tissue, frequently about the eyes; in a few cases hemorrhage from the bowels; rarely hematuria.

The condition of the mouth is significant. When teeth are present the gums are swollen and purple; frequently they become ulcerated and bleed freely; in some cases enormous tumefaction of gums, so that they protrude from between the lips. Before eruption of teeth swelling of gums is slight and ecchymotic patches appear in mouth.

The surface over swollen extremities is not hot and feverish as in inflammatory swellings.

It will be noted that all special symptoms have their origin in haemorrhage, the subperiosteal hemorrhage causing the swelling of the extremities usually being greater in amount just above the epiphysis. This is the most prominent anatomical change.

"The diagnosis is to be made from acute rheumatism, purpura hemorrhagica, rickets, syphilis, and spinal-paralysis." — (Rotch.) In rheumatism, pain and swelling about joints; in scorbutus, in shafts of bones. Rheumatism, acute, with fever and hot skin; scorbutus, after failing health, little fever; more cases mistaken for rheumatism than any other disease. Purpura hemorrhagica is often seen in cases of scorbutus, and doubtless many cases of scorbutus have gone astray under that name; but purpura with osseous symptoms and swollen gums should lead to correct diagnosis. In spinal paralysis pain passes away after initial symptoms, and tenderness, so prominent in scorbutus, is absent. The onset of spinal paralysis is acute, without premonitory symptoms. In rickets the onset is slow, but enlargement is in ends of bones. When scorbutus develops in a rickety child we have the special symptoms. Hereditary syphilis usually manifests itself by the third month; scorbutus almost never before the sixth month. The
nasal symptoms, mucous patches, and skin eruptions are usually distinctive of syphilis.

The prognosis, when the disease is properly treated, is good. Cheadle has seen but one fatal case out of nearly fifty. The most important fact concerning the disease is that when its true nature is recognized it promptly yields to treatment; but for want of recognition many cases have gone on to a fatal issue in spite of any medical treatment.

Pathology.—The essential character of scurvy consists in perverted nutrition. Owing to lack of some element of food the processes of secondary assimilation are perverted and the mysterious harmony existing between the blood and tissues deranged. "No blood changes, either microscopical or chemical, have thus far been discovered."—(Rotch.) A careful post-mortem by Northrup revealed enormous hemorrhages beneath the periosteum of femur; dark disorganized blood in the stomach; cellular infiltrations of blood in tissue; no inflammatory changes in either periosteum or bone by microscopical examinations; no evidence of suppuration. In one post-mortem reported by Cheadle, in addition to subperiosteal hemorrhage, there was free blood in the air-vesicles, this being the immediate cause of death. No mention is made of pathology of scorbutus in either Whitehead, Green, or Ziegler, and but brief mention of the disease in adults in Delafield & Prudden.

The subject of treatment will be mentioned in the report of the following case under my care: Male child, born November 30, 1894. During first four weeks of life child nursed at mother's breast, but supply failing was put on diet of modified cow's milk. On June 7 was taken with a sharp attack of enterico-colitis; July 17 had a second similar attack, lasting several days. Was now placed on an exclusive diet of a dry patent food. No further diarrhoea, but from now on became markedly constipated. During month of August child gradually failed in strength; loose
flabby skin; cross; easily irritated; sleep broken. September 1st I saw the baby for the first time since July 20th. Mother says he cries whenever he is taken up. Now has two teeth, sore mouth, gums swollen. September 29th, child thin, flabby, anemic; right leg greatly swollen above knee and painful to touch; sore mouth persists in spite of treatment; gums greatly swollen, red, and bleed freely. The true scorbutus nature of the case now became evident. I now placed the child on a diet of milk,—cream, and milk sugar,—giving it three ounces every two hours; the expressed juice of half a pound rare steak daily, and the juice of one large orange each day. I gave it castor oil daily, as bowels were still constipated. The only medicine given was an elixir of pepsin. In three days the child was greatly improved, and in ten days it could be taken up without evidence of pain, and swelling of thigh had disappeared. By November 1st the patient had fully regained his health, except that he did not attempt to walk until eighteen months old. There were no symptoms of rickets in this case. I believe the symptoms and treatment prove this to have been a case of true infantile scurvy.

Dr. Butler: There is one point mentioned in the paper that is interesting to me. Many diseases in infancy are due to improper food. I think almost one-half the cases, if not a larger per cent of infantile diseases, that we are called to attend during the summer months, we can ascribe to that one thing alone. Improper food, food that is not given regularly, that is not digested, that is not assimilated, producing an irritation of the alimentary canal. The little child becomes weak and anemic. In country practice we don't see, don't have the chance to see, cases of scorbutus in infancy; but we do see, and are called upon to prescribe for, a great many other troubles that are caused by improper food; more in proportion than formerly, since it is fashionable to feed the child instead of nursing it. Parents revert to these patent
foods with which all drug stores are profusely supplied, instead of the natural food the infant requires, that nothing can take the place of. It is usually the lack of some important element, some strength-giving power, something that will improve the vitality of the child, its growth, that causes these conditions. The trend of experience is, control the feeding; require, if possible, a pure food supply, given regularly at stated intervals; not an easy matter to do in all cases and conditions, but where it can be done in nine cases out of ten the little sufferer will improve.

Dr. Hamilton: This is certainly a very interesting paper, and the doctor should be congratulated for so ably presenting it to this Society. Infantile scorbutus in this country is seldom seen, and I believe the greater number of those that do occur are mixed cases; that is, they also have a form of rickets accompanying the scorbutus. The diagnosis is frequently attended with considerable difficulty. The great similarity existing between rickets and infantile scorbutus frequently leaves us in doubt as to its correctness. The pathological conditions of the bones near the points are almost identically the same, to all external appearances. And the differentiation has to be made by exclusion. Now, as to treatment. After having made our diagnosis, the treatment is easy. The doctor, I believe, mentioned the use of orange juice, which seems to be the most accessible remedy we have. He also spoke of the regulation of the diet, which should always be observed in these cases, and in which I fully concur.
NOTES OF A CASE OF SUSPENDED VOLITION AND LOCOMOTION.

BY G. A. MEREDITH, M. D., CRAWFORD, NEB.

On the 17th of May, 1893, a team was hurriedly driven to my office by two men, who inquired of me if I could do anything for a man they had in their wagon. They gave me a history of the case as follows: At 7 o'clock A. M. the previous morning (May 16th), after eating a hearty breakfast, instead of getting his hands to work (as he was running a saw mill), he went to bed and apparently to sleep. They let him sleep till after dinner; then, concluding there was something wrong, they began trying to arouse him. They put water to his lips and found that he could swallow; they then resorted to every device they could think of "to bring him to." In their language, "we rubbed him, spanked him, threw cold water on him, held him under the pump, dragged him up a steep hill by the heels, and down hill by the hands, and at intervals gave him coffee, tea, whiskey, milk, and other domestic remedies." This was kept up all the afternoon and night until 10 o'clock A. M., when they put him into a lumber wagon on a mattress and brought him to me, a distance of twenty miles, arriving at 2 o'clock P. M.

After looking at the man and hearing a history of the case from those who brought him to me, I confess I was puzzled. I had him taken to a comfortable place and immediately gave him one drop of oleum croton, incorporated with equal parts of rhei pulv. and sugar, which moved his bowels easily and thoroughly in two hours. I then gave some placebo remedy to entertain his anxious friends, while I sought the seclusion of my office for study. I visited him again at 8 o'clock P. M.
I was astonished on entering the room to find him sitting up in bed laughing, talking, and smoking a cigar. The landlady told me that he ate an enormous supper of bread and butter, beef-steak, and potatoes with gravy, drinking three cups of strong coffee. I remained with him for a while to hear his story of his previous day and night's experience in language more forcible than eloquent. He corroborated the story told me by his attendant in the afternoon, and the wonderful effort he made to defend himself from the rough usage accorded him by his friends, and not a muscle would respond to his will. After prescribing quinine and strychnia and giving some general directions to the nurse for his care I bade him good-night, and left him apparently in perfect control of all voluntary muscular movements.

May 18th I visited him at 8 o'clock A.M., and found that patient had rested well during the night, had eaten a hearty breakfast, smoked a cigar, and was in a merry, cheerful mood, laughing and joking with those around him. He complained only of feeling sore, which was attributed to the usage he had received before being brought to town. His wife, who lived twelve miles in the country, came at this visit. I gave the charge of medicine into her care, and left feeling greatly encouraged. At 11 o'clock A.M. I was notified that the patient had returned again to his peculiar condition. I requested the consultation of Major Adair, chief surgeon at Fort Robinson. After looking the case over carefully, and talking with his wife, we concluded it was a case of suspended volition, due to some mental emotion, continued the strychnia and substituted damianna for the quinine. I will now follow my notes to the termination of the case:

He remained in this condition until 2 o'clock P.M. on the 19th, after which he again talked and had normal use of all muscles, eating a hearty supper, and resting well that night. At 5 o'clock A.M. on the 20th he again lapsed into this peculiar condition and remained so until 8 o'clock P.M. on the 21st.
His wife having to go home, on account of the children, took her husband with her. He again became this way at 10 o'clock A. M. on the 22d, and remained so until June 1st, when he again regained control of himself three hours. He also regained control of himself for a short time on June 7th and 11th. At this juncture a neighboring physician had sent him word of his ability to cure such diseases, and by the advice of friends he was taken to the neighboring M. D. for treatment. He remained there until about the 15th of July when his wife and friends returned him to his home discouraged, he never having gained control of himself during all this time. He died July 27th at 11 P. M., from symptoms indicating an overdose of strychnia; never having spoken or moved since June 11th. He could always swallow things put into his mouth, eating quite heartily the evening he died.

His family history, as near as I could learn, is as follows: Age, 34; German; grand-father committed suicide; father drank himself to death. Patient had cataract of left eye; had impaired vision of right eye. He claimed having had a cataract removed from right eye, but I could detect no indications of such an operation having been performed. We learned from his wife of his sexual weakness, which was the reason for giving damianna.

Autopsy 18 hours after death: Patient fairly well nourished, brain weighed 56 ounces. I could find nothing to account for such a train of symptoms. I was allowed to proceed no further with the examination.

Dr. Ely: The case reported by Dr. Meredith is especially interesting to me, for the reason that some years ago it was my fortune—or fate—to have one of my own, in most respects except the termination, similar to this one. At the time, and for some years after, I found it impossible to satisfy my own mind as to the correct diagnosis. But since then, owing to a somewhat radical change in my views respecting the nature of the so-called "functional" diseases of the nerv-
ous system, I have been enabled to arrive at what, to me, is a rational diagnosis. My judgment is that my own case, and Dr. Meredith's as well, was one of male hysteria. But, from the facts as presented in the paper and in the doctor's side remarks, I should say that the fatal termination in the case under consideration was due to strychnia poisoning.

And here I wish to add my protest to that of the more recent writers, against classifying hysteria among the diseases peculiar to women. In the language of one—Dr. Mills, I think, but of that I am not sure—"It is no more true that women have hysteria because they have wombs, than that men have gout because they have beards." It is unquestionable that the more aggravated manifestations of hysteria occur most frequently, in the immense majority of cases, for that matter, among women. But this is not because of their organization; there are other differences between men and women than those which inhere in the sexual apparatus. Hysteria is more frequently noticed among women than in men because the performance of the fundamental functions peculiar to their sex, as the child-bearing, child-rearing, and home-making half of the race, with their inevitable concomitants of comparative seclusion and dependence on the male for protection and support, places her in the most favorable environment for the development of the emotional and impulsive, and shields her from the necessity of aggressive, self-asserting independence, and those ruder though more robust surroundings in which the average man develops that degree of self-poise, the absence of which constitutes the underlying condition which hitherto has been known as the "hysteric diathesis."

In a restricted sense, hysteria is not a disease at all, but a lack of development, analogous to the blindness of fishes found in Mammoth Cave. The muscles of an arm that has never been used, in the first attempts to move them, utterly fail to perform their designed functions; the motions are erratic, weak, and apparently aimless. But their condition can
scarcely be called that of disease. So those ganglionic cells in the cerebrum, whose office it is to co-ordinate the impulses into intelligently directed efforts, obedient to the deductions of the reason, and to inhibit the unproportioned impulses and emotions, and whose development gives to the individual that moral quality we call self-control, popularly but improperly called "will-power," failing that exercise which is the indispensable requisite of their growth and physiological function, remain in their primary condition of rudimentary potentialities. The consequence of their partial or total non-development is a creature, ruled to a greater or less degree by emotion and impulse, and in whom self-control is only rudimentary or wholly impossible. This is the hysterical diathesis, and the individual so conditioned will be an "hysteric" irrespective of sex.

If hysterical men do not usually present the more aggravated manifestations of hysteria, it is none the less true that the milder and less noticeable symptoms are exceedingly common among them; so common are they indeed, that it is scarcely just to the female sex or scientific medicine to place hysteria among female complaints. Judging from my own observations, if accurate statistics of hysteria could be had in which should be recorded every hysterical manifestation, the percentage assignable to either of the sexes would be found to be about equal. But male hysteria, as usually occurring, calls for no interference by the doctors. Men, by the very necessities of masculine life, from the time of their infancy, are compelled to control themselves and hold their impulses and emotions subservient to judgment. The points wherein they fail are usually in the trivial affairs of life and are unnoticed. The individual passes for sensitive," "nervous," "impulsive," while in reality he is the victim of hysteria.

At some future time I hope to present my views to this society on this subject at greater length.

Dr. Meredith: I did not consider that my theory was cor-
rect, but those were the characteristic symptoms. He had no power of speech or to move a muscle, but always conscious when awake. My diagnosis—the way I began my paper—was simply the characteristic symptoms. I examined him carefully, and a number of times had Dr. Adair from Fort Robinson with me. We examined his urine and its specific gravity was low, not above 1010 and some times as low as 1005. After he left town I saw but very little of him, but I heard of him. It may be a case of hysteria; I would not say, but simply give the characteristic symptoms.
DYSPESIA.

BY A. N. LOPER, M. S., M. D., SUPERINTENDENT OF NEBRASKA SANITARIUM, COLLEGE VIEW, LINCOLN, NEB.

In choosing "Dyspepsia" as a title for the thoughts I wish to present before our Society to-day, I did not feel that I was giving this paper a name that might most properly be applied to it, but rather a short cognomen that might surely cover all the ideas that it might contain. Although the term dyspepsia may express no well-defined pathological condition, it, like charity, by usage, is allowed to cover a multitude of sins. Gastric pathology may not be so fascinating as some other subjects which will be served at this meeting, but nevertheless it has come to be one of great importance to the American people. Of the multitude of pathological conditions, I have written more particularly on some chronic disorders of digestion, with their sequelae and some thoughts on treatment.

As originality, strictly speaking, is a characteristic which is applicable to only a few writers, comparatively, of the present day, I do not wish to be understood as claiming to be the originator of all the ideas herewith presented, but that my paper is simply a culling from the recorded results of investigations made by such men as Boas, Klemperer, Kaufman, Strauss, Bouchard, Kellogg, Ewald, Hayem, Winter, and others who have made extensive study and experimentation on this subject, and whose thoughts I can generally endorse, and to some extent verify in my own experience.

The comparative anatomist who defined an animal as "a stomach with various organs appended," perhaps apprehended quite clearly the relative importance of the digestive system in the association of the tissues, organs, and systems which
constitute the human body as well as that of the lower animal. It was probably a comprehension of the close relationship existing between the digestive organs and the mind that led some of the primitive nations to regard the stomach as the seat of the soul.

A fact that is now not hard for me to believe is that disorders of digestion are the most common of human ills. And scientific researches in the last quarter of a century are proving to us more and more clearly that a great majority of the ailments from which humanity is suffering, are primarily due to derangements of the digestive processes either directly or indirectly. Professor Bouchard, of Paris, and other modern scientists, have demonstrated to their own satisfaction the important relations of ptomaines and putrefactive and fermentative products, so largely developed in a dilated or atonic stomach, to chronic rheumatism, neuralgias, bronchitis, angina pectoris, pulmonary phthisis, renal and skin diseases. They have also shown the relation existing between these putrefactive processes in any part of the alimentary canal to the causes of puerperal fever, typhoid fever, and even intestinal parasites. Vigoroux claims that a very large number of the functional nerve disorders included under the general term neurasthenia are due to these same original causes; that neurasthenics, without exception, are suffering from uric acid poisoning. Excess of uric acid in the tissues, according to Bouchard, is due to abnormal slowing of the process of oxidation, and disassimilation, which result from a toxemia arising from the absorption of products of putrefaetion and fermentation in the alimentary canal.

It is an indisputable fact that many of the organic changes in the central nervous system are due to the absorption of poisonous substances produced by the action of microbes in the alimentary canal. Consequently the result of special investigation in regard to the etiology of disease by learned and scientific men, in both Europe and America, is pointing
toward the digestive system as a starting point for a train of morbid processes which give rise to a special group of pathological manifestations that are thus classified as different diseases. Although this may seem unreasonable at first, a glance at a few physiological facts may serve to dispel this apparent cloud of absurdity. The healthy action of an organ or tissue depends upon the perfection or completeness of its structure. This perfection of every cell and fiber in the body depends on the quality and quantity of the material absorbed from the alimentary canal. A deficient supply of nourishment, whether due to a lack in the amount of food ingested, or to the inability to digest and assimilate that which is taken into the stomach, weakens the tissues and lessens the energy of every organ. An excess of food overwhelms the tissues with imperfectly oxidized and poisonous substances whereby their structure is distorted and their functions disturbed.

Food or drugs containing toxic substances produce upon the body general or specific toxic effects. The same will result from the development of poisonous substances in the alimentary canal from the fermentation or decomposition of food elements in the stomach or intestines. Many years ago, Pasteur, and other scientific men, showed that the mouth, stomach, and intestines are constantly inhabited by a great number of microbes capable of generating various acids, poisonous ptomaines, varying in their physical and physiological properties, some of them capable of producing most powerful poisonous effects. But the antitoxic power of the liver and the eliminative function of the kidneys are, under most circumstances, capable of lessening the amount of these poisons circulating through the tissues of a healthy person so that he is not prostrated by disease.

I know that some authorities claim that these microbes found in a supposedly healthy mouth and stomach are necessary to the perfect digestion of food. This, however, is disputed by others, and we believe is rightly counted an errone-
ous or mistaken view. In a series of experiments conducted in the Laboratory of Hygiene connected with the Sanitarium at Battle Creek, Mich., under the direction of Dr. Kellogg, of that institution, and Prof. Novey, bacteriologist of the State University of Michigan, it was demonstrated that in a perfectly healthy stomach digesting food previously rendered perfectly aseptic, there were found on making cultures from the stomach contents, only two or three colonies of bacteria or microbes; whereas in the digestion of foods not aseptic, by the same individuals (six or eight very healthy young men subjecting their stomachs for the experiment), such as cheese, beef-steak, unwashed fruits (such as grapes), etc., cultures made from the stomach fluids gave hundreds of thousands of colonies of microbes. Thus proving to us that the quality of food ingested into a healthy stomach has everything to do in determining the number of microbes found in a normal stomach during and after the digestive process.

When, however, a diseased condition of the stomach or intestines exists, these poisonous ptomaines resulting from the microbial degeneration of undigested food may be increased to such a degree as to cause the system to succumb to their influence. I have been led to believe that autointoxication is the cause of peculiar phenomena that are regarded as shock, peculiar cases of heart failure, etc., in many instances.

I recently had in my own experience a case which was at least interesting, and to my mind would come under this class of morbid conditions. Patient had suffered from slow digestion for many weeks, and her condition also demanded a surgical operation—repairing laceration of cervix uteri. The operation was decided upon. Physical examination revealed no organic disease of heart or lungs; so we felt free to have an anesthetic administered. Patient bore anaesthetic well; became very much nauseated, retched and vomited quite severely, especially on coming out from under the influence of the anaesthetic. This, however, we considered of no special
importance, as the patient seemed to rally completely in an hour or two, and seemed to be in a very favorable condition. However, she still vomited occasionally, throwing up considerable bile. After six or eight hours from the time of the operation, patient appeared drowsy, stupid, and inclined to sleep; at the same time complaining of a deathly sick and tired feeling. The attendant was directed to watch the case carefully, but these symptoms seemed to increase in severity. The weak and drowsy condition approached almost total suspension of respiration and heart's action, until aroused by shaking and perhaps artificial respiration for a few seconds, when patient would arouse for a short time. She would complain of no pain, but only the deathlike sick and tired feeling, and in a few moments would sink away again into another apparent condition of collapse, respirations becoming more and more shallow, pulse weaker and weaker, until almost imperceptible, when by the same efforts as before, perhaps to a more energetic degree, she would again be aroused, and vomit mucous and bile from the stomach, then feel more comfortable for perhaps a little longer than before. This condition continued for about four hours, when these toxic symptoms wore away. My opinion in regard to this case is that the poisonous ptomaines resulting from decomposition and fermentation of food elements in this unhealthy, dilated, and relaxed alimentary canal, were being retained longer than usual in the stomach and intestines, this retention being due to the paralyzing effects of the anesthetic on these organs; then the absorption of these ptomaines into the circulation produced this toxic effect upon the brain centers controlling respiration and circulation. Patient made a good recovery after this in the usual length of time. This, with one or two other similar experiences, has led me to believe that even in surgery we are coming in contact with the fatal results of dilated stomachs and weakened, atonic muscular action. And may it not be possible that many cases that die from so-called shock in
from six to twelve hours after a moderate surgical operation where an anesthetic had to be used, are really the victims of poisons, the products of decomposition and microbic action due to the unusual retention of these toxic substances in the alimentary canal.

In the treatment of chronic dyspepsias, the chemical analysis of the contents of the stomach, removed by the use of the stomach tube, one hour after the ingestion of a test meal, will throw great light upon the subject of diagnosis, and consequently the treatment of these diseases. A system of analysis is in use at the Laboratory of Hygiene before referred to, which is a modification and elaboration of the system developed by Hayem and Winter, of Paris, several years ago. By this analysis information is furnished relating to the chemistry of the digestion of albumen, the digestion of starch, action of the saliva, amount of fermentation in process, liberation of chlorine, free hydrochloric acid, total acidity, total chlorine, combined chlorine, etc. By making a careful study of this system, one who is thoroughly familiar with the chemistry of normal digestion will find great aid in the detection and classification of abnormalities in the process of digestion, and can thus be enabled to accurately diagnose and thereby successfully apply the best therapeutic agents in combating this endless chain of disorders.

You may say that the busy physician in general practice has not sufficient time to spend in making extensive chemical and bacteriological examinations of stomach contents in these cases; neither have the most of us the laboratory facilities for prosecuting this line of work if we had the time. This all may be true, but I heartily believe that we all may work to each other's good and to the general good of humanity by having to some extent a division of labor in the practice of the healing art. Encourage the equipment of a good laboratory in three or four suitably located cities in our state, also encourage some competent brother in the profession to labor espe-
cially in the line of the chemistry and bacteriology of disease. Then make use of the stomach tube; get a test meal from our patients, send it to the laboratory for an analysis to be made, and a report returned. Then study to make practical application of the light that is being thrown upon these dusky subjects by the labored researches of scientific investigators all over the world. After having obtained a chemical analysis of the stomach fluids, taken an hour after eating, and having thus learned whether there be an excess of acidity or a deficiency in the amount of HCl.; whether the digestion of starch be normal or perhaps totally absent; whether fermentative action be much or little; then administer remedies, dietary, etc., that may be expected to assist nature in correcting these abnormalities.

It is a lamentable fact that we as a rule pay too little attention to the subject of diet in the management of the various forms of indigestion. When a patient comes to us who has been suffering with heartburn, severe pain in the stomach and eructation of gas two or three hours after eating, coated tongue, etc., for years, requesting a cure for his dyspepsia, and we merely write him a prescription for perhaps a dozen cathartic pills and one of the digestive mixtures that are being so highly praised in the advertising pages of our medical journals, telling him to eat whatever his appetite seems to crave most, we not only dishonor the title which our name supports, but also do our fellow-man a great injustice by thus ushering him along a few weeks farther toward the gloomy darkness of chronic nervous dyspepsia, which, as we know, is the gateway to melancholic insanity.

A scientifically prescribed dietary will prove of great importance in bringing about a normal state of action in such cases. A proper recognition of the digestive power of the saliva can hardly be overestimated. And in these cases, where there is a great deficiency in the power to digest starchy foods, the diastatic properties of ptyalin is of inestimable impor-
tance. In fact, in a large number of these cases of chronic indigestion, the prominent symptom is the inability to digest starchy food. Consequently our energies should naturally be directed to the overcoming of this particular disability.

Numerous experiments have been made as to the relation of diet to the amount of saliva furnished in the digestion of food. With a comparatively dry diet the amount of saliva poured out during the mastication of a meal may be from one hundred to two hundred per cent more than that secreted during the ingestion of one of the popular so-called "boiled dinners." In a series of experiments in this line, a healthy person experimented with 30 grammes of various articles of food, masticating each five minutes, then weighing to determine the amount of increase from the admixture of saliva. In thus masticating 30 grammes of raw apple for five minutes, it increased in weight 38.1 grammes. When moist bread was used, it increased 31.1 grammes. When granose, a perfectly dry, well-cooked preparation of wheat in flakes, was used, it increased in weight 59.70 grammes, thus showing that the dry food stimulates the salivary glands to almost double the extent that ordinary moist foods do. One ounce of milk treated in the same way, increased in weight 2.82 grammes. Thus we see that in the use of a wet diet, soups, etc., the action of the salivary glands is reduced to a minimum. Whereas, the use of solid foods, especially dry foods, which require thorough mastication, would give an increase of this valuable digestive agent, which would add more to the relief of the acidity of the stomach, heartburn, flatulence, etc., than pailfuls of mint and soda tablets, neutralizing cordials, etc.

The action of saliva on the food will continue in the stomach from forty-five minutes to an hour or more, under favorable circumstances. Thus, if a sufficient quantity of saliva be mixed with the food it will give to the digestion of starch an impetus that will not be seriously retarded by the action of the gastric juice, and when passed along into the intestine will
undergo complete digestion with no serious interference from the beginning. As the inability to digest starchy foods is so common and so distressing, we see the great importance of being able to meet this condition on a scientific basis, in order to successfully combat it.

A word in regard to atonic dyspepsia, where there is atrophy of the glands of the stomach which have to do with the secreting of the gastric juice, may be in order. In the therapeutics of this condition we need not expect to restore this organ to a normal condition by simply administering pepsin or some other digestive ferment. What is needed is to stimulate to activity these dormant atrophied glands rather than to be satisfied with administering a ferment that can but imperfectly do the work. Georges claims that the use of pepsin is absolutely valueless in cases of insufficiency of the gastric glands. Wines of pepsin, papain, etc., either with or without hydrochloric acid, according to Debove and Raymond, are valueless to supply the deficiency of pepsin formed by the glands of the stomach. Dr. J. H. Kellogg, of the Battle Creek Sanitarium, who has annually to deal with hundreds of cases of atonic dyspepsia, says that he has discarded the use of pepsin and all other digestive ferments except malt, as he is unable to see any really good result from their use. He believes that what the stomach needs to have supplied in these cases of inactivity of the gastric glands, is not pepsin, but peptogens—something that will produce increased activity of the glands. He claims that proteid substances, such as gluten, eggs, milk, etc., and the dextrin developed by the action of the saliva on starch, and the natural flavor of good foods, are also very effective peptogens—another point in favor of dry foods for dyspeptics, thus securing thorough mastication. It is claimed that thorough mastication encourages the production of Hcl. as well as pepsin. For temporary relief and assistance, I believe that the administration of Hcl., nitro-muriatic acid, and subgalate of bismuth in some cases is advantageous.
Other therapeutic agents found to be of most value in my own experience in the treatment of this class of cases are the Faradic current, the application of heat, and Swedish massage to the stomach. These, with a properly arranged dietary, seem to prove more beneficial in most cases than the administration of any amount of artificial digestive fluids. As with the former agents we may have hope of restoring these pathological tissues to a physiological condition.
REPORT OF TWO CASES, WITH REMARKS ON EACH.

BY DR. H. P. HAMILTON, OMAHA.

I have selected two cases to report to the fellows of this Society. Not on account of their similarity do I report them together, though they have some features in common, but on account of the rare conditions found in each one of them.

The first case is that of a woman, Mrs. C., who lived about seven miles in the country, who summoned me hastily in the night to see her. The messenger stated that they thought she was dying. On my arrival I found her complaining of shortness of breath, temperature subnormal, pulse 130, tongue slightly coated, bowels constipated. She stated that during the night while sleeping she was suddenly aroused by a sharp pain in the right side, which caused her to faint; she also stated that she was about five months pregnant and feared the result. On examination I found no hemorrhage; the cervix, owing to previous lacerations, extremely short, thick, and irregular, so much so that nothing whatever could be made out; the body of the uterus was about the size and appearance we would expect at that stage of pregnancy. I was unable to get any further information from examination per rectum, etc. I prescribed stimulants and gave her an enema for her bowels. She seemed to be rallying so I went home, and returned the next day to find her feeling all right, as she stated, temperature, pulse, and respiration all normal.

One month later I was again called, to find the same condition as before, but this time she had some fever, temperature 101 Fahrenheit, and slight diarrhoea of an offensive character. I prescribed as before, not being able to make any further dis-
coveries by examination. The next day I visited her again, to find the pain in the right side increased, offensive diarrhoea from the bowels, temperature 102, pulse 100; examination revealed nothing more than found at the previous visits. I irrigated the bowels thoroughly with warm water, using a rectal tube, prescribed sulphate of magnesia and aromatic sulphuric acid, also bismuth and opium, and advised perfect quietude and rest. Two days later I again visited her, carrying instruments to make an examination. I found her condition unchanged excepting the pain in right side slightly increased; temperature 102½, pulse 105. I introduced a speculum, and with the uterine sound carefully passed it into the cervix to ascertain, if possible, whether the uterus contained a fetus, and to my great astonishment it passed eleven inches without meeting any obstructions whatever.

Two days later I again visited her, to find her condition the same as on the previous visit. I now felt absolutely certain that her pregnancy was not a normal one, so I removed her to the Emanuel Hospital and called Drs. Crummer, Milroy, and Moore to see her with me in consultation. Dr. Crummer not being able to be present, Drs. Milroy and Moore concurred with me that an operation was the only way by which a diagnosis could possibly be made, and the best thing to do was to open the abdomen for diagnostic purposes and then proceed according to conditions found. The next day, after having the patient carefully prepared, and with the assistance of Drs. Crummer and Moore, I opened the abdomen for the purpose of making a diagnosis. On passing my hand into the abdomen I must say I felt some surprise to find at the first sense of touch everything to be all right with the exception of an extremely thin wall of the uterus. On further examination, however, I discovered what was apparently the attachment of the placenta to be situated low down posteriorly, extending down to the cervix. Now I felt reasonably certain of my diagnosis, so I closed the
opening with silkworm gut and applied the customary aseptic dressing. I then introduced a speculum into the vagina and packed a yard of iodoform gauze into the uterus, and ordered an enema of hot water followed by injections of iodoform and sweet oil. The next day I found no change in her condition and no symptoms of miscarriage. I removed the packing and introduced another yard of gauze into the uterus and let it remain thirty-six hours without any apparent benefit, the patient still having fever and offensive diarrhoea with pain in the right side. I determined to bring on labor by using Barnes' bags. After their first introduction I succeeded in dilating sufficiently to pass my three fingers in about six hours. I then completed the dilatation by pressure with the fingers and hand, until I was able to get my hand into the uterus, when I turned the foetus and brought the feet down, delivering a child which survived about thirty hours. I had no special difficulty in delivering the afterbirth, the border of which extended over on the dilated posterior portion of the cervix. I will also state that during the dilatation with Barnes' bags a small portion of the afterbirth came away. Then after irrigating the uterus thoroughly with hot water I put the woman to bed. From this time on she slept well, had but little pain, and by the end of the fourth day appeared to be almost well. On removing the sutures I found the wound all healed by primary union. I sent the woman home on the twenty-fifth day after confinement, well and eating heartily.

The second case I wish to report is that of a woman, Mrs. O., about thirty-five years of age; has one child living and has had two miscarriages, the last one being followed by septic fever. I first saw her on the morning of February 2. She stated that she had been having labor pains for the last thirty-six hours, and that she thought she was about six months pregnant. On examination I found her with a pulse of 120, temperature 101. On physical examination I found
the cervix dilated to about the size of a silver dollar, and apparently a shoulder presentation. In about one-half hour the bag of waters ruptured, and on examination I found the pulse at the wrist hardly perceptible. Feeling alarmed about her condition I at once sent for Dr. Moore to help me, but by the time he arrived the foetus was delivered. From its appearance it had been dead at least twenty-four hours or more. The placenta came away naturally in about ten minutes, and after flushing out the uterus with sterilized water she was put to bed, and soon rallied.

I now hoped her temperature would soon fall to normal, but when I visited her the next day I found her pulse 120, temperature 100. I again flushed out the uterus and administered a saline. On the sixth day I found her condition unchanged, so I carefully curetted the uterus and flushed it out thoroughly and mopped out the cavity with carbolic acid and again flushed with sterilized water. I then introduced an iodoform gauze drain. The next day I removed the drain and irrigated the uterus again, some detritus coming away. I again packed with gauze. Thus I continued the irrigation and general treatment until the tenth day, her condition apparently remaining the same; temperature 101, pulse 125, complaining of dreaming at night, with some sweating, but not profuse. The next day her temperature was 101, pulse 130; removed the gauze and again attempted to irrigate the uterus with sterilized water. On beginning the irrigation the water returned, but not freely, and suddenly stopped entirely. I removed the irrigator, but found it all right. I reintroduced it, but no water returned. The patient complained of no pain; I used absolutely no force whatever. Now it was that I felt all was not right. I again removed the irrigator and in a few minutes the patient complained of a fainty feeling, which caused me to suspect rupture of the uterus. I introduced a uterine sound and cautiously searched for a rupture in the uterine wall. I was not long in finding that the sound had passed the opening.
I was frank and told the patient and her husband what had happened, and that I thought the only thing I could do to give her any hope for her life was a surgical operation. This they at first refused, but by persistent coaxing I got their consent. I at once took her to the Presbyterian Hospital and had her prepared to operate on by 7:30 in the evening. At 8 o'clock, with Drs. Aikin and Moore as my assistants and Dr. Ralph administering the anesthetic, I opened the abdomen. On examination of the uterus I found the following condition: A dark mottled appearance that covered the entire right portion of the fundus, extending lower down posteriorly than in front. This dark appearance extended out on the broad ligament on that side for an inch or more. Within the area of this colored portion I found five perforations extending through the entire uterine wall, two of which were right near the cornu. I placed the patient in the Trendelenburg position and proceeded to do a pan hysterectomy, cut the broad ligament as near the pelvic wall as possible, and ligated the ovarian arteries separately, and brought the serous surfaces together and sutured them with continuous sutures down to the cervix on each side. I then packed sterilized gauze around the field of operation, let the patient down, and completed the enucleation through the vagina. After packing the cervix tight with gauze and thoroughly cauterizing the vaginal cervix I grasped it with a volcella and under some traction opened the cul-de-sac of Douglas. Then making traction downward I connected the posterior incisions anteriorly and separated the uterus from the bladder, stitching mucous and serous surfaces together. I then clamped the uterine arteries, which were almost isolated vessels, and cut them, leaving the uterus free and easy to bring through the vagina. After removing the gauze from above I flushed out the pelvis and abdomen with large quantities of water, allowing it to escape through the vagina. Now, after loosely packing the vagina with iodoform gauze and ad-
justing it from above to see that the rectal and bladder surfaces were not left in contact, I closed the abdominal wound with silk gut sutures and applied the customary aseptic dressing, leaving no drain from above, iodoform gauze drain below, and the entire raw surface left in the pelvis being the stumps of the uterine arteries. The patient’s general condition was now good, and after giving a hypodermic of one-fortieth of a grain of strychnia she was put to bed and the usual attention given to such cases strictly carried out.

I append here a copy of the hospital sheet giving a detailed account of her convalescence, which extends over a period of about eight weeks. This I will not read, as it is too tedious and long to be of special interest to the fellows of this Society. Will say, however, that after the immediate effects of the operation she suffered no pain whatever and rested at night perfectly without sedatives. On the eighth day when the stitches were removed from the abdomen the incision was found to be perfectly healed; also the vaginal opening was perfectly closed. There was at no time any discharge from the vagina save a slight serous discharge, and everything appeared to be strictly aseptic. I now felt certain convalescence was permanently established. She was perfectly comfortable and clear of all tenderness on pressure. Her condition continued to improve up to about the middle of the third week, when she complained of pain in the left thigh and knee, which proved to be a phlebitis that extended to the foot. In about one week under the customary treatment her limb was rapidly regaining its normal condition, but this was followed up by involvement of the other leg. She also complained of considerable pain in the left upper arm, which was of the same character as that of the limbs. Her temperature now rose to 103, pulse 135, and I feared for the worst. The next day, however, she was better, and continued to improve till she left the hospital, which was in the eighth week. Outside of a few days that she suffered from the phlebitis she had no pain,
and kept very cheerful and happy, though from the table you
will see she continued to have a high pulse rate and a littl
fever on up to the time she left the hospital. I saw her only
a few days ago, found her sitting up most of the day, good
appetite, sleeping well, and gaining flesh. Said she never felt
better in her life.

<table>
<thead>
<tr>
<th>Date</th>
<th>Hour</th>
<th>Pulse</th>
<th>Temperature</th>
<th>Urine</th>
<th>Remarks</th>
</tr>
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<tbody>
<tr>
<td>Feb. 13</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>Operation.</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td>Catheter.</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>96</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>2</td>
<td>104</td>
<td>100</td>
<td></td>
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<tr>
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<td>4</td>
<td>104</td>
<td>100</td>
<td></td>
<td>Catheter.</td>
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<tr>
<td></td>
<td>5</td>
<td>108</td>
<td>99.4</td>
<td></td>
<td>Catheter.</td>
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<td>9</td>
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<td></td>
<td>Catheter.</td>
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<td>10</td>
<td></td>
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<td></td>
<td>Catheter.</td>
</tr>
<tr>
<td>P. M.</td>
<td>4</td>
<td>104</td>
<td>99.2</td>
<td>3</td>
<td>Strychnia $\frac{3}{4}$ gr., calomel 1 gr., every hour.</td>
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<td></td>
<td>8</td>
<td>108</td>
<td>99.8</td>
<td>2½</td>
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<td></td>
<td>12</td>
<td>108</td>
<td>99.8</td>
<td>4</td>
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</tr>
<tr>
<td>Feb. 15</td>
<td>2</td>
<td>110</td>
<td>98.5</td>
<td>3</td>
<td>Strychnia $\frac{3}{4}$ gr.</td>
</tr>
<tr>
<td>A. M.</td>
<td>6</td>
<td>112</td>
<td>98.5</td>
<td>4.5</td>
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</tr>
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<td>10</td>
<td>104</td>
<td>98.2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>P. M.</td>
<td>2:30</td>
<td>108</td>
<td>99</td>
<td>3</td>
<td>Slight sickness at stomach.</td>
</tr>
<tr>
<td>Feb. 16</td>
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<td>98.5</td>
<td>3</td>
<td>Beef tea 1 dr., ordered every hour.</td>
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<td>104</td>
<td>99.4</td>
<td>3</td>
<td>Passed urine.</td>
</tr>
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<td></td>
<td>7</td>
<td>112</td>
<td>100</td>
<td>×</td>
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<tr>
<td>P. M.</td>
<td>12</td>
<td>112</td>
<td>99.8</td>
<td></td>
<td>Beef tea 4 oz., every three hours.</td>
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<td>99</td>
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<tr>
<td>A. M.</td>
<td>6:30</td>
<td>104</td>
<td>99</td>
<td>×</td>
<td>Pep. milk and beef tea.</td>
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<td>M.</td>
<td>4</td>
<td>100</td>
<td>99.2</td>
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<tr>
<td>P. M.</td>
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<tr>
<td>Feb. 18</td>
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<td>96</td>
<td>99.5</td>
<td>×</td>
<td>Sleeping well.</td>
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<td></td>
<td>6</td>
<td>96</td>
<td>99.4</td>
<td>×</td>
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<td>99.8</td>
<td>×</td>
<td>Buttermilk.</td>
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<td>6:30</td>
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<td>9</td>
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<td>100.4</td>
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<tr>
<td>Feb. 19</td>
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<td>96</td>
<td>100$\frac{1}{2}$</td>
<td></td>
<td>Buttermilk ordered every three hours.</td>
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<td></td>
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<td>96</td>
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<td></td>
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<tr>
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<td>100</td>
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<tr>
<td>M.</td>
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<td>100.8</td>
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<tr>
<td>P. M.</td>
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<td>101</td>
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<tr>
<td>DATE</td>
<td>HOUR</td>
<td>PULSE</td>
<td>TEMPERATURE</td>
<td>URINE</td>
<td>REMARKS</td>
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<tr>
<td>Feb. 21, P.M.</td>
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<tr>
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<td>6</td>
<td>102</td>
<td>100</td>
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<tr>
<td></td>
<td>10</td>
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<tr>
<td></td>
<td>P.M.</td>
<td>12</td>
<td>104 100.5</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>10</td>
<td>104</td>
<td>100</td>
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<tr>
<td>Feb. 24, A.M.</td>
<td>6</td>
<td>100</td>
<td>100.4</td>
<td></td>
<td>Appetite good; ordered buttermilk, eggs, and whiskey.</td>
</tr>
<tr>
<td></td>
<td>9:30</td>
<td>104</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P.M.</td>
<td>2:30</td>
<td>104 100</td>
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<td></td>
</tr>
<tr>
<td>Feb. 25, A.M.</td>
<td>5:30</td>
<td>103</td>
<td>99</td>
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</tr>
<tr>
<td></td>
<td>9</td>
<td>100</td>
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<td></td>
<td>P.M.</td>
<td>6</td>
<td>104 99.8</td>
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</tr>
<tr>
<td>Feb. 25, M.</td>
<td>12</td>
<td>103</td>
<td>99.5</td>
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<td>8</td>
<td>108</td>
<td>99</td>
<td></td>
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<tr>
<td></td>
<td>P.M.</td>
<td>5:30</td>
<td>108 100</td>
<td></td>
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<td></td>
<td>10</td>
<td>108</td>
<td>100</td>
<td></td>
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</tr>
<tr>
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<td>7</td>
<td>104</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P.M.</td>
<td>2</td>
<td>100 99.5</td>
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<td>99.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P.M.</td>
<td>1:30</td>
<td>107 99</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6:30</td>
<td>106</td>
<td>99</td>
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</tr>
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<td>Feb. 29, A.M.</td>
<td>6:30</td>
<td>107</td>
<td>99</td>
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<td></td>
<td>10</td>
<td>108</td>
<td>99.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P.M.</td>
<td>8:30</td>
<td>105 99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mch. 1, A.M.</td>
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<td>100</td>
<td>99.4</td>
<td></td>
<td>Complaining of pain in left leg, with considerable swelling that extends to the foot. Ordered same covered with absorbent cotton and bandaged, after applying tr. iodine over veins involved.</td>
</tr>
<tr>
<td></td>
<td>P.M.</td>
<td>4</td>
<td>108 99.3</td>
<td></td>
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<td>5:30</td>
<td>108 99.8</td>
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<tr>
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<td></td>
<td>P.M.</td>
<td>5:30</td>
<td>100 100</td>
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<td>Mch. 4, A.M.</td>
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<td>118</td>
<td>101</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>P.M.</td>
<td>7</td>
<td>114 101</td>
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</tr>
<tr>
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<td>101</td>
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<td>2</td>
<td>118 103.2</td>
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</tr>
<tr>
<td>6:30</td>
<td>120</td>
<td>102.5</td>
<td></td>
<td></td>
<td>Slept poorly.</td>
</tr>
<tr>
<td>DATE</td>
<td>Hour</td>
<td>Pulse</td>
<td>Temperature</td>
<td>Urine</td>
<td>REMARKS</td>
</tr>
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</tr>
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<td></td>
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<td>102</td>
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<td>120</td>
<td>102.3</td>
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<td></td>
<td>10</td>
<td>106</td>
<td>104</td>
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<td></td>
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<td>120</td>
<td>104</td>
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<td>P. M. 9:40</td>
<td>120</td>
<td>101</td>
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<tr>
<td></td>
<td>2:30</td>
<td>114</td>
<td>101.2</td>
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<td>10</td>
<td>112</td>
<td>102.5</td>
<td></td>
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</tr>
<tr>
<td>Mch. 23, A. M.</td>
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<td>120</td>
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<tr>
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<td>11:30</td>
<td>104</td>
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<td>Mch. 25, P. M.12:30</td>
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<td>Mch. 26, A. M.10</td>
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<tr>
<td>Mch. 27, P. M.8</td>
<td>104</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sleep badly.</td>
</tr>
</tbody>
</table>
|              |       |       |             |       | Complains of pains all through the limbs, and some swelling noticed, es-
<p>|              |       |       |             |       | pecially of the feet.                                                    |
|              |       |       |             |       | Pain all gone and rests well at night.                                   |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Hour</th>
<th>Pulse</th>
<th>Temperature</th>
<th>U.ine</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 29, A. M.</td>
<td>10</td>
<td>104</td>
<td>99</td>
<td></td>
<td>Appetite good and sleeps well.</td>
</tr>
<tr>
<td>Mar. 30, A. M.</td>
<td>6</td>
<td>108</td>
<td>99.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar. 31, A. M.</td>
<td>6</td>
<td>104</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 1,</td>
<td>6:30</td>
<td>96</td>
<td>99.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 2, A. M.</td>
<td>10</td>
<td>114</td>
<td>99.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 3, A. M.</td>
<td>6</td>
<td>100</td>
<td>98.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 4, A. M.</td>
<td>11</td>
<td>100</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 5, A. M.</td>
<td>6</td>
<td>100</td>
<td>101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 6, A. M.</td>
<td>12:20</td>
<td>92</td>
<td>100</td>
<td></td>
<td>F.</td>
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<tr>
<td>April 7, A. M.</td>
<td>11:30</td>
<td>110</td>
<td>103</td>
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<tr>
<td>April 8, A. M.</td>
<td>6:45</td>
<td>98</td>
<td>100</td>
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<td>April 9, A. M.</td>
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<td>108</td>
<td>100</td>
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</tr>
<tr>
<td>April 10, A. M.</td>
<td>6</td>
<td>92</td>
<td>100</td>
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<td></td>
</tr>
<tr>
<td>April 11, A. M.</td>
<td>6</td>
<td>94</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 12, A. M.</td>
<td>8</td>
<td>96</td>
<td>99</td>
<td></td>
<td>Sent home feeling good, though temperature 99, pulse 104.</td>
</tr>
<tr>
<td>A. M. 11</td>
<td>104</td>
<td>99.2</td>
<td></td>
<td></td>
<td>One month after this date her temperature is normal, but pulse still remains high, about 100.</td>
</tr>
</tbody>
</table>

These two cases illustrate how difficult some cases are that ordinarily are comparatively easy, and how complicated cases may become that at first offer but slight difficulty. The first one illustrates the importance of using every reasonable effort to arrive at a correct and positive diagnosis; the second one illustrates the possibility, and may I not say the probability, of sometimes snatching our patient from the very jaws of death. Had I gone on and treated my first patient expectantly, as we all sometimes do, the most rational conclusion that we could arrive at, considering the distance she was from medical aid, is that she would have suffered a fatal hemorrhage before help could have been secured. There was, in my opinion, no possibility of making a correct diagnosis from her symptoms or from a physical examination. The position of the foetus in the uterus was apparently normal. The cervix
was so lacerated and infiltrated with cicatricial tissues that no knowledge could be gained by either examining through the vagina or the rectum. The extreme sharp pain which she suffered on the two occasions mentioned, followed by fainting and shock and succeeded by fever, would lead us to suspect an extra-uterine pregnancy which had ruptured into the broad ligament. The passing of a uterine sound into the gravid uterus eleven inches and rotating it without meeting any obstruction would not tend to enlighten us on the subject unless it caused us to anticipate a utero-tubal pregnancy. So we find no symptoms or physical conditions in common in this case to justify any rational conclusion in regard to the diagnosis. The great stress laid on the symptom of placenta previa in our text-books is hemorrhage, nothing said of shock, fever, diarrhoea, or open uterus, which all existed in this case.

On referring to the second case in this paper I do not wish to call your attention to the causes that may lead to infection of the birth canal, or to the general and local treatment that all cases should receive previous to any thought of subjecting them to a grave and generally fatal surgical operation. But I desire to call your attention specially to the indications for and the technique of a surgical operation in those desperate cases which are constantly occurring, as a last and final effort to save them where all general and local treatment has failed.

I consider, if you will allow the digression, that septic fever after childbirth would seldom if ever be heard of under the present perfected uses of asepsis and antiseptics that are now in constant use by the best obstetricians of the country. But so long as the accoucheur is called for the first time in the middle of the night, and has to hasten to arrive perhaps during the last stage of labor, and is greeted at the door by some inexperienced lady of the neighborhood who has taken charge of the case; or so long as we permit uneducated persons to hang out the sign “Midwife” at the front door of their humble cottage, so long the appalling mortality as com-
piled and reported by Mr. Bacon, of Chicago, will continue to darken the pages of our medical literature.

Now as to the indication for surgical interference I find the profession greatly differing, as it generally differs in such serious conditions. Only one year has passed since some of the best men in the country made the broad and sweeping assertion that the mortality from septic fever treated by hysterectomy was always 100 per cent. Others claim that surgical interference should be made only in those cases where pus was localized and its presence positively diagnosed. Still others, who are more progressive, believe either a coeliotomy or vaginal hysterectomy should be done in every case where the symptoms have resisted all local and general treatment three or four days. For my own part, I believe that no case where the uterus is the primary focus of infection should be permitted to die without first exploring the pelvis thoroughly and taking away the offending organ, either through the vagina or the abdomen. You will perceive that the indication in the case just reported was plain from the fact that perforation had already taken place and death would have been inevitable in a short time had the offending body not been speedily removed. In cases like this we should be on the alert and anticipate the pathological condition taking place sooner if possible, and remove the offending organ before perforation and sloughing has already taken place. The indications for surgical interference in cases of septic fever following childbirth which I submit to your consideration, and those which I believe to be in accord with the best literature on the subject, may be placed under three general divisions or headings, viz.:

First—When the uterus is the primary focus of the disease and we fail to relieve the symptoms by the faithful use of local and general treatment as recommended for such conditions, hysterectomy is indicated, and preferable before abscesses or perforations have taken place.

Second—All cases of general peritonitis which resist all
other treatment should have the abdomen opened and thoroughly irrigated and drained, as a last and final effort to give them relief.

Third—All cases where pus is found should at once be subjected to operation, no matter what may be its location or its cause.

Now as to the technique of the operation I wish to make only a few remarks, taking up the operation for hysterectomy as given in the first indication, the operations necessary in the other two being so variable and different according to pathological conditions found, that too much space would be occupied in their discussion for your present consideration. The great surgeons of the country appear to differ as to the best method of doing hysterectomies, some claiming the vagina to be the route through which all uteri should be removed, and other school believe the vagina should seldom be invaded for the purpose of gaining access to the pelvis; they claim the abdomen offers the safest and best route in most all hysterectomies, some preferring complete amputations, others amputating at or near the internal cervix and covering over the raw surfaces with the serous membrane. The last method mentioned I consider an ideal one in other conditions where the cervix is healthy and general infection of the uterus has not taken place; but for a case of septic fever following childbirth, where the entire organ is certainly involved, no effort should be spared to remove all possible source of infection, and we should not stop short of the most complete operation that can possibly be done. As to removing the uterus through the vagina, which is also an ideal operation, where we have infection of the vagino-cervical portion of the uterus with a healthy condition of the broad ligaments; but in septic fever following childbirth we may, and in fact frequently do, find the broad ligaments involved, and their inspection is absolutely necessary in all cases to secure absolute safety to our patients. The method adopted in the case just reported was a combined
one, as you doubtless noticed in the report. The abdomen was opened, the uterus inspected, and the pathological condition observed. The broad ligaments cut close to the pelvic walls, and after ligating the ovarian arteries the serous surfaces of the broad ligaments were stitched together by a continuous suture clear down to the bladder on one side, the pouch of Douglas on the other. I now let the patient down and finished the enucleation through the vagina, stitching mucous and serous surfaces together and clamping the uterine arteries from below. This left only the stumps of the uterine arteries, which were almost isolated vessels, the only raw surfaces left in the pelvis. By this method every step taken during the operation is capable of being inspected by the eye as the operation proceeds. Also after the extraction of the uterus it affords the best possible opportunity to observe any abnormal condition that may remain in the pelvis, at any point. It further affords the most available means of washing out and rendering the cavity aseptic, providing any infection should have come in contact with any of the parts.

There is one more subject connected with this case that I would like to take up at some length, but owing to lack of time I will simply refer to it in closing the paper. That is phlebitis following operations. In this case the first symptom of phlebitis occurred during the third week and after convalescence was thoroughly established. To my mind there is no doubt but that the phlebitis was due not to the absorption of septic matter from the site of operation, for the parts around the field of operation seemed perfectly healed and clear of all tenderness and pain on pressure; but to embolisms in the veins, as maintained and ably discussed in a recent paper read before the New York Obstetric Society by Mr. J. M. Baldy, of Philadelphia, who believes that all cases of phlebitis following operations are due to emboli, and not to absorption of septic material from the site of operation.

Dr. A. S. v. Mansfelde: It is always easy for us to criti-
rise, and I do not rise for that purpose; but I cannot for the life of me see why the first case should have been reported to this Society. It was undoubtedly and unmistakably a case of pregnancy, and, whilst to err is human, it may be excusable to open the abdomen for the purpose of an exact diagnosis. To say that this procedure is perfectly safe, is untrue; and it is, therefore, high time that male surgeons should demonstrate the faith that is in them on themselves and invite one another to perform laparotomies on them at every and the slightest pain or trouble in their abdomens and thereby give poor woman a rest, for a time at least. Secondly, whilst I have the highest opinion of the gentlemen who were called in as consultants, at least they should be so considered, they excel in lines which are foreign to abdominal surgery—and in this case, therefore, they should have given place to specialists, especially when such specialists were in easy reach. I do not assert that these gentlemen were not competent, but there were those, and they themselves will cheerfully admit this, who by training and practice were greatly more competent, and the poor woman was not only entitled to their services, but surely has a good case for not receiving them. The subsequent work, the emptying of the uterus of its contents, was simply abominable and inexcusable, and a clear case of unjustifiable abortion and therefore beyond criticism.

Dr. B. B. Davis: I only have a word, and that, I am sorry to say, must be in the way of criticism of the first case reported. It seems to me that there were two or three things done in this case which, at least in the light of the present, it would have been better to have left undone.

After having found the patient suffering as the doctor did, it was natural that his suspicions should have been aroused. But it seems to me that unless the existence of extra-uterine pregnancy has been absolutely established that the passing of a uterine sound is unjustifiable. And after passing the sound eleven inches it ought to have made the doctor realize that he
had a case of normal pregnancy to deal with. The uterus never enlarges to such an extent in extra-uterine fertilization.

Another point in which I think the doctor erred was in the bringing on of labor after the case was found to be normal pregnancy. I see no reason whatever why this was done. An effort is made by the writer to justify the abortion because of the placentitis which was found to be present after the placenta was delivered. It is very natural for one to strongly suspect that the repeated passing of a sound to the depth of eleven inches and then turning it around was the cause of the placentitis.

In the last case I think the doctor did remarkably well in saving his patient at all.

Dr. Hamilton: I have but little to add in closing the discussion of the paper. I was glad to hear so many of the physicians stand by the general practitioner and claim him equal to the surgeon in diagnostic ability. In making my selection of men to consult with I chose those that I considered competent and reliable, all of whom do a large general practice. As to the operation itself, I consider myself perfectly competent to perform such. My past training and experience justifies such a conclusion. As to calling in all the surgeons in the city to consult in a case where no compensation can be given, I believe it uncalled for and out of the question. In answer to the gentleman’s criticism, I would ask him to state how many surgeons he calls in consultation before doing an operation. Now, as to the criticism in the septic case, I want to say that she had all of the symptoms of septic fever, and had had since her delivery. I think that no one can question the diagnosis, if the symptoms be strictly followed.
A NEW HUMAN TAPEWORM.

(Tcenia confusa n. sp.)

AN ENTOZOOON, PROBABLY OF ORDER CESTOIDEA.

BY HENRY B. WARD, PH. D., PROFESSOR OF ZOOLOGY, UNIVERSITY OF NEBRASKA.

Somewhat more than a year ago a tapeworm was sent me which at first sight appeared decidedly unlike either Tcenia saginata or Tcenia solium. It showed the slender form and more delicate appearance of the latter, but was in length of segments even decidedly larger than the former species. Some notes were made at the time, and then, on account of pressure in other directions, laid aside to await opportunity for further study. This winter I received a second specimen which at once recalled the first, and on comparison was seen to be identical with it. A series of measurements was made from the entire length of the specimen, and comparison with those given for the familiar species in Leuckart* strengthened the belief that this was an unknown form of the genus. One of my students is at present engaged in a detailed description of this specimen, and closer study shows beyond question the specific rank of the form. It seems proper, however, that, in advance of this detailed study, some general description of the form should be published, in order to call attention to the existence, in this region at least, of a species hitherto unknown or confused with one of the familiar species. We are especially desirous of obtaining more material, and take this occasion to beg that specimens of tapeworm be sent from all regions for identification and study. The University will gladly pay the cost of transportation on such material.

* Parasiten des Menschen, II. Aufl. Leipzig, 1879–93.
Thus far only two specimens of this species have been seen, and both were taken from residents of Lincoln. One of them has been almost entirely destroyed in making slides and sections, but the other is still nearly entire, and from it were taken the general measurements which are given in the following. The total length of this specimen must have been about 500 cm. The terminal proglottids, just ready to be separated, are from 5 to 3.5 mm. in width. They are, as represented in figure 1, of nearly uniform breadth throughout their entire length, save that close to the end a prominent widening is found, to which the subsequent proglottid is attached. The sexual pore is easily seen, though it does not project markedly beyond the margin of the segment. One meter anterior to the end of the specimen the proglottids measure 15 mm. long and 7.5 mm. wide, and a meter further anterior they are just about 9 mm. square. In the anterior third of the worm the segments are 4.5 mm. long by 3.5 mm. wide, and near the anterior end 1 to 1.4 mm. long by 0.8 to 1 mm. wide. In general, then, it may be said to be much slenderer than _Taenia saginata_, never attaining the broad form which is so striking near the middle of the chain in specimens of this latter species. Cross sections show that the new form is much less muscular, and in fact more like _Taenia solium_, from which it differs, however, in many evident respects. A positive diagnosis of the species may be made from these terminal segments alone, by the size and shape,

*Fig. 1.—Two segments from end of chain, _Taenia conflua_ n. sp. Natural size.* (Original.)

*By error in reproducing this figure the segments are only nine-tenths natural size.*
which, as the table appended to the article shows, are sufficiently unlike corresponding parts in the two familiar forms of *Taenia* to be distinguished without great difficulty.

The most striking peculiarity of the new species, however, is the head. Unfortunately, this was present only in one specimen. The long, very slender neck has no region which fails to show the boundary lines of the proglottids. It is crowned by a small head (Figure 2), which measures only 0.3 mm. in diameter. The four suckers are distinct, but not prominent, and produce no apparent break in the outline of the head. Most striking, however, even under a low power, is the rostellum, which lies drawn into a pit at the anterior apex of the head. It is thimble-shaped and measures 0.05 mm. wide by 0.07 mm. long; it is covered by six or seven close rows of minute hooks, which decrease in size from the apex of the structure toward the base. Owing to the thickness of the muscular mass about the hooks and to their diminutive size, it was not possible in the single specimen to

![Figure 2](image-url)
determine exactly their size and shape. One recognizes, however, without difficulty, the clear, highly refractive appearance characteristic of such chitinous structures. The diminutive size of the head led me at first to suspect that it was altogether lacking in this specimen. It is probable that the rostellum, with its mass of hooks, gives a firm hold on the intestinal wall of the host, and the parasite may be evacuated only with great difficulty. Accurate diagnoses and records of methods employed in removing the worm are necessary to determine the effect of the ordinary remedies on this new species. It is by no means certain that it will yield to the same treatment as the well-known species.

A table of measurements for the three species of *Taenia*, which are found as adults in the human alimentary canal, is appended for convenience in diagnosis. The measurements for the familiar species are taken from Leuckart. The specific name *confusa* is proposed for this new form.

<table>
<thead>
<tr>
<th></th>
<th><em>T. confusa</em></th>
<th><em>T. saginata</em></th>
<th><em>T. solium</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of entire specimen</td>
<td>5 m.</td>
<td>4-8 m.</td>
<td>2-3 m.</td>
</tr>
<tr>
<td>Length of terminal proglottids</td>
<td>27-35 mm.</td>
<td>18-20 mm.</td>
<td>10-12 mm.</td>
</tr>
<tr>
<td>Width of terminal proglottids</td>
<td>5-3.5 mm.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greatest width of chain</td>
<td>8-9 mm.</td>
<td>12-13 mm.</td>
<td>7-8 mm.</td>
</tr>
<tr>
<td>Diameter of head</td>
<td>0.3 mm.</td>
<td>1.5-2 mm.</td>
<td>1 mm.</td>
</tr>
<tr>
<td>Diameter of suckers</td>
<td>0.12-0.15 mm</td>
<td></td>
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</tbody>
</table>

Dr. Parkhurst: This paper is one of great interest to me, because I believe I have encountered a worm of this peculiar variety.

About five years ago I remember of being called to see a lady who had been passing some segments of tapeworm; and from the description the professor has given us, I am satisfied it was of the same variety. It was certainly like it, in being very hard to expel, for I repeatedly used all of the well known taenicides in vain, but finally succeeded by giving the patient, as a last resort, this treatment—which will probably meet with severe criticism; however, it proved successful: I gave her four ounces of spirits of turpentine, combined with the same amount of castor oil at one dose. [Laughter.]
Dr. Knapp: I would like to inquire of Dr. Parkhurst if he preserved the worm.

Dr. Parkhurst: I would just say to the doctor that it was so much disintegrated by the turpentine as to be hardly recognizable.

Dr. Knapp: What about the patient?

Dr. Parkhurst: She is now living at Elmwood and has never been troubled with tapeworm since. Now, some may think this rather heroic treatment, but if you will try large doses of turpentine in the same way, you will find it will not hurt your patient, but it will surely get the worm. It passed through the alimentary canal so quickly, carrying the contents of the intestines with it, that it produced no symptoms of strangury.
INJECTIONS OF CARBOLIC ACID IN THE
TREATMENT OF HYDROCELE, GANGLIA
OF THE WRIST, HOUSEMAID'S KNEE, AND
TUBERCULOUS CERVICAL GLANDS.

BY VICTOR H. COFFMAN, M. D., OMAHA, NEB.

My apology for presenting this paper is offered in behalf
of the class of physicians of "Ye olden time," the general
practitioner, who lived and flourished when it was possible
for him to be something more than a procurer for the specialist,
when he could prescribe for scabies his ointment of lime
and sulphur and anoint his patient with balsam of Peru
without the specialist of skin diseases being called in—or
treat the wayward youth with injections of nitrate of silver
and a bottle of injection Brou, without consulting the specialists on venereal diseases, submitting to curettage of the
urethra as the proper fad for the destruction of the gonococi,
and when he could prescribe for the initial stages of a peri-
apendicular morbidity with constipation, by giving salines
and calomel and antiseptic enemas without the patient's friends
insisting on consulting a McBurney or Summers, or Jonas,
Lee, Hamilton, Davis, or Lord, or the latest graduate who
happened to attend one month at a special clinic and re-
turned to style himself a specialist. Also, could he, by hav-
ing the prestige of being the family physician, be permitted to
prescribe for the feminine members—pains, aches of the ab-
dominal region—without the interference of the gynecologist,
curetting the uterus and the removal of the ovaries? And
even he is not permitted to recommend an effusion of couch
glass to the male patient who has too frequent micturition till
the specialist on urinary diseases must be consulted, and at
once prostatitis is established, and, in hand with the surgeon, your patient disappears for a time to reappear with beard fallen out, his voice a beautiful soprano, and behold the transformation—the "coming woman."

In presenting this paper to this honorable Society, without any priority or originality claimed, I simply state that for ten years I have successfully treated these morbid conditions referred to in the title of this paper, and surprising to me that this method has not been universally adopted, instead of the use of the scalpel, or irritating injections of iodine. The latter not always resulting in a permanent cure, though always resulting in producing pain, disabling our patient for days or weeks. The knife, with more in its favor, still puts your patient to bed, and disfigures oftentimes with a cicatrix, especially in the ganglia cases, also requiring anesthesia, which is never entirely free from the danger of possibilities of accident. With reference to hydrocele, the importance of which may be illustrated by referring to the case of the historian, Edward Gibbon, who had the largest hydrocele on record, as large as a bucket, enduring repeated operations and attempts for relief; finally succumbs to septic fever at the age of fifty-seven. The simplicity of the carbolic acid treatment is equalled only by the certainty of cure without complication. It is not my purpose to enter into the discussion of the morbid conditions of the pathological anatomy of hydrocele, but will include sero-cysts generally. If you will but refer to the history of those who have used carbolic acid at all, they first evacuate the fluid. Kussner, of Moscow, preferred the injection of four per cent solution, and Dr. Eve, of one of the London hospitals, refers to this method as potent and permanent in result. If you resort to the method of free-incision, resection, and drainage for the cure of sero-cystic disease, with all the adherence to aseptic provisions and the paraphernalia of the operating room, anesthesia, trained nurse, assistants, with hospital accommodations, requiring two weeks
in bed even with the skilled operator—waste of talent, skill, and time can be supplanted by this simple procedure, which is economy in time and expense, and above all is without danger or pain. The surgeon too lightly exposes his patients to risks of operation (for every operation has its risks), and he who operates most and best knows this well. Deterring the ambitious blood-thirsty aspirant of gory honor at the expense of his victim’s credulity.

What relationship can exist in these morbid conditions resulting in producing hydrocele, ganglia, housemaid’s knee, and sero-cystic tumors in general when one and the same procedure restores the tissues involved all alike to the normal condition? How the acid acts on the endothelial lining of the vaginal sac to change from secreting to an absorbing function is unanswered. Suffice it that by the use of an hypodermic syringe holding one drachm of 95 per cent solution of pure carbolic acid, inserted into the superior part of the tumor, guarding the superficial veins of scrotum, the acid is injected forcibly into the sac without previous evacuation of the fluid. Should the tumors be excessively large, two injections or two drachms will be necessary for the first treatment, withdrawing syringe slowly after two minutes, preventing escape of fluid, applying a little vaseline to the surface, or mop the parts with alcohol if any of the acid has escaped, preventing the cauterizing of the integument, put on a dressing of gauze to protect from oozing, and your patient permitted to go about his occupation, no risk incurred or pain endured. Within twenty-four hours a slight reaction follows, which lasts two to five days, and the size of the tumor diminishes gradually. Should it not recede, then repeat the injection of a like amount of acid, and within one month all traces of enlargement disappears, and not in one instance has it been my experience to have it return or any complication follow. The most numerous class of patients I have treated for this condition or disease are farmers. They come to my office in Omaha. I have injected them with the
acid. They have gone to their homes immediately, done their work as usual without complaining of any inconvenience, and within a few weeks are surprised that the swelling has entirely disappeared.

The first case of hydrocele I operated on by this method of injecting carbolic acid was a man living at Florence, running a saw-mill. This was twelve years ago; never any return of the trouble since. The following year two farmers, close by, were operated on by acid, one having required the second injection three weeks subsequent to the first treatment, resulting in permanent cure. Neither were restricted in their labor or confined an hour in bed; in fact painless was the operation, and no return of swelling or reappearance of hydrocele since. Thus, in brief, is the method adopted; nothing to detail in the history of the cases operated on; simply letting them alone and, as by magic, they are cured.

Housemaid’s knee, as you know, is but an inflammation of the “bursa of the patella-tendon,” with circumscribed effusion, painful, and disabling the patient. For several years I have resorted to the injections of one drachm or pure liquid carbolic acid into the tumors. Within five days the second injection of half a drachm of the acid has been necessary in one-third of my cases. The inflammatory action continues for a few days and the swelling and soreness subsides within a fortnight, and in a month’s time has disappeared. Not in one instance has this treatment caused any inconvenience, or any complications following, the patient continuing their usual avocations. The morbid condition of these cases extend sometimes to the joint and the muscles of the leg, the tumors attaining large size and very painful. When taken into consideration the class of people who are subject to it, who cannot afford the time and expense of a surgical operation, this method of treatment is peculiarly adapted. At present I have two cases of housemaid’s knee under treatment which I injected each with one-half drachm of 95 per cent solution of carbolic
acid. This was done ten days ago, and I find one of the tumors almost entirely gone, and probably, from the slight reaction in the one case, and the slow absorption, will require a second injection.

**Tuberculous Cervical Glands.**—Within the last two years I have treated four or five cases of enlarged glands in the cervical region with two to five drops of liquid carbolic acid injected with a fine needle into the center of each gland, with the result of creating slight inflammation, resulting in the softening and liquefying of the gland, and finally absorption taking place, disappearing without a trace of thickening. Whether these glands are tuberculous or not, in no instance has other glands developed in the same patient as is so frequently the case after excision. My cases are too few and too recent to command the respect of investigators, but the appeals of the fair patients to be free from these defects so abhorrent to their vanity and physical respect, if, not tainted constitution, scrofulitic in nature, also the warnings of cases operated on by excision and the scars remaining and numerous other glands developing till some of them go on to suppuration and by nature's process are eliminated, are in evidence of some better mode of treatment.

**Ganglia.**—Ten years ago I was consulted by Miss C., of Omaha, concerning two exceedingly large bursa, or cystic tumors on each wrist. My method of treatment was injecting into each tumor five drops of pure liquid carbolic acid. Into the largest tumor I injected ten drops, no preparatory treatment, no precautions exercised, but within twenty-four hours after some inflammation developed, when I applied simple bandage dressing with a lotion of dilute lead water for two days. Then the swelling began to subside, and within a month there was not a trace of either tumor left, and never returned. A young man was the next case operated on in the same year, who had one large and two smaller ones in the course of the same tendon. I injected the larger with five
drops of ninety-five per cent solution carbolic acid, a very little inflammation followed, and within three weeks the tumefaction had subsided entirely and has never since returned. These two first cases I have been able to watch for years and know positively that there is no return of the trouble. This is the only method adopted since then for the treatment of ganglia, for all class of cases, though the compound or diffused ganglia consists of chronic effusion in the common sheath of a group of tendons almost exclusive to the common flexors of the fingers. One variety of this contains the so-called melon-seed bodies. They are smooth, oval, and tough as cartilage, pearly white color, composed of fibroid tissue, which have to be removed first by incision. Then, when the tumefaction reforms, I inject the acid, the quantity in proportion to the size of the swelling. The result has been perfect cures and no complaints or regrets. Contrast this method with the non-surgical procedure of rupturing the sac and wearing of hard compresses for weeks, or the application of blisters, renewed for weeks, with dismal failure at last, or the hazardous operation of incision, leaving behind a disabled tendon and an unsightly cicatrix.

Dr. A. S. v. Mansfelde: The paper by Dr. Coffman is the one that brought me here, for the reason that I did the operation he so enthusiastically describes in his paper, in 1879 and again in 1886. They were both cases of tuberculosis of the cervical glands, and the injection into the enlarged glands of pure carbolic acid under asepsis not only caused the destruction of the glands, so treated, but a retrogressive process was set up in those too small to be injected, and as a result both persons are to-day living and no return of the trouble has taken place. It does not make any difference how much gentlemen may theorize, the fact remains that Dr. Coffman has not said a word in his paper too strong to be borne out by the experience of those who have given this method a trial.

In connection with this paper I wish to warn the younger
members not to be afraid of the concentrated carbolic acid in these cases; because it will coagulate the tissues it comes in contact with, thereby preventing absolutely all absorption of the acid into the circulation; whereas, if you dilute the acid, thinking that you thereby are doing safer work, you are very apt to poison your patient, because of the possibility presented for the absorption of the carbolic acid. The older members will, perhaps, remember that this was pointed out by Professor Andrews many years ago in his paper on the injection treatment of hemorrhoids by charlatans.

Dr. R. C. Moore: I did not have the pleasure of hearing the paper read by Dr. Coffman, and there are present so many gentlemen who heard the whole paper and are therefore better prepared to entertain you by discussing its merits. This treatment of hydrocele by carbolic acid injection is quite old. I do not attribute any especially good results which may follow such injection to a specific action of the drug, but simply to the adhesive inflammation set up by the irritating properties of the fluid causing an adhesion of the walls of the sac. In many cases, if you only draw for fluid and allow the walls of the sac to come in contact with each other, you will bring about a cure without the aid of any drugs or resorting to any means to set up an irritation artificially.

Dr. E. W. Lee: I want to congratulate Dr. Coffman on his enthusiasm. It has been a long time since this Society has heard him burst forth in such eloquence. A number of years ago he was quite in favor of specialists, and advised young men to follow a certain course, and advocating a certain course in the medical profession; and he does not now hesitate, even if he is regarded the father of medicine in our state, in calling in a specialist. In regard to his treatment of these various inflammatory conditions they are all mechanical. The treatment of hydrocele, so far as the treatment is concerned, is simply mechanical; the treatment by carbolic acid does not produce the cure, you have to depend upon the me-
chanical action. If that action falls short you don't accomplish that which you intend to do. Just the same as using a red-hot iron, if it destroys enough tissue to set up inflammation it cures the case; if on the contrary, it does not. It is not a reliable and scientific treatment. If it ever cures the case I believe it is by accident. In tuberculosis it does not destroy the bacilli. Carbolic acid never was known to destroy tubercular bacilli. The treatment is not surgical nor scientific, and not a procedure to be recommended.

Dr. W. R. Lavender: With reference to the germicidal action of carbolic acid in preventing the development of bacilli, bacteriologists at present place it rather low in the scale as compared with other antiseptics, usually naming the strength required as 1 in 33. I cannot see that a ten per cent solution can have much power as a preventive in tuberculous glands; it is doubtful that such can have much action upon the bacilli if present. Personally I have examined during the last five years a large number of so-called tuberculous glands removed from the neck and other regions by my surgical friends, in which, after carefully staining, the bacilli were found present in only about twenty per cent. I have an idea this acid acts in those conditions by setting up a reactive inflammation; thus destroying the conditions and pabulum favorable for germ existence, as well as rendering the constituent elements of the growth more favorable for absorption. I have learned a good deal from Dr. Coffman's valuable paper and shall use the methods mentioned in such cases, believing that we should be governed in the best interests of our patients by using applications which have proven successful in the hands of our brother practitioners.

Dr. Lord: I, too, was very much impressed with the paper, and so much impressed that I thought in select cases, of limited extent, I may resort to this treatment. On the other hand, I want to recite a case of hydrocele, which came to my hands a short time ago, and it may illustrate the dis-
advantages of some of these simple things that we sometimes do to avoid surgical operations. These cases sometimes don't behave as we want them to. A case presented itself at St. Joseph's Hospital this spring about three months ago. An old man about 60 years of age who had hydrocele had had an injection—with what material I don't know. He had a tumor of the scrotum which was nearly as large as a man's head,—provided he wore a No. 6 hat,—and these tissues were actually gangrenous. The tumor was so large that the preputial orifice in the foreskin had drawn out upon the tumor and presented the conditions that large scrotal tumors do. The tissues were ecchymotic, extending into the inguinal region. There was a large amount of constitutional disturbance—high fever and considerable evidence of shock. We were without a clear history, and what there was was rather obscure. It was necessary to approach it with some degree of caution. When this tumor was opened, in it was found to be a hydrocele, the inner walls of which had entirely broken down and suppurating and becoming gangrenous, and the overlying tissues were so strained by the extravasation, the effects of the injection, that they were also partially gangrenous. The tissues were laid open wide. It was necessary, by the way, on account of the condition of the testicle, to remove it. The wound was treated as an open one and the patient ultimately recovered. But the injection had produced a very serious condition, which illustrates its possibilities for harm.

Dr. Ely: I am glad to find that I have such eminent authority for a procedure I happened to blunder upon some six or seven years ago. At the time I refer to I had on my hands one of those cases of hydrocele with which most physicians of any experience are only too familiar, in which iodine injections utterly fail. After four fruitless attempts with them, it occurred to me that possibly strong carbolic acid might succeed. I employed it and cured my patient. Since that time I have used carbolic acid in all my cases and have so far had
TWENTY-EIGHTH ANNUAL SESSION.

only good results; but I usually draw off a portion of the fluid, more especially if the sac is at all tense. With all deference to Dr. Coffman, I think, however, that I should hesitate to inject tuberculous glands in the neck with a 95 per cent carbolic acid.

Dr. Christie: I wish to congratulate the doctor upon one thing. It is a relief to come to a medical society and hear a man ripe in years and experience stand up and speak in behalf of the general practitioner. It is for that I would compliment him, not that I have anything against the specialist, but I believe that it is due the general profession that he first obtained light and is sustained. He has seized upon facts that have been developed by science and the profession, and has been enabled to perfect a special line of work and the technique of carry out the theory in many instances. The general practice, however, is the spinal column to the professional body.

In regard to the use of carbolic acid in the treatment of serous tumors, as hydrocele, I believe the treatment is good, except we find, as we will, sometimes, in very large, hard, and opaque hydrocele a considerable exudation of blood,—in some cases large clots of blood have formed. Under these circumstances, I do not believe that carbolic acid will sufficiently stimulate the tissues to remove the contents when of blood, and especially coagulated. So I would not pin my faith to the use of carbolic acid in such cases, or any of large size and long standing, lest there might be a condition as alluded to. The same would be true to injection of any kind in similar cases.

I presume all present have had more or less experience with aseptoline in the treatment of tuberculosis. The basis is carbolic acid. The resort to the use of carbolic acid has been supposed, and is now, I think, on account of its antiseptic effect upon germs when in contact with them, and its efficiency depends the strength. I have had no personal use with it in the
hypodermic injections directly into the tubercular glands, but can understand how it might destroy the foci of germs in the glands, and cause the coagulation of albuminous fluid, more or less, and by the irritation of the parts stimulate absorption and bring an increased amount of fresh arterial blood to the parts. In individual tubercular glands it may be a good thing. In a chain of enlarged lymphatics its efficiency is questionable because of area involved and the danger of poisoning from too much use of the acid.

Dr. Hamilton: I have been very much interested in this paper. Dr. Coffman told me about this treatment some years ago, and I have successfully used it a number of times since. I also wish to testify to the good results following the injection of carbolic acid in large cysts, after the fluid has been removed. If you remove the fluid before making your injection the amount of the acid necessary to be used will be very much diminished. Twenty-five drops will be sufficient when used in this way for a cyst that would hold two or three ounces of fluid. This injection of carbolic acid can be made at the same time the fluid is withdrawn without removing the needle if you have a stop-cock on your aspirator. Now, as to injections into the tubercular glands of the neck, I very much doubt the propriety of so doing in the great majority of cases. Of course, if we were able to reach the bacilli, the treatment would be good; for there is nothing more powerful as an antiseptic than carbolic acid. It has been demonstrated, though, that the bacilli are not in the center of the gland, but are found around the outer border, which would render it impossible to reach them by injections into the gland.

Dr. Coffman: When I began to read this paper I thought that I would ask that this subject be limited as to discussion but open to criticism.

I said in this paper that the injection of carbolic acid was not the surgical treatment. Nobody said anything about the surgical treatment in this case. There was nothing said about iodine; that is not in the paper. There was nothing said
about the pathology, and yet that subject is discussed. It is not only done in this instance, but by other papers that are read in this Society. I have heard gentlemen go off on a subject foreign to the one in question and orate eloquently, but not to the point.

Now, if we are going to criticise the papers, let us go to the subject of that paper. I have seen cases operated on by celebrated surgeons like Lee and Summers, where they have cut out the tumors in sight, leaving hideous cicatrization and the reappearance of numerous large glands. Another thing I cited in this paper: In the few cases that I have operated were freed from returning glandular enlargement and no scars, but my experience in the few cases has been remarkable. We may theorize as much as we please. I don't know the pathology of these conditions, but the results I have had, that there was no scar left, no necessity for further operation, that the glands that formerly developed had disappeared. My preface to this paper was a little bombastic, but I am as much in favor of the specialist as the specialist is himself. As to knowing whether by inflammation the morbid material is absorbed away by this process or some other I answer not. My friend Dr. von Mansfelde comes to my relief and says that carbolic acid has the effect to destroy bacilli and change the character of morbid tissue. All I know about this is, it disappears, notwithstanding the sarcastic assertion of Dr. Lee, when he arose and in stentorian voice objected to the treatment by carbolic acid of these conditions, as it was unscientific, and he continuing unscientifically to add that carbolic acid would not destroy the tubercle bacilli.

I would consult the specialist, and I will refer to their investigation as to how these results go; but the point I made, and especially so, was the economy. The next point was that it was entirely free from pain; and I would like Dr. Moore, if he ever has a hydrocele, to stick to his method of iodine injection, and if he does he will be sorry he followed out the idea, and regret not taking a cue from my suggestions.
A CASE OF STRicture OF THE ÖESOPHAGUS,
THE RESULT OF EMPyEMA.

BY J. H. MILLER, M. D., GERING, NEB.

The only apology I offer for the presentation of this case for your consideration is the fact that such cases are of rare occurrence; and although the patient died, there are many points of interest connected with the case. It certainly is a rare thing for an empyema to evacuate spontaneously into the öesophagus. In looking up the literature on the subject, no cases were found where such an occurrence had happened, yet I do not take it for granted that cases of this nature have not been recorded.

On April 26, 1894, I was first consulted by Mr. H. O. B. He was 39 years old, married, an American, and a butcher by occupation. He claimed always to have been healthy, till about one month previous to this time, with the exception of some slight stomach trouble, which he had had for some time. About a month prior to the time he consulted me, he moved from Ft. Collins, Colo., to Gering, this state. He dated the beginning of his trouble from that day, although it was apparent to his friends that he had been losing strength and flesh for some time previous.

At this time his only complaint was that he vomited his food at once upon eating it. He had no pain, nor any other symptom of which he complained. At this time I made no physical examination, yet I suggested the possibility of an obstruction in the öesophagus; but owing to the fact that there was nothing in the history of the case which led me to suspect a stricture or a tumor, I dismissed it from my mind with the thought that perhaps it was a case of irritable stomach,
due to the indigestion of which he complained, and prescribed accordingly. Four days later I left and was absent nearly a month.

In the meantime he began taking all the patent nostrums suggested by his friends till there was nothing left untried in that line. Then he concluded to try the mysteries of homeopathy, which he did, with no improvement, but was continually growing worse. This treatment was continued till July 20, '94, when I was asked to take charge of the case.

The following is the history of the case from the time I prescribed, about three months previous, until I took charge of the case: The one symptom of which he complained, namely, vomiting, became more and more marked, until he was unable to retain any food in his stomach. Upon closer questioning and from observation I learned that instead of the food being vomited, it was regurgitated without any effort or nausea. He was unable to take solid and semisolid foods, but able to take a little liquid nourishment. By drinking very hurriedly and continuously he could get a small quantity of ice-cold milk, lemonade, or water in the stomach, but the greater part would immediately return without any effort or nausea. The effort to swallow could be repeated at once without the least inconvenience, and with the same result. At short intervals, for about fifteen minutes after an attempt of this kind, small quantities would be rejected.

Hunger and thirst became intense and patient became greatly emaciated, losing twenty-five pounds in the previous four weeks. He also began to spit some dark blood mixed with pus, which was very offensive. This would usually be expectorated in the morning or after an attempt to drink or eat. The total quantity expectorated was not very great.

There was no cough or pain, or any other symptoms of which he complained, except the indigestion as above stated, together with constipation. He became very weak and was compelled to give up his occupation and take to his bed about
one month previous to this. Although it was very evident to his friends that he was gradually failing, he was laboring under the impression, strengthened by his physician, that he was improving and would soon be well.

Examination showed extreme emaciation and weakness; the skin was dry and tightly drawn, and of a sallow hue. The temperature was 99°, and pulse varied from 60 to 70 per minute. The abdomen was very much retracted, so the aorta and the spinal column could be felt. The liver was normal in size, and examination of the urine showed the kidneys to be healthy. Pressure in the epigastric region elicited pain which was quite severe. The stomach was empty and contracted. There was obstinate constipation. The sounds and rhythm of the heart were normal. No physical examination of the lungs was made, as there were no symptoms pointing to them, yet this was a mistake, as will be made manifest later.

An attempt was then made to insert a stomach tube for diagnostic purposes, but it could not be made to enter the stomach. Probes were then tried, the smallest being about three-sixteenths of an inch in diameter. All came to a sudden stop about three inches before entering the stomach.

The patient being very much exhausted, no further attempt was made to pass a probe, and he was informed that there was an obstruction in the oesophagus, which accounted for his inability to swallow. The friends were apprised of the fact that in all probability death would soon follow.

Nutrient enemas were ordered and no attempt was made to take anything into the stomach for twenty-four hours, after which he was allowed to drink water and lemonade, since by drinking slowly, by this time, it would enter the stomach. It was evident, however, that he was failing each day, still there were no new symptoms till two o'clock in the morning of the 26th of July, when he was wakened by severe pain in right chest, just below the nipple. This pain was constant and relieved only by morphine. He died July 29th, three days later.
The autopsy revealed a constriction of the oesophagus three inches above the cardiac orifice which would not admit a lead pencil without force. The length of the stricture was about one and a half inches, and was caused very largely by cicatricial tissue with cells of proliferation. Through this dense tissue was a small opening which was in communication with an old abscess cavity in the right pleura. There was a small quantity of pus in the cavity. The whole right lung was hepatized and only about one-third its normal size. It was very heavy and bound to posterior wall of chest by strong adhesions, and showed that it had been inactive for some time. The stomach was about normal in size, but the whole mucous membrane presented the appearance of chronic inflammation. All the other organs were normal.

But few comments are necessary. It is very evident that the stricture was caused by the spontaneous evacuation of the abscess into the oesophagus, but the singular part is the fact that there were no symptoms of which the patient complained pointing to any chest trouble. No pain, cough, or shortness of breath of which he spoke, either during his illness or at any time previous. For these reasons I did not make a physical examination of the chest, which alone would have revealed the diseased condition.

While empyema is sometimes insidious in its development, it rarely, as has already been stated, points into the oesophagus. Of how long standing this abscess was, it is impossible to state, there being no previous history; but about two years previous he was examined for life insurance in the New York Life and was passed upon and accepted by the company as a good risk.

Dr. W. H. Christie: This case is characteristic of stricture of the oesophagus. An operation might have been confined to the stomach for the purpose of introducing food so as to build him up preparatory to a more radical one of dilating or breaking up the stricture of the oesophagus.
These cases are very obscure in their beginning. They come on insidiously, symptoms having no regard as to the seat of the trouble. There may be this difficulty of breathing, pain and distress about the heart, with or without palpitation, and these symptoms being attributed by the patient as the cause of his difficulty, rather than mere symptoms of the real cause—the ulceration and stricture.

When these strictures once cause stenosis, as in this boy's case,* and it is impossible to pass per orem a bougie through the stricture for the purpose of dilating it, then an effort should be made to pass a bougie by way of the stomach, and if the patient is too weak from starvation, by too long delaying, then the patient should be fed artificially through an artificial route established to the stomach until he could withstand necessary surgical aid.

Dr. F. A. Butler: Some years ago, near Chicago, I had a case like the one here reported, in a man past the meridian. He became greatly emaciated; nourishment and everything else seemed to be no good, no matter how administered. I took the patient to Chicago to consult Dr. Charles T. Parkes, a renowned surgeon; after consultation and a thorough consideration of the case by him, patient's age, feeble condition, and cachectic tendency, he told me to take the patient back home and let him die an easy death. This advice was followed; since then have had the opinion that there are some cases for whom there is little or no permanent help, sooner or later succumbing to the inevitable. Should be glad to learn in the future the eventual result in the boy's case.

Dr. Lord: I had preferred to say nothing in regard to the boy's case, as it unfortunately got into the papers. It is a matter, however, in which we disclaim responsibility. It occurred in this way; a medical gentleman witnessed the operation and at a hotel told all he knew about it to the reporters. Now

*This and part of the discussion following refer to the case of a boy reported in the discussion which the stenographer failed to get.
this was an interesting case simply from this standpoint: the boy was dying from starvation, he was suffering from a stricture of the oesophagus. It had been eleven days since anything had entered his stomach. It was necessary to do something, and that quickly, for his relief, because dissolution had already begun. My partner operated on him and did a gastrotomy in one operation. Before he left the table about a pint of liquid nourishment and brandy was introduced into his stomach, and strange to say the patient not only suffered no shock from the operation, but was immediately benefited from it. Ether was used. His recovery was remarkable. What I am coming to is this, and to me it is the most interesting part of this case, and I will give it to you. The stricture was absolutely impermeable, repeated attempts failed to get anything through it either from above or from below. This was tried repeatedly and with and without an anesthetic. This stricture was absolutely impermeable to the smallest instrument, therefore relief through the stricture was given up. Then a means was devised by which, with the greatest comfort, he could manage this hole in his stomach with some suitable appliance for accomplishing that purpose. It devolved upon me to exercise my ingenuity in this direction, and I devised an instrument that he could handle and would at the same time prevent leakage and that he could remove and reintroduce with ease. To secure such an instrument is a very difficult thing I assure you, and of that you will be convinced should you ever try it. It is represented by a tube within a tube and with flanges turned outward, after it is introduced it turns the flanges in this position. To prevent the tube from leaking between the flanges a rubber disk was used and a cap was made secure to the outer or larger tube. To prevent the admission of air between meal time and the escape of stomach contents, a cap with a hole in it with a rubber tube attached was used for conducting food from his mouth to his stomach. But afterwards the patient very elev-
erly discovered that he could masticate his food as any body could; he eats everything—meat, potatoes, vegetables—and enjoys the mastication of the food and gets the benefit of the saliva, and then by introducing the tube into his mouth he shoots it into his stomach. When I asked him if he gets wind on his stomach, he said no. He simply carries this tube in his shirt, and whenever he desires to eat or drink—and he does that for compensation—he brings this out of his shirt collar and after taking the food or drink into the mouth he passes it into his stomach through his rubber oesophagus. If you ever had experience with an artificial opening in a stomach you know the difficulty in preventing leakage. I had some difficulty in overcoming this and I finally hit upon this plan. I knew that there would be little difficulty in controlling this by night and that it would leak if worn all the time, so I had him remove it at night, which allowed the opening to contract, when the tube could be worn during the day without any leakage.

Dr. Rosewater: The discussion of this case has brought to my mind a very interesting case which I saw last winter. A Bohemian laborer had been suffering for two years from dysphagia and had gradually reached a stage where he could not swallow anything but liquids. He had been working in the smelting works and could not make himself clearly understood. But I found out his peculiar history. This dysphagia had come on gradually, and several months previous to the time when I first saw him he was suddenly taken with vomiting of blood followed by a discharge of pus. Upon examining him I came to the conclusion that there was no difficulty with his stomach, but that the trouble was in his oesophagus. Upon passing an oesophageal bougie I found an obstruction about three inches below the vault of the pharynx, corresponding to the middle of the manubrium sterni. I put him on a peculiar treatment, thinking possibly that there might be some suppurating gland there. I prescribed iodide of potash and gave
him emulsion of turpentine at the same time, and he came to me a week afterwards and reported considerable improvement; and he came from time to time until he was completely cured. I think the treatment lasted about six weeks, when the discharge ceased entirely. He was able to swallow all kinds of food and his general vigor had improved remarkably, and I think it was probably nothing more than a broken down gland that opened up in the interior of the oesophagus. I simply mention it to illustrate the value of the use of iodides in some cases. I believe in the cases mentioned surgical treatment was the only thing that could be thought of.

Dr. Lord: I want to ask a question for information, now that you have made that suggestion; I am not familiar, I am frank to say, with the methods to which you refer, of entering an impermeable stricture at the cardiac orifice of the stomach, perhaps one or two inches above it. Is it safe to go through that stricture, which was produced by swallowing a bolus of concentrated lye wrapped in tissue paper, which lodged at present site of stricture, producing an inflammation almost fatal, and this stricture is very dense? To me, I must confess, I had not the temerity to exercise force sufficient to enter the stricture or to go into it in any way.

Dr. Summers: I did it on my two cases recently, after looking up the literature pretty thoroughly. I think if you will look it up you will find sufficient authority.

Dr. Lord continues: A stricture that can be attacked through the neck, as Dr. Summers' case, or one that will admit of a thread or other instrument, can be thus handled; but an impermeable stricture at or near the cardiac orifice is a different thing, and operations for its relief are condemned by most authorities.
SYME’S OPERATION AS A PROTHETICAL EXPEDIENT.

BY P. H. SALTER, M. D., L. R. C. P. & S., EDINBURGH, NORFOLK, NEB.

In 1891, at the meeting of the National Association of Railway Surgeons, held at Buffalo, New York, Chas. Truax read a paper entitled “Amputations in the Light of Prothetical Science.” In the course of the article, after giving the proper positions for amputations above and below the knee, for the most satisfactory adjustment of artificial limbs, he says: “To briefly summarize them, we may adopt the following as our guide: Avoid amputating within three inches of the knee-joint. Do not amputate between the metatarsal bones and the junction of the lower and middle thirds of the tibia. At all other points, save all you can, and you will, in every case, have done the best for your patients.” This also seems to be the opinion of most of the artificial limb makers, and, as a result, many surgeons hold the same views.

Not more than two years ago I had two other practitioners to assist me in performing a Syme’s operation. They both advised amputating at the “point of election” in the leg rather than at the ankle joint, as I proposed, quoting the advice of Truax as their grounds for such opinions, and I have since heard the same views expressed by others of the profession. Now I believe that this idea is most erroneous, for the following reasons:

First—Because a good artificial leg can be manufactured to fit either a Syme’s or a Pirogoff’s stump; as witness the number who are wearing them to-day to their eminent satisfaction. I myself have four patients who are wearing artificial limbs on Syme’s stumps, and every one of these are per-
fectly satisfied. Two of them are railway men, and both, so far as I know, working as brakemen. One is a farmer and follows the plow, and the other is a book canvasser. Every one of these men have expressed to me their satisfaction as to the results of the operations and the ease with which they can get around and attend to their several duties.

Second—A false leg can be worn with greater ease and comfort on a good stump at the ankle, and moved more dexterously than one applied to a shorter stump. I have yet to see a man who wears an artificial limb on a leg, even where there was left five or six inches of the tibia, who did not complain of his being tired after a walk of one or two miles; and per contra, I know personally five or six who are wearing them on stumps amputated at the ankle, who will walk for half a day without having any excessive discomfort. I have one case that particularly well illustrates this. A year ago last December I performed a synchronous amputation on a man who had been run over by a railway car. I removed the right leg at a point between four and five inches below the knee and the left by a Syme operation at the ankle. He was fitted by a well-known Chicago maker with artificial legs. The right, as you will see by the accompanying photograph, is the more symmetrical and pleasing to the eye. The left is larger at the ankle and has rather a clumsy appearance, although this is not noticeable when covered by the pants. As to the comparative practical utility of the two, this man would tell you, were he here, that the right one is continually giving him trouble. If he takes a considerable walk, which, by the way, he does without aid from crutch or cane, his right leg soon tires, and if longer, becomes sore, from moving an equally heavy apparatus by a shorter stump, while the left gives no sign of weariness. At night, after a hard day's work, when he takes his false legs off, the right stump is tender, red, and swollen, the left in a normal condition. Several times during the past year he has had to stop his
work, that of a canvasser, because of soreness in the right leg, never from the left. This man, and another, whose photograph I also pass around, can bear their whole weights on the ends of their Syme's stumps and walk on them. In all the cases of Syme's operation which I have known personally the patient has been able to carry his whole weight on the end of the unprotected stump. In fact, I have known them to use an ordinary shoe, padded at the heel, and get around in it with ease. The second case wore such a make-shift for some months after recovery. He went away about four weeks after the amputation, and as I had not heard from him for some time, I asked one of the railway boys how Romer was getting along. He said: "I guess he is all right. I saw him jumping with some of the boys at Fremont the other day." He has since then gotten him an artificial leg, and he is now working as a brakeman on a freight train.

Third—The mortality from amputations at the "point of election" is in proportion to that of a Syme as greater than four to one, a tremendous percentage and argument in favor of the latter operation. If, then, having decided to remove the foot at the ankle rather than four or five inches below the knee, which procedure is preferable, Syme's own or Pirogoff's modification? I rather think the weight of evidence is in favor of the former. The mortality is slightly less, being as nine to ten in favor of Syme. In a Pirogoff we have the danger that the os calcis will not unite, and will have to be removed by a subsequent operation. I have myself seen this occur twice in the Edinburgh Royal Infirmary, and I find mention of the same result by several of our best-known operators. The period of recovery is shorter in a Syme's, for obvious reasons. The stump is better, because the heel pad comes more directly under the ends of the bones in a Syme than in a Pirogoff. And finally, according to Professor Stephen Smith, of New York, the former is better suited than the latter for the adaptation of an artificial limb. It is, I am
sure, unnecessary for me at this time to describe the operation or any of its many modifications, of which the most important are those of Roux, Pirogoff, Ferguson, and Le Fort. Mr. Joseph Bell, of Edinburgh, Syme's greatest pupil and admirer, has modified his preceptor's method by preserving, whenever it is practicable, the periosteal covering of the calcaneum, and I think that Mr. Syme's own mode of procedure, with Mr. Bell's modification, gives the best results.

There are one or two points which I wish to bring to the notice of those who have not used this operation, that may aid them in the performance of it. The first incision must pass directly across the bottom of the heel by the shortest possible route, from tip of the external malleolus around the foot to a point directly opposite, which is about one-half inch below the apex of the internal malleolus. This cut must be carefully made. If it go too far forward on the sole of the foot, the operator will find great difficulty in reflecting the flap over the prominence of the os calcis, or, if made too far back, he may find his flaps will not cover the bones, and it will be necessary to cut off more of the tibia and fibula, thus opening into the medullary canals. With strict asepsis it is unnecessary to use a drainage tube, as Syme in his description advises.

To summarize, I would change Mr. Charles Truax's advice to read: "Avoid amputating within three inches of the knee-joint. Do amputate between the metatarsal bones and the junction of the lower and middle thirds of the tibia, if you can do a Syme, and you will have done the best for your patient."

Dr. McClintock, Topeka, Kansas: I think, Mr. President, that the advice of the author of the paper is correct in reference to the advice given by Truax. I would not take up your time in considering this matter. I do object to the ankle-joint amputation as a rule, but the Syme's operation is certainly successful as far as understood.
Dr. Edmiston, Omaha: The ankle amputation is out of all reason, and no one has any business to amputate at the ankle joint, as Syme's operation is all right if you can get it so the heel does not turn back too far; but in the amputation of a leg the middle or upper third is the best portion for wearing an artificial leg; there is more comfort than in a long amputation. Another point about the amputations I think all should follow is cutting the nerves high up. No one knows the inconvenience of wearing an artificial leg, where we have a nerve well down in the flap or close to the ends of the amputation, on account of the suffering which follows. By tying the nerves high up it will be more comfortable to the individual in wearing an artificial leg. I think the ankle joint is a bad amputation; it makes it hard for the manufacturer to fit the limb, and makes a large ankle and much heavier limb.

Dr. Grothan: I wish to say that the doctor's paper is eminently practical, and the results of his amputations as set forth leave but little improvement to hope for, though the ideal stump for the comfortable wearing of a useful artificial limb, after amputation below the knee, must still be looked upon as best obtained at the junction of the middle with the lower third of the leg. The main causes of failure, here or anywhere else, to get satisfactory results after amputation, are the disregard for a nice conical stump; the carelessness in dealing with the periosteum by failure to suture it over the end of the bone, thereby preventing adhesions to the bone; and last, but not least, the neglect to resect the main nerve trunks at a sufficiently high level to prevent neuromata.

Dr. Lord: I want to compliment the doctor on his paper. I agree with it, and simply want to say that the observation of all of us is necessarily limited in this class of amputations, and on that principle we should save as much as we can. I am in favor of this operation instead of going into the leg, and the point I want to make is that an amputation of this kind, as described in the paper, should be selected on
general principles, and I simply want to say that a modification of Syme’s operation by the Pirogoff method is a rather dangerous procedure, in my judgment, many proving failures even in competent hands. These operations are done in most instances for crushing injuries where there has been considerable damage done, and in cases of this kind conditions are not favorable for perfect results. In Pirogoff’s amputation especially, there is danger of getting a failure; I think considerable more danger than we are wont to assume in the majority of cases. Crushing injuries of the foot are bad injuries, and we cannot deal with them and secure the same success that we can in other operations.

Dr. E. W. Lee: I want to endorse the paper. I have had occasion, for foot injuries, to do this operation three times that I remember of now with satisfactory results; perfect results, I might say. One great danger in making Syme’s ankle-joint operation is the reflection of the flap, that is, where the posterior portion of the flap covers the point of the os calcis, that is, by cutting the flap too thin. There is great danger in thinning the heel-flap so that you may cause sloughing. It is an operation, when properly performed, that will always stand. The great danger is in not obtaining the perfect healing of the flap. If that dissection is carefully made we obtain a soft cushion under the os calcis which will stand the weight of the body, and if perfect union takes place as it should, we have an ideal stump, and, when it comes to the wearing of an artificial limb, it will not be necessary to have more than an artificial foot. A shoe with prepared attachment can be made so that the patient is not required to wear an artificial limb at all.

Dr. Salter: I think that if Mr. Bell’s modification of Syme’s operation was understood and carried out, that there would be found little danger of cutting and injuring the heel-flap. By this I mean reflecting the periosteum of the os calcis with the flap. I also think that a Syme’s stump will heal
more quickly than an amputation at the point of election. As to the utility of the stump I agree with the doctor here. I have seen case after case going around with no other apparatus than an ordinary shoe padded at the heel. I had a case of a brakeman, for whom I removed his foot for crushing injury, by Syme’s operation, go around for six months with such a device and perform his duties as brakeman. Mr. Bell, of Edinburgh, Scotland, who is a great advocate of the operation, used this as one of the chief arguments in its favor, that so many could get around with such a simple apparatus as a padded shoe.
REPORT OF SURGICAL CASES.

BY JOHN PRENTISS LORD, M. D., PROFESSOR OF PRINCIPLES AND PRACTICE OF SURGERY, CREIGHTON MEDICAL COLLEGE; ATTENDING SURGEON TO ST. JOSEPH'S HOSPITAL, AND CONSULTING SURGEON TO PRESBYTERIAN HOSPITAL, OMAHA, NEB.

CASE I.—An unsuccessful case of thoracoplasty for relief of empyema. A. S., male, 19 years, admitted to St. Joseph's Hospital March 13, 1896. Status præsens: A sallow, very emaciated and anemic subject, with pulse of about 175, temperature 103, and scarcely able to walk. Very much stooped, right shoulder very low, and right side of chest sunken to a marked degree. Seven sinuses at various locations over right hypochondriac, iliac, and lumbar regions, which emitted great quantities of very fetid pus. Chondral cartilages of seventh and eighth ribs protruded through two of these sinuses. In November, 1893, he had suffered an attack of pleuritis, with effusion. In March, 1894, following, after almost continuous poulticing, it had commenced to discharge pus from the site of a former sinus between seventh and eighth ribs, below nipple. Been discharging continuously since from the various sinuses, which are very tortuous. Tissues of side now very much infiltrated. There has been no cough. Patient considered too weak to withstand anything more than a slight operation. About two inches of sixth and seventh ribs were excised and about two quarts of pus allowed to escape. Free drainage and irrigation was maintained for about one month, together with such tonic restorative treatment as was demanded. Marked improvement followed, pulse 80, good appetite, and much improved general condition. Microscopic examination revealed no tubercle bacilli in the pus. Schede's
thoracoplastic operation was done in two stages, about one week apart. During the first operation the incision extended from the nipple downward and backward, corresponding to the lower limits of the cavity, and upwards internally to the angle of the scapula. After dissecting up all the tissues overlying the ribs, the chest wall was excised with bone forceps. Fearing that the patient could not bear more, further operation was deferred until one week later, when the incisions were extended and the remainder of the chest wall removed, including the second rib, which is not included in the regular operation as performed by Schede on account of its proximity to axillary vessels. The rib was removed with due care and was removed to still further facilitate the collapse of the chest wall, because the cavity in this case extended behind clavicle, so that the transverse process could be seen on the first dorsal vertebra. Thus the whole chest wall was removed from the cartilaginous junction of the ribs in front to the tubercles behind; but even with this done the result was disappointing in getting sufficient collapse to completely obliterate this cavity, which represented an entire absence of the lung. The walls of the cavity were curetted, but not as much as recommended or desired, because of the waning strength of the patient. The wound was sutured and sufficient gauze introduced under and behind the clavicle to fill the remaining cavity, which could not be obliterated. The wound was dressed at intervals of two or three days thereafter. Reaction was delayed thirty-six hours after the operation, when the patient did well until the second week, when attacked with diarrhoea from the effects of prolonged suppuration, his appetite and general strength failing until he died from exhaustion, three weeks after the last operation. In this case too great inroads had been made upon the vitality of the patient to enable him to withstand so formidable an operation. The result would have been the same even though he had continued with ample drainage. This suppuration would have produced secondary changes which would have cut him
short. Had this case been secured for treatment somewhat earlier, success would probably have been attained. Such results are but the aftermath of such shocking neglect. I must again express my disappointment in the failure of this most radical procedure to obliterate this cavity in this case. A division of the clavicle would have been necessary to have accomplished this result.

**Case II.**—Fatal uremia, following suprapubic cystotomy and internal urethrotomy, for relief of retention, caused by organic stricture. E. O'H., laborer, 29 years, single, a muscular, wiry subject of apparently perfect physique, sought relief for retention at St. Joseph's Hospital May 5, 1895. History of gonorrhoea fifteen years previously, since which time more or less difficulty in urination. At times recently urine voided drop by drop. Complete retention day previous to admission, when he sought relief from physician in neighboring small town. After repeated ineffectual attempts had been made to enter his bladder, he sought relief in a neighboring city. After a repetition of the former experience, his bladder was tapped by a trochar above the pubis at 2 A.M. May 5th, the day of his admission to the hospital. First seen by me about 6 P.M., when his bladder was found to be fully distended and night coming on apace. His penis, scrotum, pubis, and perineum were swollen, tender, and excoriated from the repeated manipulation of the parts. All attempts with the various instruments at my command failed to reach the bladder, after use of cocaine and chloroform anesthesia in turn, when it was determined to open his bladder above the pubis, which was done after assistance had been secured. An inch and three-quarters incision was made and bladder lifted into and secured to wound by worm-gut sutures, re-enforced by fine catgut to guard against extravasation. With approaching darkness it was thought best to simply tap bladder with trochar, with drainage attached, and allow case to wait until perfect adhesion had taken place between bladder wall and
belly wound. The second day following, when he was put on the table, he was observed to be jaundiced. Chloroform administered and wound in bladder enlarged, and a searcher with a strong curve introduced into bladder and caused to traverse urethra from behind forward, which was accomplished, though with some difficulty. This was returned, followed by a metal catheter in contact, which was carried through suprapubic wound and a filiform bougie passed through it, when catheter was withdrawn. An Otis dilator and urethrotome was introduced over filiform as a guide, and the urethra dilated and incised through the membranous portion, which was the site of the stricture. A soft catheter having been attached to the filiform, the catheter took its place as it was withdrawn. Fenestras were made to admit of free drainage from bladder, and catheter was secured by safety pins both above pubis and at meatus. When patient was dressed and irrigated next day icterus was very pronounced, and though able to walk to the dressing-room, he complained of much weakness and muscular pains. The same night marked symptoms of uremia manifested themselves, and grew worse in spite of treatment. The unfortunate subject died after repeated and prolonged convulsions on the night following, less than six days from his attack. Post-mortem revealed gastro-duodenitis, with obstruction of common duct of gall bladder. Liver large, icteric, and mottled, gall bladder containing very thick, tarry bile. Kidneys large, mottled, with marked macroscopic changes, indicating chronic interstitial nephritis, with an acute exacerbation. The left and larger kidney contained pus, both in pelvis and in its structure. There had been no extravasation from the wound site; in fact, its condition was perfect. Microscopic examination proved naked eye observations of the kidney lesions, etc. Here is another one of the cases in which the surgeon, self-satisfied with his power to relieve his fellow creatures, after work well and conscientiously performed, has his spirits rudely humbled by an un-
successful case—death after operation, the people say, and we cannot unload the burden. The lesson to learn from this case is to suspect this very condition, so likely to exist after fifteen years of stricture. This obstruction being a most fruitful source of consecutive renal disease, and should cause all physicians to warn their patients with strictures to keep them patent, and in a similar case to be mindful of possibilities and contingencies.

CASE III.—Urethro-vesico-vaginal fistula, resulting from forceps delivery, in a woman upon whom symphyseotomy had been performed in a former delivery. Mrs. M., 25 years, height 4 feet 7½ inches, weight 95 pounds, the mother of a child three months old, presented herself for treatment April, 1896. During the delivery of her child, which was effected by the use of forceps, she had sustained injuries which had resulted in urinary incontinence. About six weeks previously had been operated upon for relief of this condition, with partial success. Upon examination she was found to have sustained a tear anteriorly. That this had taken place because of the wide separation of the pubic bones at the symphysis. The line of separation of the soft parts having been extended through the vestibule up to the clitoris, involving the posterior or inner part of the urethra, extending on into the base of the bladder, which still presented a large defect, notwithstanding it had been partially repaired. Her condition was most wretched, because in any position the urine dribbled away continually and the patient's skin was red and excoriated. When lying upon her back there was a separation of two fingers' breadth between the pubic bones, which could be increased to two and one-half inches upon pressure over iliac bones. The bones could readily be brought into apposition by lateral inward pressure. History obtained was that when delivered two years previously symphyseotomy had been performed; this failing, craniotomy had been resorted to. Her attendant during her last confinement informs me that he was unaware
of symphyseotomy having been performed until after the injury had taken place. The patient now suffers considerable inconvenience in walking, particularly in going up or down stairs. As before stated, the tear extended anterior to the meatus, which was laterally located and nearly an inch posterior to the interior angle of the tear. A probe introduced into the urethra could readily be brought out through the fistula. After the edges of the defect were freely pared, it was fully two inches in length, and was united by eleven fine silver, shotted sutures. Complete primary union. Sutures removed at the expiration of one week. The day following the catheter slipped out. An attendant, ignorant of the abnormal location of the meatus, forced the catheter through the line of union into the bladder. A second operation was done as soon as the condition of tissues would admit. Primary union complete, though it was feared that the internal sphincter had been destroyed and that incontinence would be permanent because of the injury to the urethra. This did not prove to be true, for the restoration of function has proved to be perfect. The observations which I have to make in this case are that symphyseotomy should not be done unless delivery can be accomplished without craniotomy;* that there is evidently considerable danger of this very accident described—one of the most deplorable to befall a woman—where there is a wide separation of the symphysis; that in non-union after symphyseotomy great inconvenience in locomotion is experienced, as evidenced in this case.

*Accurate measurements of the pelvis were not made prior to operation, and it was found to be impracticable afterwards because it endangered the union.
RECURRENT APPENDICITIS A CAUSE OF SALPINGO-OVARITIS.

BY W. H. PARKHURST, M. D., DUNBAR, NEB.

Mr. President, Members, and Friends of the Nebraska State Medical Society:

In response to an invitation by our honored President, I beg leave to present this paper for your kind consideration.

It is with some trepidation that I come before you to-day, as I do, to deal with this subject. It is probably the first time that appendicitis has ever been brought to light as a possible cause of inflammation of the uterine appendages. At least I have thus far been unable to find any case recorded that would suggest the idea. However, if you will please give me your attention for a brief time, I think I may be able to show that, in at least one case, recurrent appendicitis has been the cause of acute-interstitial salpingo-ovaritis.

Before entering upon the subject proper, however, I wish to present a few thoughts on the diagnosis and treatment of appendicitis. The conditions formerly recognized as typhlitis, perityphlitis, and cases to which the general term "inflammation of the bowels" was applied, are now, in most cases, known to be inflammations originating in the vermiform appendix and designated appendicitis. Researches of the last five years have made it evident that, almost without exception, these inflammations begin in the appendix, from which they spread to a varying extent and with different degrees of intensity. In fact, appendicitis is the cause of nearly all cases of general peritonitis except those which originate from the internal-genito-urinary tract or to those which fol-
low operations. It then is of very frequent occurrence and causes many deaths annually.

In consideration of these facts, it is of paramount importance that an early diagnosis be made, that appropriate treatment may be administered in time to meet with success. The first symptom is generally abdominal pain. It may be referred to the epigastric or umbilical regions, or to the whole abdomen with a tendency toward the right iliac fossa. The pain varies in severity and may be preceded by a prodromal period of vague abdominal discomfort. The pain is often misleading, owing to its slightness. If the pain is at first diffuse it begins after a few hours to become limited to the right iliac region.

The exact locality of the greatest pain and tenderness, then, becomes of great importance. McBurney has indicated a point, now generally called by his name, situated on a line drawn from the anterior superior spine of the ilium to the umbilicus, and from one and a half to two inches from the spine. Firm pressure with a single finger tip, over this point, will always elicit extreme pain and tenderness in appendicitis. This symptom is of pathognomonic importance, since it is found in no other acute disease. Fever is always present but varies in degree. Chill may or may not occur. There is usually nausea and vomiting. Tympanites is usually discoverable before the end of the first day. The pulse is irritable and out of proportion to the fever. The patient lies on his back with lower limbs slightly flexed, because complete flexion or extension greatly aggravates the pain. Constipation usually exists.

A tumor may or may not be discoverable at first, but if it develops at all it will make its appearance by the end of third day. In recurrent cases it is not likely to be found at all, owing to the fact that the appendix is usually bound down by old adhesions. Hence its absence should not exclude appendicitis. Increasing intensity of pain, accompanied by
symptoms of shock, and followed by chill, fever, nausea, and
tympanites, indicates the occurrence of perforation or the
formation of pus.

The prognosis is grave, twenty-five per cent of all cases
having proved fatal. This mortality can be greatly reduced
by proper treatment if given early.

There is little to be said in favor of medical treatment.
Opiates should be avoided as far as possible, because they ob­
scure the symptoms that are to guide us in making an early
positive diagnosis and deciding when to operate. Laxatives
are to be used with caution, especially after the first twelve
hours, for if resorted to later they may cause perforation.

After a positive diagnosis is reached, the only justifiable
treatment is operation for the removal of the diseased organ.
It is true that some cases appear to get well without opera­
tion, but after one attack the disease is almost certain to recur.
McBurney refers to a patient who had twenty different attacks.
Removal necessarily precludes the possibility of the recurrence
of the disease. An early operation should always be insisted
upon in view of the fact that the inflammation may spread to
neighboring organs and produce such damage that anything
short of a fatal result is the exception, even though an opera­
tion is finally resorted to. Let me emphasize, then, upon an
immediate operation. There is nothing to be gained by
waiting, and all may be lost.

We will now return to our subject. As a result of my re­
search, I find that all authorities recognize the following as
the causes of salpingitis and ovaritis: First, specific—those
having a gonorrhoeal history. Second, septic—those caused
by infection after delivery at term, abortion, retained menses,
careless or criminal use of the sound, or any vaginal or uterine
examination without proper antiseptic precaution. Third,
traumatic—those caused by external or internal violence.
Fourth, rheumatism. Fifth, angina. Sixth, exanthematous
diseases. Seventh, tuberculosis.
The following are references to a few of the many authorities whom I have consulted on the subject:

Slaviansky includes among the causes in his cases rheumatism, certain forms of angina, and pertussis. He says tubercular ovaritis is secondary, subacute or chronic follicular.

From Schmidtt’s observation in 116 cases, he arrives at the following conclusions: That in only twenty-seven cases was gonorrhoeal salpingitis accompanied by peritonitis. Thus, from the frequent occurrence of the latter, in connection with non-specific salpingitis, it seems that the number of women with gonorrhoea who have gonorrhoeal inflammation of the tubes is relatively small.

Badly also denies the marked influence of gonorrhoea in inflammatory diseases of the tubes and ovaries. He says by far the most frequent cause of salpingitis and ovaritis is septic infection in the puerperal state. Gonorrhoea was the cause in less than twenty-five per cent of his cases.

Waldo says salpingo-ovaritis may be rapidly produced by an acute inflammatory process set up in the uterus by infection from a single examination when strict antisepsis is not adhered to.

The indiscriminate use of the sound is probably the cause of a great number of cases.

On the other hand, according to Hewitt, an important class of cases are those in which gonorrhoea is the cause, while a much larger number of cases are caused by a catarrhal inflammation spreading upward from the uterus.

Grigg says that fifty per cent of his cases of salpingo-ovaritis are caused by gonorrhoea. It occurs but rarely in virgins, and is then probably tubercular in origin.

Haultain observes that the continuity of the tube with the endometrium shows how evident it is that it would share in the inflammatory affections of that organ, and how it must be a connecting link toward a similar condition of the ovary and peritoneum. Therefore, it may be inferred that the inflam-
matory state of the tube and the ovary is generally secondary to that of the uterus.

Bell's experience is that neither inflammation of the tubes nor the ovaries ever develops without some pre-existing affection of the uterus.

According to Howard A. Kelly, acute inflammation of the tube and ovary is always a result of septic infection proceeding up the tube and finding in its mucosa and in the stroma of the ovary a suitable nidus for development.

I might continue these references indefinitely, but these, coming as they do from all parts of Europe and America, are quite sufficient to show that all writers are agreed that inflammation of the ovaries and tubes, in a very large majority of cases, is caused by extension of inflammation from the uterus or from infectious matter (either specific or non-specific) being carried up the tube from the uterus.

Peritonitis is caused by salpingitis and ovaritis, but never causes them.

Thus far I have been unable to find any recorded cases in which appendicitis was even supposed to be the cause of salpingo-ovaritis; but in the New York Medical Journal of October 24, 1892, I find this statement: "Owing to their anatomical relations, the inflamed vermiform appendix may be, and often is, bound down and attached to the ovary and tube by adhesions." I find a similar statement in the Medico-Chirurgical Journal of London.

This fact, then, that the inflamed vermiform appendix does sometimes attach itself to the right ovary and Fallopian tube, proves that there is a liability that the latter may themselves take on acute inflammation, through the continuity of tissue, as a direct result of recurring inflammation in the former. This is proven to be true beyond any reasonable doubt by the following very interesting case which has been under my observation for the last four years. My note book shows that on the 19th day of April, 1892, I was called to the home
of one of our well to do and highly respectable families to see an adopted daughter. Patient was unmarried; twenty-eight years old. Had menstruated regularly and normally ever since she was fourteen years old. She had lived with the family since childhood; had been very healthy and strong until a few months before, since which time she had been troubled occasionally with what she called biliousness. There was no history of tuberculosis.

On examination, I found pulse 115 and temperature 102\(\frac{1}{2}\) F.; jaundice, anorexia, and some nausea and vomiting; pain in stomach and bowels, with tenderness all over abdomen, but more marked on right side; liver somewhat enlarged; there was no tympanites nor swelling of the abdomen, nor any signs of a tumor; slight chilliness, but no pronounced chill; constipation habitual; prescribed hot fomentations to the abdomen and laxative (1 oz. sulph. magnesia). A free evacuation of the bowels followed. Pain and tenderness disappeared except at "McBurney's point," where some tenderness remained for a few hours, but afterward ceased altogether. Prescribed elix. three chlorides in dr. doses, four times a day. Patient made good recovery and had no more trouble with her so-called "biliousness" until October 16, 1894, when I was again called. Found patient in practically same condition, with all the symptoms much more pronounced, especially pain and tenderness, which were quite acute in right iliac region. There was slight tympanites and some fullness of abdomen, although no real swelling. I was unable to make out any tumor, but was satisfied patient has appendicitis.

She was very restless and her face wore a peculiar anxious expression. I had some hesitancy in prescribing a cathartic for the existing constipation, but finally gave the same treatment as before, preceded by sul. morphia one-fourth and antipyrine fifteen grains. At the time treatment was begun, her temperature was 103, pulse 120.

As before, patient made rapid and apparently good recovery
and was free from any trouble until November 21, 1895, when she was again attacked. Found pulse 130, very irritable,—temperature 104, and she had quite a severe chill. She had taken a laxative three days before and diarrhoea had existed ever since. Pain all over abdomen, swelling and induration on right side of abdomen quite noticeable. Tenderness marked at McBurney's point. No tumor discoverable. Patient restless, anxious, and very much concerned. Remarked, "Doctor, I will never get over this." I made positive diagnosis of recurrent appendicitis. I communicated to her friends my diagnosis with an unfavorable prognosis. Advised an operation, but neither patient nor friends were ready to consent. I gave hypodermic of morphia 3/4 grs. and ordered ten grains antipyrine every four hours. Advised hot fomentations to abdomen. Next day found temperature and pulse quite reduced, but other conditions about the same. Continued treatment twenty-four hours, when I found temperature 103 1/2, pulse 120. During next two days patient seemed to improve. Pain, tenderness, fever, and pulse all subsided greatly, and friends were encouraged.

On morning of 26th I was sent for and found pulse 130, temperature 104; pain, tenderness, and induration all increased; could easily make out a tumor the size of hen's egg in right iliac region. I supposed the tumor to be an abscess forming. Insisted on operation and asked for consultation. Dr. E. M. Whitten, of Nebraska City, was called and confirmed my diagnosis and recommended an operation at once. Accordingly, on November 27, 1895, assisted by Drs. Ross and Jack, we proceeded to operate as follows: After complete anesthesia was produced, an incision four inches long was made in the right semilunar line, down to the cæcum. The appendix was easily found. It was about three inches long and the size of a man's index finger. It was found to be in a semi-gangrenous condition and bound down to the inflamed peritoneum and attached to the ovary by inflammatory adhe-
sion. On breaking up the adhesion it was found that the Fallopian tube, broad ligament, and ovary were in the same state of interstitial inflammation, except not so greatly disintegrated, showing that they had not been so long affected. The peritoneum was thickened, hot, dry, and of a dusky red color.

The adhesions were all carefully broken up and the appendix ligated close up to the cæcum, and the Fallopian tube near the uterus. The appendix and tube were severed near the ligatures, and the whole mass, including the tube, a large part of the broad ligament, the ovary, and appendix, together with infiltrated cellular tissue, pus, etc.

The cavity was well cleansed. A glass drainage tube, guarded by iodoform gauze, was adjusted. Peritoneum closed with aseptic sutures. The external wound was closed with several deep sutures. The wound was well dusted with iodoform and covered with lint cotton, retained by a snugly fitting bandage. The external wound closed by first intention.

For three days there was free discharge of pus from tube. On fourth and fifth days discharge lessened progressively. External sutures were removed. On the sixth day there was exacerbation of pulse and fever with tympanites. Seventh day, fever and pulse still higher, notwithstanding antipyretics and morphine. Abdomen became markedly distended. I decided there was an accumulation of pus. Wound was reopened. Found all the peritoneal sutures suppurating. The ligated end of Fallopian tube, with ligature attached, was found floating in pus, it having sloughed away. Peritoneum had united. All the sutures were removed and the cavity of the wound, down to the peritoneum, was cleansed and packed with gauze. On the eighth day an abscess was discovered to have formed in cellular tissue, near the original position of the ovary. It was evacuated and the cavity irrigated with solution of carbolic acid twice daily. From this time forward patient made a rapid and perfect recovery.
In conclusion, permit me to call your attention to a few points in this case:

First—Those attacks of so-called biliousness may or may not have been mild attacks of appendicitis. The subsequent history would at least suggest the suspicion. The mild symptoms and quick recovery of the first attack in 1892, under the expectant plan of treatment.

Second—The patient’s previous robust health and active life, together with the absence of any suspicion of tuberculosis.

Third—There being absolutely no evidence of a specific cause.

Fourth—Her normal menstruation before and since the different attacks, her being unmarried and her virtue not to be questioned, and there never having been any occasion for a vaginal or uterine examination, will reasonably exclude septic infection.

Fifth—There was no evidence or history of traumatism.

Sixth—The inflammation being of the interstitial variety and not follicular, as is the case when the disease is secondary to tuberculosis or is specific in origin or is caused by infection from the uterine cavity. In view of these facts, we are certainly justifiable in excluding all of the usually recognized causes of salpingitis or ovaritis from this case.

Seventh—The second attack, which occurred eighteen months later, presenting, as it did, all of the symptoms of the first, so much more marked as to leave no room for doubt as to the diagnosis of appendicitis; also the third attack coming on after an interval of thirteen months of freedom from all symptoms.

You will observe that all the features of the previous attack were present in this, all of which were much exaggerated. You will further notice that it pursued practically the same course for the first five days. The severity of the symptoms all increased for the first three days without the devel-
opment of any signs of a tumor. Then, on the fourth and fifth days, a decided amelioration of all symptoms, which returned on the sixth day, greatly aggravated, together with a rapidly developing tumor. This return of symptoms plainly indicated an extension of the inflammation.

I then regarded the tumor as an abscess; hence our surprise when we found the tube, broad ligament, and ovary all in that highly inflamed condition. The appendix had nothing whatever to do with the formation of the tumor, but it was formed entirely by the swollen tube and ovary. It is quite evident that there was no abnormal condition in these organs prior to the last attack of appendicitis, and did not then develop until the sixth day, and after there was a decided improvement in the symptoms relative to the appendicitis. The exacerbation of all the subjective symptoms, and the appearance of the tumor on the sixth day, marks the time when the inflammation was lighted up in these organs. In consideration of these facts, and that these organs were found to be attached to the inflamed appendix by old adhesions; and excluding all of the generally accepted causes of salpingitis and ovaritis, it is clear to my mind that the inflammation in these organs, in this case, was a direct result of the pre-existing inflammation in the vermiform appendix. May we not, therefore, add recurrent appendicitis to the list of accepted causes of salpingo-ovaritis?
In introducing to you the subject of obstetrics, it cannot be rightly claimed that any epoch-making discoveries have been made in this branch during the year since we last met, yet the record will show much activity in improving and perfecting methods and treatments already comparatively well understood. Some substantial advancement has been made, and along this line may be mentioned a plea, noticed by us in an extract of an article copied by the *Journal of the American Medical Association*, whereby it is claimed that asepsis is displacing antisepsis in obstetric practice. Vaginal douches are first discarded, and Leopold and Spoerlin have inaugurated a new method to determine the position and presentation of the fetus by abdominal palpation alone. In 1,000 cases thus treated the diagnosis was at fault in only six and one-half per cent. Kroenig and Riess substitute rectal for vaginal examinations. Remarkably favorable are the results of this entire avoidance of the vagina, which is left intact to its own secretions in all normal cases.

I have chosen for a short paper the subject of chloroform in labor, which is an old topic, and one upon which much has been said and written since its introduction into obstetric practice by Sir James Simpson in 1847. During the last few years there has arisen much diversity of opinion regarding its administration to this class of patients.

In presenting this paper I have done so, not with the view of bringing to your notice anything new or original, but simply to lay before you for discussion a matter which does not now seem nearly so well settled as a few years ago.
It is, indeed, but a very short time since to discuss the merits and demerits of the use of chloroform in labors, normal or otherwise, would seem wholly superfluous. In fact, there was scarcely heard a dissenting voice in regard to the routine administration of chloroform in every case falling into the accoucheur's hands. At the present time, however, there has arisen what we might be tempted to term a healthy reaction, whereby routine usages must give way to scientific precision, and where discrimination in the exhibition of anesthetics must be made in obstetrics, as well as along the line of allied surgical measures.

For obvious reasons the consideration of analgesics and anesthetics, other than chloroform, will be dispensed with; their indications are so plainly laid down and familiar to all that we can scarcely err in their use.

In the first place it may be well to view the different stands now taken by the profession with reference to the use of chloroform in normal labors. We speak of chloroform, for it is almost universally the anesthetic employed in this country.

Some few authorities, and notably Fordyce Barker, as stated by Dr. Withington,* favor the habitual use of anesthetics simply as a relief to the pains of labor. They hold that this is a humane act due every parturient woman, and report none but the most favorable and agreeable results to have followed their practice. A second class resorts to the use of chloroform whenever the patient calls for such relief, considering, however, that this course slightly increases the length of the labor and may suspend the activity of the pains, a risk they willingly assume for the sake of affording the patient relief. Others, still more conservative, accede to the call for an anesthetic only when the pains are very severe and exhausting; in other words, refuse it in normal labors. A fourth class are so strongly impressed with the dangers in consequence of the use of anesthetics, fearing exhaustion, inertia, and post-

partum hemorrhage, to such an extent that, even in cases demanding instrumental interference, they prefer to limit its use to the minimum, or even then to dispense with it altogether.

The question now arises, to which of these classes do we individually belong. It may be well, before we answer this question, to fix in our minds the several classes of comparatively normal obstetrical cases and the effect of chloroform upon each class. In speaking of the effects of chloroform, unless otherwise stated, we refer to its administration not to complete unconsciousness, but simply to the use of enough to give the patient partial assuagement of pain.

First—In a certain per cent of labor, say 20 per cent, chloroform has no, or very little, effect upon the expulsive force of the uterus. Second—In another limited number of cases, probably smaller than the first, the administration of chloroform calls into aid latent auxiliary forces that have been masked by an unnatural nerve-excitability, and in this class promotes labor to an early and favorable termination. Again, by far the largest class of cases, which embraces at least one-half of all labors met with, the administration of a moderate amount of chloroform is followed by diminution in contractions, in inverse ratio to the amount of anesthetic given. Fourth—We meet with a few cases in which a very small amount of chloroform will practically suspend for a longer or shorter time almost every sign of uterine contractility. This, it is true, does not often occur, but almost every one of us has met a condition where the case was progressing favorably until the patient was allowed a few inhalations from an Esmarch mask, when labor ceased and possibly required instrumental delivery.

In the oft-quoted experiments of Doenhoff,* where he subjected eight parturient women to more or less complete chloroform narcosis, and estimated the strength of the uterine con-

tractions by means of Schatz' toko-dynamometer, he concludes that chloroform, even in a small quantity, has a paralytic action exerted on uterine contractions. Under complete anesthesia, the intensity of the contractions is diminished one-half, the diminution becoming more marked as narcosis continues. If the anesthesia is partial, the pains are irregular in force and rhythm. If it be profound, the intervals are greater and the pains long and feeble. After the patient regains consciousness it is two hours before the contractions regain their normal strength. In one case of chloroform anesthesia ten hours elapsed before the contractions again became normal.

With respect to the direct dangers from the use of chloroform in labor, it is conceded that the number of well-authenticated cases of death from this cause is very small, although this may not be said of its secondary influences. Generalized positive contra-indications for its use may hardly be said to exist, and I cannot now picture to my mind one general rule prohibiting the use of chloroform in labor that would hold good in all cases. Therefore each parturient woman becomes a law unto herself. Perhaps a decided contra-indication for both chloroform and ether, as observed by Dr. A. B. Cates,* exists in a condition of acute anemia produced by exhausting loss of blood. In such cases the absorption of the anesthetic is overwhelmingly rapid. We may say that in our judgment it is better, in most instances, to withhold chloroform in the first stage of labor, and if an analgesic is positively required, others may be substituted.

My experience in hospital practice, both as interne and house physician, has been that the majority of labors terminated more satisfactorily without the use of chloroform; but, for reasons over which we have no control, this may be somewhat altered in private practice in order to maintain our standing as accoucheurs. As, for instance, the patient will tell you that such a splendid doctor attended her in her former con-

* Northwestern Lancet.
finement; he gave her so much chloroform that she knew nothing at all until the baby was dressed, etc.

As before stated, the contra-indications for the use of chloroform are few, and the time-honored prohibition in organic heart lesions and nephritis is no exception. In fact, these two conditions call for chloroform to diminish shock and to allay central nervous irritability.

The following conditions may be summed up as demanding chloroform: First—It may be used even in the first stage of labor in some patients with a predominating neuro-hysterical element that cannot otherwise be controlled. Second—Patients in the second stage, with short, sharp, irregular pains that seem to accomplish but little except exhaustion of the patient. Third—Late in the second stage, with rigid unyielding soft parts. Fourth—To lessen the severity of the pains, when from the excessive contractile power of the uterus the child's head exercises a vulnerable force on the perineum without sufficient time being allowed this body for physiological relaxation. Fifth—In patients with nervous phenomena, bordering on or resulting in actual eclampsia. Sixth—In threatened rupture of the uterus known by the existence of a well-marked contraction ring. Seventh—In all cases of version. Eighth—In instrumental delivery and all operative procedures. Ninth—In rare cases of uterine inertia, with restlessness, the use of chloroform will for a time suspend labor and give the patient needed rest, which may result in efficient contractions. Tenth—In the third stage, with adherent placenta, and in some cases of retained placenta, in which the lower uterine segment is unduly contracted. Eleventh—In the repair of the perineum.

In the last-named indication profuse hemorrhage may sometimes be occasioned by the first exhibition of chloroform. In such cases, the anesthetic will, of course, be discontinued. In the exhibition of chloroform to our parturient patients
we must ever be watchful of two effects, viz., retarded or suspended labor and hemorrhage.

Dr. Parkhurst: I wish emphatically to compliment the author of this paper, because I believe the use of an anesthetic in labor is humane. In the hands of doctors chloroform is safe and useful in labor, but in the hands of the novice it is dangerous and should not be used; but when we get just medical legislation there will be no need to fear the novice. All who read the Bible know that in the first case of obstetrics that took place on earth an anesthetic was used. I don't know that it was chloroform, but when the Creator took the rib from Adam's side, of which to make Eve, he caused a deep sleep to come over Adam. It may not have worked well with Adam, at any rate no other man was ever called upon to go through the ordeal, but that duty was laid upon woman. If obstetricians in the past had been as wise as they are to-day they would have followed the example of the Creator and used anesthetics.

Dr. Coffman: I think in a discussion on this paper, or any other paper, the speaker is embarrassed, owing to the tendency of this Society not to hear discussions,—to rush these proceedings through,—which undoubtedly has its effect upon any one. But this subject is of vast importance to every person who practices obstetrics, and still more important with the patients. My first experience with chloroform was a case in my early practice,—probably the first or second woman I was ever called on to deliver. When I sat down to the bedside and attempted to make an examination by raising the clothing and passing my hand under the limb, the patient fiercely turned around and kicked me over, and I at once recognized a case where chloroform was necessary. Thereupon I immediately administered an anesthetic to a degree of passive anesthesia permitting the examination. And I want to say here that I have never attended a case of labor where I have ever used an instrument or administered chloroform, but if I attended
the patients a second time they insisted not only on having the chloroform but the instruments as well. I am in favor of the administration of chloroform in labor carried on the lines of judgment, but especially am I in favor of it because of its relief to the patients. If we will study or refer to the anatomy of the nervous system we find that the nerve ganglia which supplies the uterus is but slightly connected with the brain by the internuncial fiber, less than any other organ of the body. I find, furthermore, that the mind has no control whatever of the uterine contraction. Therefore, when the patient has that nervous excitability the paper refers to, is one case where chloroform is necessary. In its administration I contend that within the limits of safety it never in one instance prevents the contraction of the uterus. This may seem strange, but it is nevertheless true. The true contraction of the uterus as evidenced by its contractile force, noted by the expression of pain by the patient. The administration of chloroform in obstetric practice requires for its effect to be injurious a deoxidization of the blood; if there is death or danger following the administration of chloroform it is by this process of deoxidization. Hemorrhage may be one of the subsequent effects of the chloroform, but by inhalation of chloroform in large quantities, when it is taken into the circulation and producing this effect upon the arteries, then you have paralysis. The other effect of the action upon the blood is the secondary of the later affection. Now, then, the administration of chloroform in labor is, in my opinion, only admissible when in the stages of pain, and by that means your patient has the effect of the nervous influence being modified and you get the benefit of the chloroform sufficient so that the patient is enabled to endure the pain. It takes but very little anesthetic to relieve pain. It is thus hardly possible to so profoundly anesthetize your patient to the danger limit; and to avoid too much chloroform at once I advise rapid but shallow breathing instead of long, deep inspiration, for in this lies
the danger of accident—paralysis of the blood-vessels of the lungs. As the pain or uterine contractions remit, withdraw your chloroform, to be resumed on the return of pain. But how to give it? I refer to recommendations of experienced accoucheurs, and that is, use an ordinary size tumbler or glass, put some blotting paper in the bottom of glass tightly enough to be retained and pour or sprinkle on a drachm of chloroform; with this applied not closer than inch or two from the mouth, the inhalation is allowed to proceed to the extent as related. The convenience is at once recognized.

Dr. F. A. Butler: The paper is of very great practical importance; am glad that I heard it read, which alone has amply repaid me for attending this Society meeting. It has been my privilege to have had considerable practice in this line; where now located have quite a large consultation obstetric practice, and always advise the use of chloroform, though not early in the case. Where it has been used judiciously and with care, have never seen a single case that was not greatly benefited by its proper use. In the latter part of the second stage of labor it will relieve a vast amount of suffering, and any patient to whom it has been administered will call for it in a subsequent confinement.

Dr. Chase: I wish to congratulate the doctor on her very eloquent paper. I am much pleased with the manner in which the subject was presented. I think very little can be said against the proper use of chloroform. In regard to the first case of obstetrics just mentioned by the doctor, we have no history of after-fever or of subinvolution, so there could have been no infection, and if we do aseptic work we will have some good results.
PRACTICAL ASEPSIS IN OBSTETRICS.

J. LUE SUTHERLAND, GRAND ISLAND.

A few times in my professional experience I have been provoked and disgusted on account of the physician I had called into consultation suggesting a remedy not procurable under the circumstances, or recommending a line of treatment impossible to follow in the case in hand. Almost equally absurd are some of the writings found in our best medical publications, and written by men of profound learning and acknowledged professional ability. Especially is this so in articles upon such subjects as "The Care of Pregnant Women," "How to Secure Asepsis in Confinement," "The Management of the Parturient," etc. The suggestions therein made and the equipments therein advised could be complied with and carried out in detail in well-appointed maternity hospitals, perhaps once in fifty attempts; in an outdoor city practice among the wealthy, perhaps once in ten thousand cases; but in a general practice among the middle classes in the country, never. Hence, the query very naturally arises, of what value are such writings? Some may answer, "If for no other purpose, they are of great benefit by giving to the rank and file of the profession 'a high ideal.'" But is this true? I would not underestimate the value of high ideals, nevertheless I claim that any article, however scientific, and however nice it looks in print or reads before an audience, if it is not of some practical utility it is too soon lost sight of to be of any great value as an ideal teacher.

It is the object of this brief paper to deal strictly with the practical in all it may say relative to the subject in general, and the aseptic features of it in particular, and to this end...
recommend methods of procedure which shall be within the reach of all who may essay to practice the art, and at the same time be efficient in all cases and under all circumstances when the physician has full control. It requires no argument at this day to prove the direful and wide extended results of "bad midwifery." Infection at the time of delivery, or at some time within the puerperium, is what is meant by "bad midwifery" in ninety-nine per cent of all pathologic cases. Saying nothing of the immediate mortality from this cause, the records of the transactions of the gynecological societies in this country alone are amply sufficient to warrant almost any statement, however extravagant, charging these various results to this same prolific source.

"Has not known a well day since the birth of her first child," is the familiar introductory to a vast number of the continued stories found upon the pages of the case-books of the gynecologists. Complications of various natures may have arisen since, but infection at the first accouchement not only broke down the barriers which had hitherto protected the pelvic viscera from invasion, but rendered the system susceptible to every subsequent exposure, however trivial. The explanation for so much faulty midwifery may be classed under four principal heads: First, ignorance on the part of the laity as to the necessity of placing the woman under the advice of a competent physician early enough. Second, ignorance and incompetency on the part of the physician as to methods and technique. Third, willful disregard on the part of the physician of the principles of surgical cleanliness, with consequent failure to do his whole duty. Fourth, willful disregard of the doctor's advice and instructions on the part of the patient and her attendants. You will observe that in this classification I make no mention of that ever-present menace to the health of American mothers, the midwife. Neither is she or her work considered in this paper. But since there is much room for improvement among the profession in this as well as
any other department, and since every advance must be made, and every burden borne by the profession, it is to the profession exclusively that this paper is addressed.

Taking up the first head of our classification, a very important step would be the proper education of the people. That this is a task as needful as it is difficult requires no argument; but if undertaken in the proper manner and prosecuted vigorously and continuously much good can be accomplished. To this end let every physician consider it an imperative duty to impress upon his patrons the gravity of the situation at such a time, and point out to them not only the possible but probable consequence of improper or inefficient attention, and the necessity of engaging their accoucheur at least one month before they expect to need his services, and earlier in all cases where there is the slightest departure from physiologic gestation. Let the laity become convinced that the cause of so many "bad gettings-up" after confinement is due to uncleanliness and improper management at the time of delivery, rather than to "catching cold" on the third day, and the now quite prevalent idea, that so long as everything "comes by itself" a woman can attend the case as well as a doctor, will cease to exist. Furthermore, let every physician, when his services have been engaged prior to the expected time, show his appreciation of the situation by calling upon the woman, thoroughly acquainting himself with her exact condition, and giving explicit instructions as to how she shall conduct herself, what preparations she must make and have made for her as to bathing, diet, regulation of the functions of the bowels and kidneys, the preparation of her room and bed, the providing of a sufficient quantity and quality of cloths, wash basins, etc., and the people will become proportionately interested, and the subject of childbirth will occupy a correspondingly higher plane of importance among them.

But with all our advice and instructions to the expecting mother, let us be practical and shape our demands in keeping
with the circumstances of the family. There is no more need of a woman bathing in sterilized water because she is pregnant than there is at any other time; much less need is there that she drink nothing but sterilized, or, as some writers have advised, distilled water during her gestation. We must insist upon a certain amount of cleanliness in everything which comes in contact with the patient, exercising tact, of course, in giving instructions, but under no circumstances should we incur the risk of making ourselves appear ridiculous by asking a patient to supply us with sterilized safety-pins. (Dr. Benjamin, Jour. Amer. Med. Ass'n, Jan. 18, '96.) Such an outfit as he describes and recommends, however desirable, if asked for among the patrons of the average practitioner, would strike terror to the pocket-books, if not the hearts, of the husbands and prospective fathers, and in the majority of the cases would result in the doctor being informed that his services would not be required, and in all probability Hebamme Smutzigfinger would subsequently deliver the woman. We should at all times be able to show to the people the practical results of our training by being equal to every emergency, even under trying circumstances and surroundings most forbidding. In the absence of sterilized safety-pins, or pins of any kind, we will seldom find a home in which we cannot procure a needle and thread with which we can sew on the binder, and we need not take the pains to pass the same through the flame of a lamp before using if we have been clean in all our work up to this point. We should bear in mind that success depends wholly upon us, regardless of the great helps we may find in the well-regulated home, and the physician who is not possessed of an ever present knowledge and a high appreciation of the cardinal points in aseptic procedure, will find failure in some shape written all over his work, though at all times surrounded by complete and elaborate equipments.

I insist that the obstetrician should not only be scrupu-
lously clean and exact in all he does, but he himself should do all there is to be done concerning his patient from first to last. I know of no way that he may have a basin of sterilized water furnished him except he goes direct to the kitchen and waits upon himself, for if there is any method by which a husband, a waiting woman or a servant girl can be taught to get it without testing its temperature by thrusting into it a finger, or more often the entire hand, I do not know of such a method. Nevertheless, some physicians seem to think that as soon as the third stage of labor has been completed their work is finished, and they consign all that is to follow to any woman who may be present. Is it not painfully evident that all the good work of the most careful physician can be rendered _nil_ in a moment by such a course? But few women who are not physicians or trained nurses know what surgical cleanliness in anything means. Most of them think that any old rag is good enough to absorb the lochia, and not one in fifty has correct ideas concerning the office of the maternal binder. The proper cleansing of the person of the patient, the removal of soiled garments and bed furnishings and the replacing with clean, and the application of absorbent dressings are equal in importance to any part of the delivery, and we should know the nurse well to even permit her to assist to any great extent in the first washing and dressing. I do not mean by this that infection must necessarily follow improper or unclean management in all cases, or even half of them, but it is taking an unnecessary chance in every one that is so managed, and this we have no right to do.

I am not in sympathy with the doctrine that every case of labor is a case of surgery; nor do I believe that every case of normal delivery is purely physiologic; but of the two it is far safer to believe in the former, and act accordingly in every case, than to believe the latter in any case; and at all times should we remember how easy it is to change a purely physiologic into a pathologic condition, while the converse, alas, is
not so easy. But, as I have before stated, and as the title of this paper designates, let us be practical, and especially so in giving our previous instructions to the patient and family.

An equipment something like the following has always served me well and can always be ready and near at hand: In an ordinary sixteen-inch obstetric bag we put one four-ounce bottle of Squibb's chloroform, a two-ounce bottle of carbolic acid 95 parts, glycerine 5 parts; one two-ounce bottle of alcohol, an ounce bottle of equal parts carbolic acid crystals and tr. iodin, a cake of good soap, a nail brush, one pair of uterine dressing forceps, one intrauterine applicator, one tin tube two inches by six inches, and one a little smaller, the first full of absorbent cotton, the other iodoform gauze. To these can be added, when starting to attend a case, a pair of obstetric forceps, a fountain syringe, and other minor possible necessities. With this simple outfit, together with a few common utensils which are to be found in the most humble home, every requirement may be satisfactorily met. We seldom find a family that are so destitute but that they are able to provide something in which to boil water, cotton cloths of some kind, and earthen vessels which may be utilized as wash basins.

Upon entering a house to attend a case of labor the first thing to do is to ascertain the condition of the kitchen fire and the teakettle, and not only give directions concerning them, but see to it that your orders are obeyed; the next step, after having divested yourself of all superfluous clothing, wash and disinfect hands, forearms, and elbows; then turn the attention to the patient. After satisfying yourself that there is nothing abnormal in her symptoms and having inquired concerning the action of the bladder and bowels, give her an enema and thoroughly empty the rectum. Next inspect the genitals, carefully separating the labia and noting the absence or presence of a discharge, if any, its character and amount. If satisfied that there is no purulent discharge, no ante-partum douche is indicated, and to give one might be harmful; but before pro-
ceeding farther apply over the entire vulva a piece of absorbent cotton which has been thoroughly soaked and lightly squeezed from hot carbolized water. With this carefully wash the parts, including the lower portion of the abdomen, inner and anterior surfaces of the thighs, and the buttocks. Then again wash and disinfect the hands, thoroughly anoint the right with soap, and we are now ready to make the examination. At this examination seek to ascertain all that is possible or needful to know. In all normal cases there will be but little need to repeat it, but each time it is deemed necessary to explore the vagina the hand must have been rendered aseptic immediately before it is done. At different times throughout the labor a clean dry cloth should be placed beneath the hips of the woman, as this not only diminishes the chances for infection, but adds to the comfort of the patient, and she will be correspondingly more quiet and easier to control.

From the moment the child is born until the woman has been washed and the final dressings applied the vulva should be carefully covered by a sterilized sponge of either cotton or gauze previously squeezed from hot carbolized water, and changed as often as cleanliness requires. From the moment the child is born until fifteen or twenty minutes after the delivery of the placenta, firm, steady pressure, and kneading should be maintained to the uterine fundus, and the final dressings should not be applied until fully an hour after the completion of the third stage of labor. This will enable us to ascertain the condition of the uterus as to the strength and permanency of its contraction, and by getting rid of the excess of blood and clots the first absorbent pad will remain clean longer and not necessitate changing so soon. In the final cleansing of the parts slightly carbolize about a gallon of boiling hot water in a clean basin; into this put three or four sponges of cotton or or gauze. After they have been thoroughly saturated squeeze out one and gently insert it between the labia, merely touching and removing until it has cooled sufficiently not to scald
the parts. With a fresh sponge repeat this operation two or three times, then holding the last one used firmly against the labia, with another wash all the surrounding soiled parts, dry them thoroughly and apply the absorbent pad as follows: A piece of iodoform gauze first, then a large piece of absorbent cotton, then a large soft cloth folded to several thicknesses, and over all the perineal strap at least four inches wide, and pinned both behind and in front to the maternal binder. For the outside cloths of the absorbent pad old empty flour sacks will answer our purpose admirably, and it does not matter whether they formerly contained Pillsbury's Best or Fancy Patent, so long as they had received the proper attention in the way of washing and boiling since they had ceased to serve in their original capacity. If we have guarded every step carefully and thoroughly up to this point and can now leave the house with a clean woman in clean garments and in a clean dry bed, we can go about our other duties with a clean conscience and need have no fears as to the outcome as far as our connection with the case is concerned.

The subsequent management of all normal cases may be entrusted to a nurse or waiting woman, provided, of course, we give her explicit instructions and feel assured that they will be strictly obeyed. We should make it an infallible rule to never permit the nurse, unless she is one of recent training, to administer a post-partum douche. It is never necessary following normal labors if the subsequent management of the patient is right and proper; and at this point I wish to enter a firm protest against those teachings which say "the act of urination should be performed upon the back" (Lusk, 3d ed., p. 252), which I take it means that the patient should lie upon the back while urinating. This is not only wholly unnecessary in every normal case, and in nine out of ten of all others, but oftentimes is productive of absolute harm. Hence to obviate the necessity of a post-partum douche and diminish the chances for infection, after the lapse of six or eight hours the
woman should be lifted upon the vessel and allowed to remain in the upright position until she has satisfactorily relieved the bladder; at the same time the vagina has expelled its contents, both of which are absolutely necessary for the comfort as well as the health of the patient. This should be done each time she feels a desire to urinate. Should the nature of the labor indicate the necessity of the post-partum douche the physician himself should give it, using all necessary aseptic precautions.

In conclusion, I desire to emphasize what I have already said in regard to being practical. Where the circumstances of the family will warrant, require them to provide beforehand all that we are likely to need. But we must not forget that at best they are only helps, we must do the work, and he is incompetent and without excuse who is not prepared to encompass asepsis in a case of labor in the hovel with nothing but the contents of an obstetric bag such as I have described, and the most meager domestic utensils, as well, though perhaps not as easily, as in the mansion with every need supplied. And the physician who has no higher conception of his duties and responsibilities, or who is so indifferent to the welfare of his patient as to entrust all of the after management to unskilled or unclean hands, is a reproach to the profession and unworthy of the title he has seen fit to espouse.

Dr. Milroy: Having been a member of the house staff of the New York Maternity Hospital in 1883, during the introduction by Dr. Henry J. Garrignes, into that hospital and into this country, of the systematic use of antiseptics in obstetric practice, and having witnessed there the marvelous results secured by their use, I have always felt greatly interested in this subject. You are all familiar with the fact that while in obstetric hospitals septic diseases are practically unknown, this is far from true in obstetric practice outside of them. This state of things is greatly to the discredit of the profession. It is doubtless true that the private practitioner
can rarely have the perfect facilities which are available in the hospital. It seems to me, however, that the exemption to troubles of this kind which is enjoyed by isolated cases, as compared to aggregations of lying-in women, should more than offset the benefit of added facilities found in the hospital. In my opinion the main fault is with the doctor. It is not, as a rule, that he does not know better. It is because he is indifferent, or lazy, or sleepy, or in a hurry, that he fails to give the case the attention it demands, and prefers to trust his patient to good luck, or some other benign influence, instead of scientific midwifery. The doctor's suggestions are excellent. He points out with precision a practical method of employing antiseptics in the treatment of puerperal women. I am convinced that he who adopts this plan will rarely see septic trouble in his own practice.

Dr. --------: As a matter of business which will be of importance to this Society on this subject, I certainly think it is disastrous and dangerous for us to go on record as its being the physician's fault in all these cases where the midwife or where the patient is poisoned, for it opens the field for an attorney to bring malpractice suits against you; and I tell you, gentlemen, that we should restrict this from the publication of our proceedings wherein the physicians so universally are in favor of that theory, that the fault lies with the physician.

Dr. Hamilton: I wish to say that I am in perfect accord with the paper read by the doctor, and believe all his suggestions to be good. There have been some statements made in the discussion that I wish to enter my protest against, viz., that all cases of septic fever are due to the physician in charge. I want to say that I have had several cases of septic fever following childbirth, and I believe that all of us have had cases, if we have done that kind of work, and at the same time used all the care possible to be aseptic. As long as we are called for the first time to see a case of confinement in the middle of the night, and find the woman perhaps in the second
stage of labor, and attended by the nearest woman in the neighborhood, so long we will have cases of septic fever occurring. If we have our patients in the hospital previous to their confinement, the statistics show the percentage of cases that become septic to be extremely small.

Dr. Sutherland: I don't think there is one single syllable in my paper that says if infection follows it is the doctor's fault. In another place I say emphatically that a very important step toward securing better results would be proper education for the people. I am well aware that many times the case has been tampered with before the doctor arrives or has been called, and this is one of the evils I would avoid by the proper education of the people. This part of the subject alone is a vast field, and would be sufficient material for a large paper were we to enumerate in detail all that is meant in this "education of the people," hence I could no more than touch upon it in this paper. In regard to making digital examinations, this paper was written for country practitioners. If you tell them that they must not, under any circumstances, explore the vagina with the finger, they would laugh at you. I left that out entirely, but said that every time it was deemed necessary to explore the vagina the hand must be rendered thoroughly aseptic before you do it.
HYPEREMESIS — PERNICIOUS VOMITING OF PREGNANCY, WITH REPORT OF A CASE.

BY F. A. BUTLER, A. M., M. D., HARVARD, NEB.

In writing a paper upon this subject, I am well aware, after having searched the literature thoroughly while treating a severe case, the results obtained by most authors seem to have been unsatisfactory, a successful treatment in one case producing little or no results in another case. Some of the German authorities deny that such a thing exists as pernicious vomiting in pregnancy. Some vomiting and nausea, morning sickness, so-called, during gestation every woman expects, and every physician is frequently called upon to prescribe for this so-called sickness, with a view to its relief.

During seventeen years' active practice as a general practitioner, it has been my province to meet with many cases of disorders of the alimentary canal during gestation, but have never seen but one real severe case of pernicious vomiting in pregnancy that I was determined to bring through to a favorable result, if there was a possibility or the least shadow of a chance in doing so; but am fully satisfied that if called upon to treat a case at all similar to the one here reported, could not do so successfully; at least would be very loth to undertake to carry such a case through unless the patient was placed under my immediate care and supervision at my own residence. At the same time trust it may never be my lot to witness such suffering, for which there is so little relief, unless, according to all the authorities, that last inevitable proceeding which proves disastrous to the life of the child is promulgated. Permit me to say, in reporting this case from actual practice, witnessing all symptoms from day to day, month after month, that this is not an overdrawn picture.
The patient in question, 35 years old, married seven years, became pregnant about August 28, 1894. Everything seemed to progress favorably until the middle of the second month, when nausea became manifest and patient began to feel weak and languid, progressing worse until November 1, when vomiting of a severe character set in, the stomach rebelling against all forms of food, no matter what the nature, consistency, or kind. This continued regardless of all treatment. The various applications were given a thorough test, painting mouth of womb with iodine, and iodine, glycerine, and carbolic acid, and other applications were given a thorough trial, with no success whatever. Patient was put to bed in a well-ventilated upper chamber, surroundings made pleasant, visitors excluded. Vomiting continued; patient, who had been in good health and well nourished since maturity, became weak and emaciated. Aside from eating a few stalks of celery and drinking a bottle of pop twice in twenty-four hours, very little food was taken for six weeks, as nothing could be retained, vomiting continually the digestive fluids and frequently blood.

When this had continued about six weeks, or to the middle of December, symptoms became ameliorated somewhat, patient did not vomit all the time, only a certain part of the day, and an occasional day without vomiting. More hope was entertained as to the final outcome of the case. This improvement lasted for about four weeks, patient being able to sit up at times for an hour or two, some days much more feeble than others. Small quantities of milk could be drank, containing pellets of ice. About the middle of January continued pernicious vomiting again reappeared. Patient was kept in bed. A number of physicians were called in (thanks to their timely assistance and advice). All the literature at my command was consulted on the subject. The stomach would retain absolutely nothing. The secretions of the salivary glands become greatly augmented; saliva constantly dribbling from the mouth; pyrosis and hiccough constant.
distressing symptoms. Retching became continuous, stomach becoming so irritable that neither food nor drink could be retained, no matter how small the quantity administered. Vomited matter mixed with blood; tongue red and shining; teeth and gums covered with sordes; breath fetid; skin dry and harsh; thirst and salivation constant; constipation present. Fever had developed; temperature 100; pulse 120 to 130. Patient and friends had given up in despair. Friends requested me to call assistance and produce a miscarriage. Physicians were consulted, all agreeing that unless means were used to support patient's strength she would die of starvation, and before I should lose the patient from inanition a miscarriage had better be produced.

After considering the cause of the hyperemesis in this case (as all treatment to the uterus had produced negative results), due to nervous origin, it was decided to use strychnine hypodermically. One-thirtieth of a grain of nitrate strychnia (P. D.) was injected into the arm three times daily, the needle being made aseptic after and just before using again. At the same time alimentation per rectum was resorted to (following Dr. Haldeman's timely suggestion in a paper read at the Beatrice meeting, 1890, on this subject to use a bag syringe), the bowel being cleared once or twice daily by copious water injections, and every four hours, day and night, four ounces of either pre-digested food, beef peptonoids (diluted), beef juice, or the juice or soup from the different kinds of game, without seasoning or milk, was administered, in the manner described. At the same time a half ounce of hot water three times daily, to keep the stomach from shrinking, was given by the mouth. This was everything and the only thing taken for eight weeks. Strychnia and injections of food as stated, continued.

About the middle of March patient began to gain; vomiting began to subside; could take Kumysgen and drink buttermilk, finally sweet milk, and rare beef, cut up in fine bits,
heated through, without any seasoning, also bread and milk. Administration of food per rectum discontinued; strychnia was left off for three days. Nausea recommenced; hypodermics of strychnia were resorted to again, which controlled it as before. At this time, the seventh month of gestation, albuminuria and dropsy supervened to an alarming extent. Patient at this time could take a tablespoonful of cream of tartar once in twenty-four hours, which seemed to act well as a laxative. An infusion of digitalis and acetate of potassa was prescribed, but could not be borne. Dropsy increased until patient could breathe only in a semi-sitting posture.

As a last alternative hot baths were given (well knowing the tendency to produce a premature birth by doing so, but something had to be done). Patient was placed in bath tub at a temperature of 98; towels soaked in cold water were wrapped around the head; temperature of bath run up to 110 by adding hot water gradually; patient could not stand this but twelve minutes; was put to bed wrapped in woolen blankets; temperature of room 100. There is no estimating the amount of perspiration this produced; blankets, bed clothing, and everything literally saturated; also causing one of the most severe forms of headache. After a couple of hours the room was allowed to cool to the usual temperature, everything being changed before doing so. Patient slept well during latter part of the night. Aside from an exhausted feeling next day, was greatly relieved. In ten days was as bad as ever with the general anasarca. Another bath was given, as before, with the same results. Patient advanced eight months and a few days.

Four days after the second and last bath was given, premonitory labor pains set in (patient could not take chloral to control them). These pains continued at intervals for three days, when real labor came on in earnest. Patient was chloroformed during the labor and everything conducted under a strictly aseptic regimen. Labor was without accident or inci-
dent, giving birth to twins, the second child being born one hour and twenty minutes after the first. They were small, thin, active little fellows, with large frames; weight, five pounds each; born twenty-one days prematurely. The mother and children were kept in a chamber with temperature of 98 for a few days, and not less than 75 to 80 for two weeks, mother making a quick and satisfactory recovery. A new perplexing problem arose. (The nurse would not follow directions regarding the temperature of the room, agreeing, however, to do so when threatened with dismissal.) Mother was able and had plenty of nurse for both of the children, who grew and thrived. Mother nor either of the children have seen a day's sickness during the year. As a result of this treatment and management, ladies and gentlemen of the Nebraska State Medical Society, we have two fine children, a boy and a girl, one year old, to bless and comfort our beautiful home.

Conclusions.—1. Albuminuria existed to a severe extent, notwithstanding the patient's diet last two or three months was almost an exclusive milk diet.

2. Patient having a susceptible nervous temperament, having had a severe and continued attack of chorea when a child, led me to believe the vomiting to be of nervous origin in this case, and not as presumed by many of the authors, that the "disease depends upon a pathological or physiological condition of the uterus" in all cases; hence the good results produced by the continued use of the strychnia hypodermically, used until three weeks after birth, making five months strychnia injected into the arm three times daily.

3. All applications made and medicines used only proved to aggravate instead of allaying the hyperemesis.

4. I know of some cases where abortions have been produced in consequence of exaggerated vomiting, done so too soon. More and persistent perseverance should be used in the treatment of these cases.
5. The administration of food per rectum sustained the patient's vital forces until the vomiting, of nervous origin, could be controlled by the greatest of nerve tonics, strychnia.

6. Children born prematurely cannot be cared for too assiduously regarding nourishment and temperature of chamber in which they are kept. The little child becomes cold easily and if so is almost sure to die. I know of many little ones who have perished from this cause alone, due to neglect, ignorance, or incapability of the nurse.

Dr. Christie: This paper has a great deal of interest and instruction and is of great importance. I wish to congratulate the doctor not only upon the character of the paper but upon the successful termination of this untoward history of pregnancy. The history of these cases in my experience, while I have not had many, still I have had a few, is not always the same. In this case the doctor recites undoubtedly there was a central nerve lesion or irritation existing, or after the treatment of the uterus the symptoms should have been better. I have had cases of this kind, where the cervix uteri was hard and elongated and the canal narrowed, that I have benefited them by repeated dilatations of cervix and applications on the surface as he has indicated. One case I recollect particularly, that the woman repeatedly went into a condition of coma before medical aid was secured. The woman presumed that it was simply vomiting of pregnancy, and by taking good care of herself she would, after three or four months, recover, hence neglected to procure aid at first. I found her in this state, and some time prior to my arrival she had been unconscious. Upon an examination I found a lesion of the cervix with extensive erosion and discharge. Dilatation of and application of 20 gr. sol. of nit. silver to the cervix practically controlled the trouble, but again she relapsed. This was not a case of elongated cervical or narrowed canal, but one that had been extensively lacerated in confinement previously, and the nerves involved in the cicatrix was the
cause. I proceeded to gently dilate with my finger until I could and did pass my finger up into and through the cervix, and touch what I supposed to be the membranes, being careful not to go any further, and to my happy satisfaction, after having done this and again making another application of nitrate of silver, she soon got along very nicely and went to full time with good health. But where you have cases go on to the extent that this one did, you have a very serious complication of the entire circulatory system as well as nervous system. You have albuminuria from venous stasis of the kidneys and you have all these evil results following and the albuminuria, largely owing to that fact. In these cases cream of tartar alone will not relieve the trouble. There is no better remedy to flush out the kidneys than cream of tartar, in my judgment. But in such a case as this, I believe there is nothing better than strychnine and to use it freely and persistently, restoring the equilibrium of the circulation and preventing venous stasis of important organs.

Dr. F. A. Butler: In closing the discussion, as time necessitates briefness, will mention one point: You know some of the authors claim that where a patient during the last two or three months of gestation is put upon an exclusive milk diet, so to speak, no albuminuria to any serious extent is liable to supervene; that was not the case in this instance. I thank the Society for the friendly consideration the paper has received.
PHLEGMASIA DOLENS.

BY A. D. WILKINSON, M. D., LINCOLN, NEB.

There is scarcely a condition in the life of women which approaches nearer the boundary between health and disease than that of child-bed, and no process shows more clearly the absence of well defined lines separating physiology from pathology; yet however easy and healthy the pregnancy and delivery may have been, however happily they may have run their course, every lying-in woman is in a high degree predisposed to puerperal affections. We propose in this paper to discuss one of the not very unfrequent diseases affecting the puerperal state.

Definition.—Phlegmasia alba dolens is a painful swelling of the lower limbs in lying-in women, without redness.

Synonyms.—There are many synonyms: Swelling of the thighs and legs of women in child-bed; milk engorgement; oedema of lying-in women; ischial milk-abcess; puerperal and milk abcess; hydrophlogosis of lying-in women; hydrophlegmasia of the cellular tissue of the lower limbs; phlegmasia and leucophlegmasia; crural phlebitis; thrombotic puerperal fever; venous thrombosis of the thighs; phlebitis; milk-leg; oedema dolens; oedema lacteum; depot du lait; metastasis lactis; phlebitis cruralis in puerpero; and oedema of newly-delivered women, etc. Phlegmasia dolens is by no means confined to puerperal women, nor indeed to females. It has been frequently met with in women consequent on the sudden suppression of the menstrual secretions; also accompanying malignant diseases of the womb. In the male it has been known to attend on dysentery; to follow diarrhoea, when ulceration of the intestines and disease in the hemorrhoidal
veins existed; to supervene on cancer of the rectum. It has also originated in external injuries; a blow on the shin has produced it; it has followed ulceration of the leg; operations—especially on the veins—and local exposure of the limb to cold. Mr. Tyro, of Gloucester, claims he has seen it follow retention of urine and inflammation of the bladder. Laceration of the perineum and vaginal tract are frequent causes. Ramsbotham saw it follow a scirrhous prostate and diseased bladder. Diaz, of Madrid, reports a case of double phlegmasia dolens following childbirth during intestinal autoinfection, continuing through puerperium. The anemic condition of a patient after delivery, with placenta previa, renders her liable to phlegmasia dolens.

**Frequency.**—Obstetricians are at such variance as to the frequency of the disease that one must be content to merely mention the opinions of a few. Some consider it of quite frequent occurrence, and others, of equal authority and experience, claim it is very rare:

- Hugenberger, fourteen times among 8,036 puerpera.
- White, four times among 8,000 puerpera.
- Bland, five times among 1,897 puerpera.
- Wyer, five times among 989 puerpera.
- D’Outrepont, three times among 518 puerpera.
- Busch (1), five times among 2,056 puerpera.
- Busch (2), once among 4,124 puerpera.
- Winckel, seven times among 1,900 puerpera.
- Lee collected twenty-eight times in six years’ practice.
- Robt. De La Tour collected four times in thirty-six years’ practice.
- Hevveau collected six times in thirty-two years’ practice at maternity.
- Hagner collected twice during eighteen years’ practice.
- Wilkinson collected twice during fourteen years’ practice.

I think the calculation of Sankey that once in 200 cases is much too high; doubtless it may sometimes occur in the form...
of an epidemic, or it may follow the wake of certain epidemics, but only under these circumstances would it approach such figures.

**Time of Appearance.**—This disease usually makes its appearance from about the fourth to the eighteenth day after delivery. It may appear earlier or later, for White, of Manchester, has seen it as early as twenty-four hours after delivery, and another as late as five weeks; and Levret remarks it has been observed to take place upon the child being weaned beyond the close of the year; it is claimed that Levret, however, had a theory to support by reporting this case, and it is not impossible that his zeal might have betrayed him into error. A case in my practice, a multipara, made its appearance in the sixth or seventh week after delivery in left lower extremity, followed five weeks later in the other leg.

**Symptoms.**—The prominent symptoms of this disease can be described in two forms, one being with very little disturbance of the health, the other very grave. The latter is infectious in its nature; the oedema comes on with great rapidity, preceded by violent chills; temperature, both local and general, greatly elevated; areas of erysipelas soon appear; symptoms of deep abscess are present; in fact the general symptoms are pronounced; milk and lochia are suppressed; pyemia supervenes, and death closes the scene. This septic form is rarely encountered in these days of clean work in the lying-in chamber. The initial symptom of the simpler variety may be a chill, followed by some reaction, with a sensation of heaviness of the limb and a dull pain increased by motion. The tongue is usually moist, somewhat coated, face pale, countenance anxious, and a great tendency to frequent and profuse perspiration. Lactation is much impaired, sometimes wholly arrested, yet the first symptom may be simply a pain in either the calf of the leg, popliteal space, the thigh along the tract of the femoral vein or its principal branches; this is preceded for a day or two by a feeling of great lassitude and
depression. As the disease progresses, the tenderness becomes extreme, pain is increased by pressure and by movement of the affected limb, which is sometimes impossible for the patient. Both legs may become affected, but never the two simultaneously; the interval between the attacks of the two legs, however, may be very short indeed, but never in the same day. The left leg is attacked most frequently, possibly in the proportion of three to one. The authors have suggested various explanations for this fact. The most plausible one of these theories is that of the position of the rectum on the left side, which must necessarily excite more or less pressure on the veins of that side; another is the arrangement of the arterial and venous trunks at the promontory of the sacrum where the primitive iliac vein is crossed almost transversely by the right common iliac artery. It has been found, in autopsical examinations that where the iliac vein contains a clot a very marked depression is observed in the clot at the point where the artery crosses the vein. Mr. White appears to attribute this peculiar feature of the disease to the position of the body in labor. Ramsbotham on the different distribution of the right and left spermatic vein, the right terminating in the vena-cava, the left in the renal. Spiegelberg gives as a possible cause, the left limb is more often varicose.

Swelling.—The onset of the pain is soon followed by swelling of the limb, either being general, or progressive from below upwards, or from above downwards. This swelling of the parts affected is constant, and one of the most prominent features of the disease; indeed it is uncertain at times to say whether the swelling and pain have appeared simultaneously or the swelling preceded that of the most characteristic pain. Puzos, Levret, White, Gordieu, and others assert that the swelling begins at the upper part of the leg and gradually descends toward the foot. Trousseau declares that he has never seen the swelling progress in this direction, but that it always begins at the lower extremity and ascends towards the
pelvis. Barker, Spiegelberg, and Bouchet say that neither assertion is absolutely true, but that in some cases the swelling begins below and advances upward, while in the other cases the reverse occurs. Barker relates a case where the swelling was very great but confined entirely to the thigh, and at all times during the course of the disease a shoe of the same size could be put on either foot. The swelling is generally very considerable, sometimes doubling the size of the limb. The skin is white, glistening, and so elastic that most authors have asserted that the swelling does not pit upon pressure; but Fordyce Barker says this is true if the finger be pressed on the swollen parts for only a moment, which would leave the pit in ordinary œdema, yet he has demonstrated at the bedside that if the pressure be made with some force and prolonged for a minute or two, the pitting is then manifest as in œdema. Loss of all muscular power of the limb is another characteristic of this affection. In some it is not only impossible to move the thigh or the leg, but also to flex or extend the toes. You may or may not have hard, knotty, painful cords traced along the course of the crural vein or its branches. There is a great discrepancy of statement as regards the temperature of the affected limb. Valleix, Graves, and Simpson assert there is an increase of temperature where the swelling exists. Trousseau denies the presence of temperature in the part affected. Barker is of the same opinion. Spiegelberg modifies this somewhat by claiming that where the œdema develops slowly the temperature of the limb is not raised; a rise only accompanies a rapidly developing and marked œdema, disappearing soon in uncomplicated cases.

Progression and Duration.—The disease is one that develops rapidly, but further progress is slow. The swelling rarely remains tense for more than five to ten days, but the doughy œdema may continue for some weeks, and in a slight form may still last longer. The pain seems to disappear with the hardness, and if nothing remains but the œdema, pain may be
entirely absent and patient feel quite well. The mobility of the thigh increases in the degree in which the tension and pain subside. In some rare cases superficial or deep-seated suppuration may take place. Occasionally the swelling has been seen to pass into hypertrophy of the skin and of the subcutaneous tissue, as in the remarkable case of Sarah Rogers, reported by Thomas Chevalier, an illustration of which can be seen in Busey's work on Lymph Channels. Recovery is the most common termination of the disease. It may be complete, yet one is not exempt from the affection in future or subsequent labors.

Complications.—The complications can be summed up as pulmonary embolism, gangrene, erysipelas, purulent infections, and lymphangitis.

Pathological Anatomy.—It has been found that in the simple forms, when an opportunity for an autopsy presented itself, the affected limb revealed these conditions: The skin is always thickened; the connective tissue is sometimes found indurated, vascular, infiltrated with serum and lymph. The veins are generally obstructed by clots and inflamed. In the first stage clots alone are formed, and there is no inflammation of the coats of the vessels. In more advanced cases the coats of the veins are thickened and abnormally vascular; the external coat adheres to the surrounding connective tissue; the internal coat is reddened, often studded with fibrinous deposit. The obstructive coagula may now be softened to a pultaceous mass, often regarded as pus, but which is really the result of fatty disintegration.

The veins principally affected are the femorals and iliacs, less frequently the uterine, vaginal, and saphenous. The lymphatics are often enlarged, matted together by condensed connective tissue. The glands are generally enlarged and vascular. The cellular sheath of the arteries is infiltrated; all the vessels are agglutinated by inflammatory lymph. In the cases in which the septic character predominates the
changes are more general and more distinctive. The clots in the veins are more disintegrated, the presence of pus is more decided in them, and suppuration is common in the perivascular connective tissue, and the muscular fibers are softened. Peritonitis and metritis are common. Ovaries, tubes, and broad ligaments are inflamed. The kidneys, liver, and spleen are congested, and you may find pulmonary pleuritis, even hepatization of the lungs and pericarditis.

Pathology.—The pathology of phlegmasia dolens has given rise to much controversy, which has served to develop numerous specious theories. There was an attempt by R. J. Lee to establish a connection between erysipelas and phlegmasia, claiming that the opinion entertained by some that the clotting of blood in the veins, as a cause, is erroneous. Mauriceau attributes it to a reflux determined to the lower extremities of humors, which ought to be evacuated by the lochia. Mesnard advanced the same theory, whilst Puzos and Levret, a little later, thought it a metastasis of milk. White and Trye, in the latter part of the eighteenth century, ascribed the cause to an obstruction of the lymphatics and effusion of lymph; and a Dublin doctor, in the London Lancet for 1883, claims that the lymphatic gland in the crural canal forms a most important link between the lymphatics of the trunk and lower extremities; that the absorption of septic matter takes place from the system by the lymphatics of the pelvis; the germs thus absorbed set up an inflammation, and inflammation produces hypertrophy. Hull, in 1800, criticised all these (except the latter), and offered the theory of an inflammatory affection, producing suddenly a considerable effusion of serum and coagulable lymph from the exhalants into the cellular membranes of the limb; that the seat of inflammation was in the muscles, cellular membrane, and inferior surface of the cutis. In some cases he thought the inflammation might be communicated from those parts to the large blood vessels, nerves, and lymphatic vessels and glands imbedded in them. Tilbury Fox
says it is a local disease; no general symptoms need be present, and that phlebitis cannot give rise to phlegmasia dolens but to edema. He says it might occur in phlebitis, but forms no necessary part of it; that the obstruction of the main lymphatic channels alone is capable of giving rise to white-leg. Albers, of Germany, thought it to be neuralgia causing edema; Burns, an inflammation of nerves and veins.

The first great step made in advancing the knowledge of this disease from speculative theories to the domain of pathological science was by Dr. Davis, of London, in 1823, when he published his discovery that in several instances he had found, in making post-mortem examinations of the disease, that the femoral and iliac veins were impermeable from being filled with firm coagula of blood; which was very soon after confirmed by Bouillard and Velpeau, of Paris; in fact, some tables reverse the matter and give Bouillard priority over Davis. From this discovery resulted the doctrine of crural phlebitis. Six years later Dr. Lee, of London, believed he had made a great discovery, maintaining that the disease is primarily a uterine phlebitis, commencing with the uterine branches of the hypogastric veins and subsequently propagated to the iliac and femoral of the affected limb. The knowledge that this disease is not confined to the puerperal state or to the female sex was a great step in elucidating the pathology. The next step was made by the hematologists, Andral, Gararret, Becquerel, and Rodier, who demonstrated the existence of a peculiar modification of the blood in the cachexias, and that this modification often exists in pregnancy. There is a change in the proportion of the elements of the blood. There is an excess in the amount of fibrin and serum and a deficiency of the blood corpuscles; as compared with the normal state there is a special predisposition to coagulation. Vogel calls this abnormal tendency to coagulation of the blood inopexia; and it is known, says Barker, that whenever phlegmasia dolens occurs, whether in the puerperal period or in
association of other diseases, there is inopexia. Virchow, in 1846, to Barnes, in 1865, thought it due to thrombosis of the iliac and crural veins; afterwards the great Moxon, of Great Britain, gave us the theory of coagulation of blood in veins, secondary to a phlebitis which is excited by noxious material absorbed from the uterine surface. Barnes says phlegmasia dolens, like perimetritis, is a variety of puerperal fever. It is a toxemic disorder. They arise in similar conditions, and it may be held that at the moments of invasion it is uncertain what form the disease may assume; accidental conditions, not clearly defined, may determine the evolution into perimetritis, phlegmasia dolens, or general septicemia.

From the various views, from Mauriceau to the present time, we are compelled to conclude that the advances in pathology have not shed much light on this disease. Many things in common are advocated and maintained. The doctrines of phlebitis, venous thrombosis, and inflammation and obstruction of the lymphatics. Some hold that phlebitis is the essential lesion; some to peripheral thrombosis; others to the obstruction of the lymphatic ducts and venous thrombosis combined; and it is very difficult indeed to always strictly distinguish etiologically. The lying-in state is exceedingly favorable to the coagulation of blood in the veins of the pelvis and thighs, the thrombi growing into the iliac and onward into the femoral and its branches. The starting point of the thrombosis is in the placental surface of the uterus, and is most apt to occur when, through imperfect contraction of the uterus, the veins are left with gaping mouths. It may be a question whether the introduction of septic material induces the coagulation, but, in the usual absence of the general symptoms of septic poisoning, it may be doubted whether this has to do at least with the extent of the coagulation. This thrombosis of the veins induces a chronic inflammation of its wall, and we have a phlebitis secondary to the thrombosis. In other cases the process takes an inverse course, the inflammation of the
connective tissue leading to the phlebitis and thrombosis; we find in either event a considerable adhesion of the vein to its sheath and from the sheath to the parts around. The lymphatic vessels may be affected by this adhesion and partially obstructed.

**Diagnosis.**—The diagnosis of phlegmasia dolens is very readily arrived at from symptoms mentioned in this paper. We have the sudden onset of the pain and swelling, and the absence of the grave symptoms which usually accompany lymphangitis, erysipelas, and septicemia.

**Prognosis.**—In uncomplicated cases recovery is the rule; in complicated ones it is regarded as a very serious affection. Sudden death from pulmonary embolic obstruction is among the possibilities. One should be reserved in their prognostications.

**Treatment.**—Absolute rest, with the leg slightly elevated, bandaging the affected extremity, and administering an abundance of easily digested food. Stimulants, such as carbonate of ammonia; counter-irritation by iodine over the course of the affected vessels is useful, in particular where the lymphatics markedly participate in the affection. Attend to constipation if it exists. If circumscribed abscesses present themselves, they should be opened and dressed antiseptically; and in cases of diffuse subfacial phlegmon, make several long incisions to limit destruction of the deeper parts.

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Dr. Coffman: I want to add a few remarks on the subject of treatment of phlegmasia dolens. Be the cause what it may, the inflammatory action is best combated by local and systemic medication. The mechanical effect of position is of first importance, elevation of limb, avoiding pressure. The application of mercurial ointment spread on canton flannel very thick and covering half the inside of thigh from knee to pelvis. Over this wet cloths very hot, renewing often, and internally give aromatic spirits ammonia, one drachm at a dose, with ten to twenty drops of liquor potassa, well diluted, every three hours. Under this mode of treatment my cases are all
restored to normal condition. No weakening of the valves of the veins, no oedema of the leg, or induration following convalescence. Recalling the effect of the mercurial plaster, how it acts on the inflamed vein, I am not sure that in the systemic absorption of the mercury alone is the benefit, but the local manifestation direct over the course of the vein has much in its favor. I also wish to emphasize the importance of the alkaline stimulant (spirits ammonia and liquor potassa) in treating local inflammation of the circulatory system. You most assuredly hedge against the possibility of embolism or thrombosis, which, after all, is the great danger.
AN UNFORTUNATE BUT INSTRUCTIVE CASE OF MIDDLE EAR DISEASE.

BY H. GIFFORD, M. D., OMAHA, NEB.

On February 25, 1896, F. K., aged about 45, came to my office with a suppurative otitis media of the right side, which had been continuing, with considerable pain in the ear, for some weeks. I found a small perforation in the posterior lower quadrant of the much-congested drum-head, with a moderate non-fetid discharge. There was no tenderness, swelling, or redness over the mastoid. Under cocaine the perforation was enlarged, but the bleeding was so profuse that I was uncertain whether any considerable amount of pus was evacuated at the time. The patient then entered the Clarkson Hospital, where treatment by irrigating the meatus with hot boracic solution, with instillations of a mixture of pyrozone and boracic acid solution, was begun and kept up for three days, when, as the hot irrigations rather increased his headache, they were discontinued and the medicinal treatment for the ear to the end of the case was confined to instillations of pyrozone and boracic solution, four or five times a day, after syringing out the meatus. The pain in the ear disappeared within twenty-four hours after the paracentesis, and the patient continued to improve, though slowly, for the next five days. He complained a good deal of sleeplessness, however, and of vague pains in the head, and sometimes in the forehead, sometimes in the occiput, but never localized over nor near the ear. He also complained, quite steadily, of pain in the right shoulder, running up toward the neck. The temperature ranged from normal to 98.5 until March 2d, when it went to 99.4. About this time he complained of diplopia in
looking at distant objects, and I found him to have a very slight paresis of the right external rectus, which, however, rapidly got better. After a few days, diplopia could only be noticed by close attention to very distant objects. On March 3d, the temperature was 99.8, with a lessened discharge, and a sense of fullness in the ear and increased discomfort in the head. As the opening in the drum-head seemed to be diminishing in size, I again enlarged it, whereupon, with increased discharge from the ear, the patient became much more comfortable; temperature sank to normal or thereabouts, and the improvement continued so that he left the hospital March 7th, with the understanding that he was to come to my office for treatment. He did so, however, only occasionally, and as he lived in a business block, with meager conveniences, I was not surprised when, about March 18th, he again complained of increased discomfort in the ear and shooting pains in the head. I then, for a third time, made a paracentesis.

The improvement after this was not so prompt as on the other occasions, but on March 27th, not having seen him for several days, I visited him at his room and found him feeling perfectly well. The discharge from the ear had ceased entirely, the opening in the drum-head had nearly closed, and the drum-head was assuming a normal aspect. Congratulating myself on the successful termination of a troublesome case, I did not see him again until the morning of March 30th, when, on being called to see him, I learned that he had seemed perfectly well up to the evening of the 29th, when he was taken rather suddenly with pain in the head and back, which had continued without intermission and with increasing severity. I found him with pronounced symptoms of meningitis, besides the pain in the head and back. The patient was at times only half-conscious; temperature 103; pupils were normal and the ophthalmoscopic examination negative. There was no discharge from the ear and no sign of any accumulation in the tympanic cavity. In view of the
fact that the ear had seemed entirely well for some days, and that he had at no time had any of the ordinary symptoms of a mastoid abscess, I thought it probable that the meningitis had no connection with the ear trouble, but that both had started with an obscure attack of la grippe some weeks before. I was the more inclined to this view, as I had just read the report of several cases in which the influenza bacillus had caused meningitis. The patient was then removed to the Presbyterian Hospital, under the care of his family physician, and I did not see him again, but I am told that on the next day a marked convergent strabismus of the right eye developed and the pupils became uneven. Consciousness was gradually lost and the man died at 2 o'clock on the morning of April 1st.

A post-mortem was held on April 3d, at which I was not able to be present, but I have learned from Dr. Detwiler, who made the autopsy, that all the meninges were found very much congested, with a diffuse purulent inflammation at the base of the brain, an extradural abscess in the right temporal fossa, this evidently having had its origin in a perforation which existed in the roof of the right tympanic cavity. There was no abscess in the brain substance and the sinuses were free, but the mastoid antrum, while not containing pus, was full of the flabby granulations which indicated that it had not long before been a pus cavity.

To resume, here was a man who at no time had any of the ordinary symptoms of mastoid disease. I was never able to elicit any tenderness on pressure. There was not the slightest sign of swelling or redness, and the bulging of the upper posterior wall of the auditory canal was absent. Nor did he at any time, until a few days before his death, give the impression of a man who was at all seriously ill. The pain in the ear, which was present when I first saw him, disappeared within a few days thereafter and did not return again, though twice, at the times mentioned in the history, there was a sense of full-
ness in the ear for a day or two, disappearing after the perforation in the drum-head was enlarged. The pains in the head of which he complained off and on, were never localized on the side of the head, as is generally the case with an extradural abscess, and the patient's description of them gave more the impression of neuralgic pains, and as he was of an extremely nervous temperament, I did not give them the weight which, in the light of later developments, they evidently deserved. Until the onset of a well-marked meningitis his intellect was not at all affected. Finally, for several days before his severe symptoms developed he seemed to be a perfectly well man, and if it had not been for the post-mortem, I should have continued to think that the meningitis occurred independently of his ear trouble. The post-mortem, however, made it plain that a mastoiditis had been going on for a considerable length of time, and an operation done at any time before the onset of the severe symptoms would probably have saved his life. Whether it would have done so after the meningitis developed is, of course, doubtful, many surgeons advising against operating under such circumstances; but some cases have been saved by the operation even after meningitis appeared, and if I had believed, as I did not, that the meningitis came from the ear, I should have advised an operation in this case.

In looking back over the history, to learn what symptoms should have led me to a more accurate diagnosis, and a more efficient treatment, the only ones which it seems to me that I slighted were the sleeplessness and the paresis of the external rectus; but the former was not more marked than I had seen in other cases without cause for alarm, while the latter was so transitory and occurred at a time when the patient was feeling so well that I thought it a mere coincidence, as a paresis of the external rectus is not uncommon with patients otherwise in good health.

It has long been my opinion that nearly all of the cases in
which an acute inflammation of the middle ear leads to a suppuration which fails to heal promptly under proper treatment, are complicated with an inflammation of the mastoid antrum. Yet so many of these cases eventually heal, without serious consequences, that one would not be justified in opening the mastoid, at once, every time an implication of the antrum was diagnosed. The problem here is the same as that confronting the surgeon in dealing with appendicitis or salpingitis. If he operates on all cases, he will operate on many that would get well of themselves or with less radical treatment. But I have always held that it is better to operate on twenty cases unnecessarily than to let one die for want of an operation. Hereafter I think my position will be even more radical.

In conclusion, to illustrate more fully my point of view with reference to this case, let me add that I am not at all "shy" of mastoid operations, nor of opening the cranial cavity if necessary; on the contrary, I am very fond of this kind of work, but in the present case I unfortunately did not feel justified in proposing any serious operation.
THE OCULAR SYMPTOMS IN BRIGHT'S DISEASE.

BY S. E. COOK, M. D., LINCOLN, NEB.

The symptoms in Bright's disease referable to the eye have not received that attention from the profession in general which their importance demands. The impetus given to the study of medical science by the invention and perfection of the ophthalmoscope is difficult for us at this date to realize. With it we walk into a laboratory prepared for us by Nature and view the various complex structures and processes in this important outpost, which, though isolated, is an index of the whole body. The eye possesses a circulation, that of the retina, complete within itself. Its beginning, distribution and termination are open to our inspection. We have here the only nerve in the entire body, which, under physiological conditions, is visible to us. In considering general diseases, therefore, how advantageous it is if we can witness daily, even hourly, the various phases and changes in the circulation, from slight injection to the most violent inflammation, or from absolute anemia to passive congestion and oedema. This is especially true in regard to albuminuria, where the changes are so largely intimately connected with the circulation.

In the majority of cases the ocular symptoms do not manifest themselves until after the disease has otherwise fully declared itself. However, in a considerable proportion of cases, ocular phenomena are the first indications of approaching trouble. They may be either *intra-cranial* or *intra-ocular* in origin. The visual disturbances of *intra-cranial* origin are unaccompanied by structural changes appreciable to the ophthalmoscope, while in those of *intra-ocular* origin there are more or less characteristic ophthalmoscopic changes.
Loss of sight, rapid and complete, without ophthalmoscopic change, may occur in all forms of Bright's disease. Relief of the blood stasis by diaphoresis, blood-letting, or purgation may cause the symptoms to disappear as quickly as they have arisen, and vision is fully regained. This is uremic amaurosis, the cause of which is the same as that of the intense headache, dyspnea, stupor, vomiting, hemiplegia, convulsions, and coma, with some or all of which it is usually associated. It is almost always seen in the albuminuria which complicates scarlet fever and pregnancy, and is usually a transitory, bilateral amaurosis. The blindness is generally absolute, the loss of vision reaching its height in one or two days, and only in rare cases does it occur all at once. The duration of complete blindness is generally short, lasting from a few hours to a day. In carefully observed cases Schmidt-Rimpler* found even the quantitative perception of light absent. Defects of the visual field may persist for a time, but usually the return to normal vision is rapid and complete. In from ten to eighteen hours small print can be again read, so that the whole process occupies three or four days. In spite of the total blindness, the pupillary reaction to light is almost invariably preserved. This proves that the disturbance is central or in the cerebral cortex, or at any rate above that point where the optic tract gives off fibers to the oculo-motor and pupillary centers.

Marked ophthalmoscopic changes are only seen in cases where uremic amaurosis complicates a pre-existing albuminuric retinitis. Ordinarily no changes are observed. Schmidt-Rimpler,* however, in one case found the papilla edematous, and De Schweinitz† mentions a slight neuritis, or a little wooliness of the disk, as being present in some cases. Dobrowolsky‡ observed a case of uremic amaurosis in which there was slight edema of the papilla, passing away with the re-

* Augenheilk. u. Ophth., 1884.
† Diseases of the Eye, 1893, p. 481.
turn of sight in the course of a few hours. Litten* has recorded a case of granular kidney in which frequent uremic attacks occurred, with coma, vomiting and convulsions. There was present characteristic albuminuric retinitis, with considerable edema of the papilla, causing swelling and cloudiness in its neighborhood. During each uremic attack the swelling of the papilla and the adjacent opacity increased, and the veins became more tortuous. After the attack passed off the changes resumed their usual degree. Loring† says that in pregnancy it sometimes happens that attacks of uremic blindness are repeated, in some women recurring with successive pregnancies. In these cases, after the lapse of a longer or shorter time, unmistakable signs of white atrophy of the optic nerve often appear, with limitation of the visual field. Cases have been reported where women have become totally blind through these attacks in successive pregnancies.

Besides uremic amaurosis, paralysis of the ocular muscles may be classed with the intra-cranial ocular symptoms, although very little has been written on the subject. They are not as infrequent, however, as the scanty literature would lead us to suppose. Finlayson reports a case where the external rectus of the right side was paralyzed from hemorrhage into the pons. I have recently seen a case of the same nature in which I believe there was a hemorrhage into the pons.

Mrs. A., age 63, came to me a few days ago with the following history: About nine days previous, when she arose, everything appeared to be swimming about her with flashes and black spots mixed indiscriminately. She thought she was going blind, and could make her way about with great difficulty. Her family physician noticed that she squinted when her eyes were in certain positions. When I saw her there was decided convergent strabismus and consequent diplopia on turning the eyes to the right, and the right external rectus

*Charité Annalen, 1879, p. 169.
appeared to be completely paralyzed. The pupillary reaction
to light, accommodation and convergence, was intact, and no
other muscles, so far as could be discovered, were affected.
Ophthalmoscopic examination revealed nothing abnormal in
the fundus. There was concentric contraction of both visual
fields, the right being the more marked. Direct vision was
almost perfect, after correction of a high degree of hyper-
metropia. The urine was scanty in amount, of high s. g., 1030,
and loaded with phosphates. In the specimens examined
albumen was absent, but granular casts were present. I have
no doubt the trouble was due to a small hemorrhage in the
pons, or perhaps in the nerve nucleus beneath the floor of the
fourth ventricle.

Trochlear paralysis and ophthalmoplegia externa also may
occur. These paralyses usually are rapidly recovered from,
but are subject to relapses.

In all cases of sudden or rapidly developing paralysis of
one or more of the ocular muscles, not due to some obvious
cause, the urine should be examined for albumin.

There may be structural changes in the eye independent of
the existence of any special retinal disease. The retinal ves-
sels, in common with those of the body generally, present
changes, if the kidney lesion be one of considerable duration.
According to the observations of Gowers,* there is a notable
diminution in size of the retinal arteries. He ascribes it in
some cases to contraction of the arterioles, resulting in hyper-
trophy of the muscular coat of the artery. It is usually at-
tended by increased tension in the radial pulse. Brailey and
Edmunds † claim that the walls of the retinal vessels are al-
ways altered in chronic Bright's disease, due to a thickening
from a growth of new tissue beneath the endothelium. Some-
times conspicuous white lines are seen along the vessels, prob-
ably from sclerosis of the outer coat. This, however, is be-
lieved to occur only when retinitis co-exists.

* British Med. Journal, December 9, 1876.
Aneurismal dilatations sometimes occur in the retinal capillaries. They furnish conditions favorable to the occurrence of retinal hemorrhages. These form a conspicuous feature in many cases of albuminuric retinal disease. They are usually flame-shaped and follow the direction of the vessels and nerve fibers, owing to their superficial situation in the nerve fiber layer. When more deeply seated, they are rounded and irregular in outline. Increased vascular tension, with weakened vessel walls, are undoubtedly the cause. Often they are the precursors of, or co-attendants on, hemorrhages in the brain.

Detachment of the retina occurs occasionally, and is probably due to dropsical effusion between the choroid and retina. It has occurred double, and occasionally is very extensive, as noted by Anderson* in the case of a child with chronic interstitial nephritis.

The most common ocular phenomenon to attract the physician's attention in renal diseases is albuminuric retinitis. It occurs most frequently with the contracted kidney, but also occurs with the large white kidney, and has been found in a few instances in lardaceous degeneration of the kidney. Indeed it may exist in all types of kidney disease, but, according to Gowers,† only in those forms which are chronic from the beginning, or which are chronic the result of an acute attack. He denies the occurrence of albuminuric retinitis in acute renal disease. Other observers, however, notably Mil­lard‡ and Schmidt-Rimpler§ claim that it may complicate acute as well as chronic renal disease, instancing the nephritis of pregnancy and that after scarlatina, where the retinal inflammation is common.

In point of time, the advent of the retinal disturbance usually corresponds with the development of cardiac hyper-

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† Medical Ophthalmoscopy, 1890, p. 212.
‡ Bright's Disease, 1893, p. 183.
Trophy; therefore it is only after the renal affection has been exerting its influence on the system for a considerable length of time that the retina suffers. It has been asserted by some, particularly Eales, * that ocular changes may co-exist with a form of temporary and functional albuminuria sometimes seen in young people. The ocular lesions often lead to the discovery of the renal disease. It is not at all probable that they antedate the kidney lesions, however, but are only the earliest discovered symptoms in a disease so remarkable for its insidious advent and progress. The renal lesion, usually with more or less albuminuria, probably always precedes the retinal affection. Abadie † has reported two cases of albuminuric retinitis in which albumin was never found in the urine, and Gowers ‡ records the case of a patient of his, a lady, aged fifty-seven, suffering from hemiplegia, with characteristic degenerative albuminuric retinitis in each eye. She had the characteristic cardiac and vascular symptoms, but repeated and careful examination of the urine failed to reveal a trace of albumin.

Both eyes are almost invariably affected, though not always to the same extent, but a few cases are on record in which only one eye was involved. Trousseau § mentions a case of croupous nephritis in which only the left eye was affected. The autopsy showed the right kidney absent. The visual disturbances are not always distinctly marked. They do not necessarily correspond to the extent of the ocular lesions, but probably do to their dissemination. So long as the macular region is not involved, either directly or through inflammation in the head of the nerve, central vision may remain almost perfect. The field, however, suffers more or less.

The frequency with which retinitis occurs in albuminuria has been variously stated. Frerichs found retinal changes in

* Birmingham Med. Review, Jan., 1880, p. 34.
† La Union Médicale, 1882, p. 627.
‡ Medical Ophthalmoscopy, 1890, p. 213.
§ Bulletin Médicale, April 14, 1889.
thirteen per cent of his cases, Eales * in twenty-eight per cent, Galezowski in thirty-three per cent, Leber in twenty per cent, Lecorche in twenty-one per cent, and Ayers in nine and one-half per cent. The last is undoubtedly too low. Uremic amaurosis is much less common than the retinal affection, according to Knies,† occurring in not more than one per cent of cases of albuminuria. It is a uremic manifestation, however, and is observed especially in those forms of nephritis so prone to be accompanied by uremic attacks,—those of scarlatina and pregnancy. Retinal inflammation is practically confined to the chronic forms of renal disease, while uremic disorder of sight is more frequent in acute nephritis or in acute exacerbations of chronic nephritis.

The early stages of albuminuric retinitis very rarely come under the notice of the physician, as, like the chronic renal affection upon which it depends, the early stages may present absolutely no subjective symptoms. Later, when the optic nerve becomes involved and the inflammation assumes the characters of a neuro-retinitis, the deterioration in vision compels the patient to seek medical aid.

The ophthalmoscopic picture presented by albuminuric retinitis is characteristic. Gowers ‡ very ably describes its elements as follows: (1) Diffuse slight opacity and swelling of the retina, due to oedema of its substance; (2) white spots and patches of various sizes and distribution, due for the most part to degenerative processes; (3) hemorrhages; (4) inflammation of the intra-ocular end of the optic nerve; (5) the subsidence of inflammatory changes may be attended with signs of atrophy of the retina and nerve. These elements may be variously combined, but in most cases some one of these changes predominates and leads Gowers to define four leading types of retinal inflammation as seen by the ophthal-

*Birmingham Med. Review, Jan., 1880, p. 34.
†The Eye in General Disease, 1895, p. 308.
‡Medical Ophthalmoscopy, 1890, p. 214.
moscope,—the degenerative, the hemorrhagic, the inflammatory, and the neuritic.

In the type of the disease characterized by whitish exudation,—the degenerative type,—the fundus in the vicinity of the disk is more or less striped with small whitish spots, varying in size. They are usually round when small, but as they grow larger become more irregular. Often they present the appearance as if a brush full of whitewash had been distributed over the surface, but in a more or less systematic manner. In the region of the macula the white spots generally arrange themselves in a more or less stellate manner about it. They may be punctiform or elongated, so as to form radiating streaks, and do not always form a complete circle. The same arrangement often exists in the spots around the disk, though in a far less complete and harmonious manner. Some of the exudative spots may be quite large, owing, in many cases no doubt, to the coalescence of adjacent small ones. Indeed, whitish or yellowish areas may thus be seen as large or even larger, than the disk itself. As a rule, we only see these cases with the ophthalmoscope, after the disk itself is involved, and the vision begins to suffer. The disk may be more or less swollen, with outline not recognizable, and be the center of an enormous plaque of whitish exudation. The macula may also be the center of the stellate figure spoken of, or be surrounded by a small collection of minute dots. The inflammation is now that of a neuro-retinitis. The whitish dots and plaques may be interspersed with hemorrhages, disposed in much the same manner, although hemorrhages are not such a constant or prominent feature as in the other forms. The degenerative type is that most commonly met with, and as a rule the signs of inflammation are absent until at least the disk becomes involved.

In the hemorrhagic type the white spots or patches are almost entirely, or quite, absent. The hemorrhages occur in a similar manner to those of cerebral location. They occur
suddenly, are repeated frequently, and affect both eyes. As a rule they occupy the internal fiber layers of the retina and are therefore striated and flame-shaped, taking the course of the nerve fibers, and are apt to be arranged in a radiating manner about the disk and parallel to the vessels. When more deeply situated they are more irregular in outline and position and may occupy large areas. In the late stages, patches of degeneration usually appear in the neighborhood of the hemorrhages, and traces of the peri-macular halo are generally visible. In this type, inflammation is an inconspicuous feature.

In the typical inflammatory form of albuminuric retinitis there are all the evidences of violent inflammation. The whole retina is swollen and outline of the disk completely obscured, from an abundant parenchymatous infiltration with lymphoid cells. The veins are distended and tortuous, and are buried more or less completely in the swelling. The arteries are narrowed and not usually visible. Hemorrhages are numerous as a rule, and may be large and striated. White spots of degeneration, more or less uniform in size, are scattered over the fundus. It is rare for this type of the retinal affection to subside, as the system, in such cases, is invariably profoundly affected by the severe form of renal disease, which usually proves rapidly fatal. When subsidence does occur, however, signs of secondary atrophy of the optic nerve appear.

In some cases the predominating feature is the swelling of the disk, and the process assumes the characters of a neuritis. The other features may be almost entirely absent, but careful examination with the direct method will usually show slight signs of retinal degeneration. The edge of the disk is concealed by swelling, moderate in amount usually, and of a grayish-red hue. It extends beyond the outline of the disk itself, often to a considerable distance, and is usually more or less striated in a radial manner from the disk. Hemorrhages also form, as a rule, a feature of this type of the dis-
ease. They are not apt to occur in the swollen papilla itself, but are scattered about the fundus. The arteries of the disk are usually not visible, and even the veins may be concealed in places. Minute white points may stipple the swollen disk.

It may be difficult to differentiate the neuritic form of albuminuric retinitis from papillitis due to cerebral causes. The swelling or elevation of the papilla is much less in the albuminuric form, however, but is more spread out, giving the swollen papilla less definite but more extended borders. It is in the late stages of cerebral papillitis that error is liable to occur, owing to retrogressive changes. Such cases almost always go on to absolute blindness, while in papillitis from renal disease it is rare for vision to be entirely lost. The resulting atrophy also is much more complete in cerebral disease. The neuritic form of albuminuric retinitis only occurs in the advanced stage of kidney disease, when the character of the affection is unmistakable.

The **prognosis** of ocular lesions varies. In the majority of cases, retinal troubles due to acute nephritis are completely recovered from, but permanent blindness sometimes results. In chronic interstitial nephritis the ocular changes are usually permanent and beyond aid. The renal changes denoted by them are always profound and grave. The prognosis, therefore, depends on that of the primary disease. As the same vascular changes exist in the brain as in the retina, the cases with hemorrhages are more unfavorable than those with degeneration alone. Temporary improvement may occur, but permanent recovery is possible only when the renal disease itself can be recovered from. In chronic renal disease with retinal changes Gowers states that "such patients seldom live two years, and a large percentage of them die within a few months after the retinal affection is observed." Improvement in vision may usually be expected in the albuminuria of pregnancy after the termination of the pregnancy.

The expediency of inducing premature labor to preserve the
vision in the retinal disturbances of the albuminuria of pregnancy is a subject worthy of consideration. Pooley,* Lucien Howe,† Moore,‡ and Thompson,§ have of late years handled the subject very ably, and show conclusively that in many cases it is demanded; but the question must be settled chiefly according to existing conditions. Either the profound and pre-existent renal affection, or the structural changes in the eye itself, may be so extensive that the induction of premature labor would be unnecessarily sacrificing the life of the child without any benefit to the mother’s vision. As, however, on account of the liability to eclampsia, the prognosis for life is doubtful in these cases, it is often advisable to induce labor. Millard∥ would induce labor in cases where the nephritis was developed in the pregnancy at issue, where there were severe ocular changes and indications of uremic poisoning, unless treatment, such as diet, rest, sweating, etc., bring about speedy relief.

Lucien Howe, in an analysis of cases extending over a space of fifteen years, arrives at the following result: “When vision begins to be impaired only in the last two weeks of pregnancy, recovery follows almost invariably. Of those described as being in the eighth month, or thereabouts, when the retinitis commences, not one-half recovered, and several did not materially improve. Again, where this began earlier than was estimated, as the middle of the seventh month, when Nature did not interfere by bringing on a miscarriage, and when the patient escaped with her life, it was only to remain blind forever afterward.” His conclusions seem eminently judicious: “The induction of labor is warrantable when the retinitis appears in the early stages of pregnancy and persists in spite of proper treatment, but is not warrantable in the last

* Medical Record, Jan. 28, 1888.
† Amer. Jour. of Ophthal., vol. II, 5, 6, 1885.
‡ N. Y. Med. Journal, April 17, 1886.
∥ Bright’s Disease, 1893, p. 186.
The subject of ocular changes in albuminuria in relation to life insurance has never been properly considered. One of the most difficult subjects for the medical examiner to contend with is that of albuminuria in its chronic and insidious phases. Everybody knows that a slight trace of albumin may be present in one sample of urine, while entirely absent in others. It may be present at one time of the day and absent at others, or be present for days and absent for weeks. Bright’s disease has such certain results, especially in regard to longevity, that every possible means should be made use of to determine its existence. In the ophthalmoscope we have an important aid to diagnosis, an aid that has been too little utilized, but which is bound to increase its usefulness with time. To be sure, in only a certain proportion of cases of albuminuria do retinal changes occur,—from twenty to thirty per cent,—but such retinal changes may be present in cases in which the urine at the time of examination is entirely free from albumin. In some cases retinitis is absolutely the only recognizable symptom, and its footprints are never blotted out entirely. In many of the insidious and doubtful cases an ophthalmoscopic examination will give us valuable, and sometimes positive, information. Diminution in the size of the arteries, as compared with the veins—they should be as two to three,—whitish spots scattered over the fundus, especially if arranged about the macula, and the slightest trace of hemorrhages,—in a person over forty,—should make us almost certain of renal disease, and demand repeated and thorough examination of the urine. Am I wrong, therefore, in suggesting that the ophthalmoscope be placed alongside the test-tube and the microscope as a part of the medical examiner’s outfit?

Dr. Lavender: I congratulate the doctor upon his practical and interesting paper, and in this connection desire to
impress upon our members the importance of one aid at their service in the diagnosis of Bright's disease—the microscope.

And here my remark of yesterday, that it is not always essential for a special course in this instrument, is applicable. In cases of chronic nephritis its use will often show the presence of tube-casts where albumin is not present, such casts being easily found and recognized in the majority of cases, thus explaining satisfactorily ocular symptoms in this disease. For some years past I have made a routine practice of urine examinations, especially microscopical, which has been of wonderful service in my practice, especially in such cases as mentioned in the doctor's paper. We should encourage our members in the use of the microscope; it will be found an invaluable aid in diagnosing obscure cases, and there is, in my opinion, no limit to its use, or reason why every practitioner who can see from finding many things of help to him in his practice generally. Of course, should a special line of investigation be desired, then a special course is of importance.
Marrow Changes in Pernicious Anemia; Bacillus Pyocyaneus Infection in Children; Co-Existence of Tuberculosis and Malignant Disease.

By W. R. Lavender, Professor of Histology and Pathology, Omaha Medical College; Chairman of Section on Pathology.

Mr. President, and Members of the Society:

In view of the fact that even a short résumé of the later investigations in this branch would consume more of the valuable time of the Society than is advisable, I have the honor of presenting for your consideration a short epitome of two subjects; with, in addition, a report of the co-existence of tuberculosis and malignant disease in specimens obtained from autopsies during the past year.

I.—Bone-Marrow Changes in Pernicious Anemia.

Amongst the leucocytes of normal blood, Ehrlich and Einhorn describe the following:

a. A small lymphocyte, with large nuclei, little protoplasm, staining deeply.

b. A large lymphocyte, with large nuclei, more protoplasm, staining faintly.

c. Non-nuclear, transition forms with irregular nuclei.

d. Polynuclear neutrophile, with polymorphous or neutrophile granules, these forming about seventy per cent of the white cells of the blood.

e. Eosinophile cells, their protoplasm staining readily with eosin.

The following is a summary of the bone-marrow changes in leukemia from Ziegler, and Delafield, and Prudden:
1. An accumulation of spheroidal cells (often in state of fatty degeneration), found in the meshes of the reticular connective tissue, in the marrow, in or along the walls of the blood-vessels.

2. Absorption of fat, with enlargement of the marrow cavity from bone absorption.

3. Such alterations claimed to be due to hyperplasia of the marrow-cells.

4. The presence of nucleated blood-cells, and "Charcot's" crystals in addition to the normal elements.

5. Marrow appears soft and red, or mottled, red and gray, or puriform, with occasional circumscribed hemorrhages.

6. These changes occur in the central cavity, or in the marrow spaces in spongy bones, and in several or many bones.

7. Analogous changes occur in the spleen or in the lymph-nodes.

8. Sometimes the spleen, the lymph-nodes, the marrow, or these organs altogether, undergo hypertrophy, with increased cell-production.

The origin of the nucleated red cells up to the present has not been satisfactorily explained, but the following hypotheses have been advanced:

Flemming and others claim a new formation of red blood-cells from the mitotic division of young formed nucleated blood-cells (in adult man this growth being limited to the bone-marrow).

Bizzozero and Denys claim this multiplication and complete development of young blood-cells occurs only within the vessels of the marrow from nucleated colorless cells without hemoglobin.

Lowit claims mitosis of the colorless antecedents of the red cells, occurring in the lymph-glands and spleen, as well as in the vessels of reticulated connective tissue of the marrow.

Newman assumes their development from the leucocytes of the blood, which are carried to the marrow by the arteries.
after birth, or such cells may derive an origin from the tissue elements of the marrow.

Hayem is of the opinion that these blood-cells arise from biconcave non-nucleated discs or blood-plates (hemoblasts), which develop into lymph corpuscles, and are set free from the lymph before coming into the blood.

Foa and Salviola claim they are produced from the large lobulated central nucleated marrow cells, by the developing of a bud from the nucleus, which is afterwards surrounded by a hyaline substance, separated by constriction, and finally receives hemoglobin.

From whatsoever source they are derived, as soon as these red cells are incapable of performing their function, they are taken up and eliminated from the blood current by colorless cells; this occurs by preference in the spleen and liver, as well as in the marrow and lymph-glands.

Such enclosed red cells, or their degenerated products, are changed to colored or colorless iron compounds (which has been demonstrated micro-chemically); later a part of these compounds is taken into the blood in the spleen and marrow, and probably also in the liver, and is possibly used again in the formation of new red blood-cells; part of this iron may be deposited in the liver cells.

A special investigation of the bone-marrow changes by R. Muir, of Edinburgh,* gives following results:

"1st. A marked dilatation of the fat capillaries, with an accumulation of leucocytes in little groups around such capillaries, both processes occurring together and resulting in atrophy of the fat cells.

"2d. Still further dilatation of the capillaries, with a deficiency in their walls and a loss of the distinct separation between the parenchyma and the blood-stream, the presence of nucleated red cells in both the parenchyma and venous capillaries.

* Journal Path. and Bact.
“3d. Blending of the two parts, the blood flowing through a wide-meshed reticulum resembling the spleen somewhat, with, as a rule, the total disappearance of the fat-cells.

“4th. Appearance of eosinophile cells, at first few in numbers, later increased, also giant cells with furrowed and convoluted nuclei apparently formed from the marrow cells.

“5th. Absorption of bone trabeculae from simple softening and atrophy apart from cellular agency, the surface of these thin trabeculae, appearing smooth or wavy in outline; with no evident osteoclastic erosion, proliferation of bone corpuscles, or leucocytic grouping in relation to the bone.”

In addition to the foregoing he observed an increase in the number of nucleated red cells, a transformation of fatty into red marrow in the shafts of the long bones, the newly formed marrow closely resembling normal marrow in structure and cellular constituents; and in long standing cases a preponderance of colored over the colorless elements of the marrow, in the form of large nucleated red cells (gigantoblasts), with apparently degenerated nuclei, this condition being peculiar to leukemia.

Pigment giving the iron reaction was found both free and in the cells, and especially abundant in cases where the anemia was severe and progressive at death.

In the transformation of the fatty into red marrow two factors were noted: 1st. Dilatation of certain of the capillaries (to such an extent as to resemble venous capillaries), around which formed little groups of leucocytes. 2d. Deficiency of the blood-vessel walls, with loss of demarcation between them and the parenchyma.

Muir claims the earlier changes can only be interpreted as an extension of blood-forming tissue compensatory in nature, and due to blood destruction, being similar to conditions produced by hemorrhages and other diseases; the further changes found in long-standing cases being secondary and due to the long continuance of the same conditions, the nucleated red cells showing a return to the embryonic type.
The condition found in Muir's investigation apparently proves functional death of the nucleated cellular elements of the bone-marrow, from the proliferation of which, if normal, repair might be expected; granular condition if excessive, or multiple nuclei in cells (such as were found), being considered at present by most authorities as an evidence of cellular death, especially if progressive to fatty degeneration. Again, liberation of the bone pigment compound, with or without its deposition in the organs, may be another evidence of death of the cells. Coincident with these cellular changes there is a change in, with a deficiency of, the blood-vessel walls of the bone-marrow, such changes being now considered an essential factor in inflammations, both acute and chronic.

Whether the pathological factors in the general condition present in leukemia are principally due to destructive cellular changes in the blood-making organs, or to changes in the fluid constituents of the blood itself, is still an interesting question and well worthy of future investigation.

II.—BACILLUS PYOCYANEUS INFECTION IN CHILDREN.

This micro-organism, actively motile, a saprophyte, exists with or without oxygen; it is about the same length but somewhat thicker than the bacillus murisepticus, with rounded ends, united in pairs or chains of four to six elements, and does not form spores; thermal death point, 56° C. Will grow readily in various culture media at ordinary room temperature, but more rapidly in the incubator oven; completely liquefies gelatine on plate cultures on the fifth day; before this liquefaction occurs microscopic low powers prove the deep colonies to consist of coarsely granular spherical masses with serrated borders, somewhat yellowish-green in color; the superficial colonies are finely granular, greenish in color, thick at center, thinner at the periphery.

Gessard, 1890, proved the production by this bacillus of two fluorescent pigments; 1st, green in the earlier stages of
the cultures; 2d, dark blue in the later stages (pyocyanine); these colors are soluble and will saturate the culture media; 1 cc. or more of a pure culture on beef broth will prove fatal to a rabbit or guinea-pig in twelve to thirty-six hours after intravenous injection or subcutaneous inoculation, in the latter causing œdema and extensive purulent infiltration of the tissues; its introduction into the abdominal cavity produces serofibrinous or purulent peritonitis.

Pure cultures of the bacillus can be recovered from the blood and various organs of the experiment animal after death. Bouchard, Charrin, and Guignan, by inoculating rabbits with pure cultures of this bacillus, immediately after their inoculation with anthrax bacilli, prevented a fatal result. Wood and Woodhead obtained immune effects by immediate inoculation with a sterilized culture, apparently proving antidotal effect is produced by the chemical products of the growth of the bacillus and not direct bacterial action.

The bacillus pyocyanus is occasionally found in the green or blue pus from an open wound, serous wound secretions, and sometimes in the perspiration, and on the skin. Booker claims to have found it present in the intestinal canal of several children. Williams and Cameron found it in the intestinal canal alone, in one of ten post-mortems held on children, and in one where the organs were generally infected.

In cases of purpura haemorrhagica in children, infantile marasmus, especially with skin eruptions, or in combination with enteric or muscular disorders, low fever, and slow course of the disease, a careful and more extended bacteriological investigation will probably prove that this micro organism is the pathological factor; and whilst the several species of bacteria present in purpura haemorrhagica have been described, this bacillus alone may have a direct causal relation.

Its method of obtaining admission to the organism is still uncertain; but the liability of infection is possible, by: 1st, cutaneous lesions; 2d, suppurative conditions, especially of
the middle ear; 3d, its rapid growth when present in the intestinal canal, especially in cases characterized by feeble digestive function, in artificially or ill-fed children; 4th, any marasmic condition favoring germ intoxication.

The occurrence of general infection by this bacillus in children is apparently proven beyond all reasonable doubt by a recent investigation of several cases by Williams and Cameron, Montreal, Canada.* Their report of the history, etc., of one of the cases (all of which had a somewhat general resemblance) may be briefly summarized as follows:

"Child entirely breast-fed, gained steadily until twenty-second week, then became restless, lost weight, had diarrhoea with green stools, temperature 99–100° F., abdominal pain and tenderness, but no tympanites; half dozen purple papules 3–7 mm. diameter developed each side of abdomen midway between umbilicus and flank; skin of abdomen relaxed, dry, and wrinkled; patient greatly depressed, frequently moaning, especially when disturbed.

"During following fortnight numerous other papules appeared, extending from original group up, down, and across the hypogastrium, of an irregular horse-shoe shape, later becoming confluent; other papules now appeared on chest and abdomen, depression more marked, but abdominal pain and tenderness had disappeared; legs became flexed upon thighs, and thighs upon abdomen, attempts to straighten which, caused patient to moan; on releasing the limb it returned to its former state of flexion; papules now made their appearance upon thighs and shoulders. Some days afterwards a severe epistaxis took place, followed by refusal of food; the subcutaneous abdominal veins became distended and subcutaneous hemorrhages took place between the toes, and from the papules on the right thigh and back; all the spots became darker in color; the next day a purulent discharge from the left ear, the patient dying comatose in a few days afterward.

* Journal Path. and Bact.
"Diagnosis: Purpura hæmorrhagica of septic origin.

"Autopsy shortly after death:

"Body not much emaciated; a section through the blue spots showed deep pigmentation of skin, infiltration of the subjacent fat, and loose tissues with dark blood; the thoracic and abdominal organs were very pale.

"Spleen.—Deep crimson color, firm, capsule firmly adherent, the malpighian bodies very distinct.

"Intestine.—Mucous membrane thickened, but no other marked signs of inflammation.

"Microscopical.—Kidneys, liver, and spleen showed many of their capillaries blocked with emboli formed by minute bacilli, which in some instances had passed through the vessel walls, infiltrating the surrounding tissues; in addition, kidneys showed slight generalized parenchymatous nephritis, the tubules cloudy, swollen, and filled with granular debris; the liver cells were cloudy in appearance and distorted in shape.

"Bacteriological.—Minute portions of spleen pulp, and from one of the kidney emboli, in culture at the ordinary room temperature, on sixth day showed on its surface creamy white striae or films; afterwards placed in the incubator oven showed bacillus pyocyaneus present; all the cultures after a few days emitted the peculiar odor of this bacillus, and on the addition of chloroform and evaporation to dryness blue crystals of pyocyanine were readily obtained.

"A colony from an agar-agar roll-tube culture placed in beef broth until a faint green color appeared; in twenty-four hours 0.5 cc. of this was injected into a vein in the ear of a healthy rabbit; in less than twenty-four hours the animal was unwilling or unable to move, diarrhœa set in, the hind legs became stiff, all the muscles softened, death occurring after forty hours; a post-mortem examination of this experiment animal showed small punctuate hemorrhages in mucous membrane of the stomach, none in the skin or intestines; the urine contained a small quantity of albumin.
“Cultures taken from the blood, liver, spleen, and kidneys of the same animal after twenty-four hours showed the same growth and production as those made from the organs of the child, but the growth was more rapid and durable in color; the virulence of the culture was not diminished by exposure to diffused sunlight for five hours daily during three weeks.”

Ehler reported two cases in brother and sister, eleven and twelve years, with profuse diarrhea, mental depression, and prostration, diagnosed as typhoid fever, or cerebro-spinal meningitis; on twelfth day pustular papules and bullae filled with blue fluid appeared on the anterior surface of the body and limbs, followed by ulcers with thick and pigmented edges. One of these children died, and cultures obtained from the blood, spleen, etc., showed presence of the bacillus pyocyaneus alone.

Neuman reports case of child thirteen days old, with history of enteritis, icteritis, petechiae, and hemorrhages from the mucous surfaces; the autopsy showed ecchymoses into the skin and mucous membrane of the intestines, with parenchymatous degeneration of the kidneys. Cultures from the liver and spleen proved bacillus pyocyaneus present.

Charrin, D'Arsonval, Kaufman, and Tessier, from their investigations in reference to this bacillus, claim, 1st, subcutaneous injection of its toxins causes elevation of arterial pressure in human beings; 2d, its toxicity varies with the chromogenic power of particular cultures; 3d, the suprarenal bodies are always affected; 4th, its growth is hindered by cultivation of the torula cerevisiae in the same culture media.

Ruffer claims, as an evidence of general infection by subcutaneous injection of this bacillus, the occurrence in the experiment animal of emaciation, diarrhea, muscular disorders, albuminuria, and hemorrhages.

During the coming summer a careful bacteriological investigation by our members of cases characterized by similar symptoms as those given by Williams and Cameron will not
only be of benefit from a practical standpoint, but also prove an interesting subject for the pathological section of our next annual meeting.

III.—CO-EXISTENCE OF TUBERCULOSIS AND MALIGNANT DISEASE.

During the past session, in the pathological laboratory of the Omaha Medical College, the following conditions were found present in specimens obtained from autopsies held on two men of middle age:

Specimen No. I.—(Esophagus, upper portion.—Macrosopicical.—All the coats of tube very much thickened, the mucosa covered with a viscid, grayish-black secretion; on upper surface, and parallel to its long axis, was found a grayish-black ulcer with thick and irregular edges, one and one-half inches long, one inch in diameter, extending through the mucous and submucous coats; the outer coats were enormously increased in thickness and density.

Microscopicical.—Mucosa and submucosa, especially near ulceration, were densely infiltrated with yellowish-gray masses, consisting of small round non-nucleated cells, with an occasional giant cell; some of these masses were in the form of diffuse cords more or less broken down, others possessed a distinct thin capsule of fibrous connective tissue. Special staining showed presence of tubercle bacilli. The outer coats, in addition to their normal elements, showed continuous masses and groups (not encapsulated in any instance) of small round cells with very large and distinct nuclei; between these cells in some parts were small, somewhat oval, slits or openings with no definable walls, in some of which were found red blood-corpuscles; in fact, presenting the typical conditions and arrangement found in a round-celled sarcoma.

Specimens from No. II.—On opening the abdominal cavity of this subject, the peritoneal lining of same and its contained viscera presented an almost black appearance and was thickly studded with grayish masses, both small and large, from size of
pinhead to white bean. The pyloric orifice of the stomach was very much reduced in caliber, being nearly closed by a dense ring of tissue which extended for one and one-half inches toward centre of the organ.

Microscopical.—(a.) Stomach.—Mucosa and submucosa densely infiltrated with small, yellowish masses, consisting of small, non-nucleated round cells with an occasional giant cell, the whole surrounded by a thin capsule of fibrous connective tissue; in some places the normal glandular tissue was crowded apart by diffuse yellow cords partly broken down, the muscular and serous coats were increased in thickness and pervaded in all directions by dense trabeculae of fibrous connective tissue, forming irregular spaces or alveoli containing large epithelial cells with granular nuclei, partially and in some instances completely detached from the walls of these cavities. (b.) Kidney—Numerous encapsulated yellowish masses, identical in structure with those found in stomach, principally situated along course of the blood-vessels; in addition, large round epithelial cells were found forming single layers in the medullary portion, and small groups in cortical portion of the organ; connective tissue not much increased. (c.) Mesentery—Enormously increased in thickness, infiltrated in every direction with encapsulated yellowish masses, similar to those in stomach. (d.) Pancreas—Glandular elements very much increased; large trabeculae of connective tissue, in the interstices of which were large epithelial cells with granular nuclei; very few of the yellowish masses present. (e.) Lung—Yellowish masses similar in structure to those in stomach; no epithelial cells with granular nuclei present; normal elements not much increased. Special staining proved presence of the tubercle bacilli in all of the specimens. The general shape and arrangement of the epithelial cells and alveolar spaces in which they were contained presented the characteristics of scirrhous carcinoma.
THE ROLE OF THE STAPHYLOCOCCUS PYOGENES ALBUS IN SOME CASES OF ACUTE RHEUMATIC INFECTION.

BY O. GROTHAN, M. D., ST. PAUL, NEB.

In a Journal article some time ago I reported several cases of acute rheumatic infection during the post-parturient period occurring from ten to twenty days after confinement. While the bacteriology of the reported cases was touched upon, the main object then in view was the elucidation of a practical and efficient method of treatment in such conditions.

I shall here seek to bring out a little more fully the pathology and bacteriology, with a report of only one case. It must be admitted, from a scientific standpoint, that clinical observation on the whole is rather unreliable, though, combined with bacterial findings, it holds an important place in the scale of proof upon which rests the present status of the medical science. So far as the vast majority of us are concerned, who have not the access to pathological laboratories, our work must be based on this line, and consequently of only quasi-scientific importance.

It has long been suspected, and for some time almost universally taken for granted, that acute articular rheumatism is due to a "contagium vivum;" but so far the specific organism has eluded the keen scrutiny of research. However Colin * holds forth the claim that the staphylococcus albus is the specific germ. Before even a partial acceptance of this theory can be reached, much more evidence must be adduced. At this time one can lay but faint claim to an organism being the

specific cause of any disease, unless the disease can be reproduced in the human or lower animals by inoculation. So far this has not been accomplished with respect to the disease in question. Hence the following data must be looked upon, perhaps, as of practical importance rather than tending to establish any fixed relationship between this micrococcus and rheumatism.

If you will pardon the digression, I shall here report a case which will serve the purpose of bringing us nearer to a practical understanding of the matter under consideration.

CASE.—Mrs. B., multipara, æt. 24, first seen January 8, 1895, three weeks after normal labor upon which a regular physician was in attendance. The lying-in period had been uneventful until two days before, although the lochia had been rather scant throughout. On the preceding day she was seized with severe pains in the hypogastrium, which, at times, became excruciating and extended to the back. Temperature 102½ and pulse 126. Physical examination revealed endocarditis. There was profuse hyperacid perspiration and acid saliva. Owing to former observation,* diagnosis was made of acute rheumatic peritonitis of infective character, involving mainly the peritoneum; and probably the uterus itself participated in the inflammatory process. Cultures subsequently proved that the lochia contained largely the staphylococcus pyogenes albus, with but few other organisms. The patient was subjected to a thorough intra-uterine irrigation with aluminum acetate, saturated solution, which seemed to aggravate, instead of ameliorate her suffering. She was further put upon anti-rheumatic treatment, with the result of slow improvement ensuing, until January 13, five days after first seen, the pelvic inflammation suddenly subsided as a general arthritis arose. The treatment was continued until February 4, or about three weeks after arthritic involvement. At

* See author's article on "Acute Rheumatic Peritonitis," Omaha Clinic, April, 1895.
times there was marked improvement, but upon the slightest diminution in medicine multo-articular relapses were certain to occur. On the last named date the uterus was thoroughly curetted and irrigated with a 1 to 500 salicylic acid solution and one of my drainage tubes left in place for four days. From this date on no more relapses took place and recovery was exceedingly rapid.

At time of curettement, temperature averaged 100½, with well-defined articular lesions, which subsided without further treatment. Cultures from the debris contained little else than the staphylococcus albus. In six other cases, alike in the main, yet differing in individual phenomena, where cultures were made from the uterine secretion, this organism predominated. The cultures were made on gelatine and potato media. In one case following the ordinary rheumatic manifestation, suppuration of the wrist joint occurred, and the abscess was found to contain the staphylococcus pyogenes aureus, associated with the albus.

We have conducted a number of examinations of serum from acute rheumatic patients, obtained during the active stage by blistering over infected joints. Of thirteen examinations, three demonstrated the presence of the staphylococcus albus; but whether this was simply the bringing to light of a pre-existing organism, or whether it was association with the existing pathological process, I am not prepared to state. While every antiseptic precaution was taken, yet, as White states, in speaking of the staphylococcus epidermidis albus,—which is probably a modified Rosenbach coccus,—“it is very often present in parts of the epidermis deeper than reached by any known means of cutaneous disinfection, save the application of heat.” As the staphylococcus pyogenes albus is probably the most prevalent of all pathogenic micro-organisms, its presence under these conditions cannot be said to be conclusive. At the same time Colin has found this coccus present in the blood of rheumatic patients, and it may be well not to carry our sometimes ill-befitting skepticisms too far.
In closing, I cannot refrain from the application of a practical lesson, namely, that at times rheumatism does exist as a result of local infection, and that the "materis morbi" may be the staphylococcus pyogenes albus. If this, then, be true, is it not our duty in many cases of this disease, acute or chronic, to make an effort to ascertain the "porto infectionis"? All diseases gain entrance within the human organism through a locus minoris resistantia. This may result from actual trauma, including undue or unusual exposure, disease or natural predisposition; that is to say, diminished resistance, hereditary or otherwise.

The etiological factor of rheumatism, no doubt, in the vast majority of instances, gains entrance to the human economy through avenues laid open within the alimentary canal. Therefore the treatment of rheumatism should not only be curative per se, but must embrace prevention by hindering further infection. It should not only combat pathological changes, but also aim to fortify the resisting forces of the body, both local and general.
MICRO-ORGANISMS AND DISEASE.

BY J. E. LAMB, M. D., WAHOO, NEB.

PLACE OF THE ORGANISMS AMONG PLANTS.

Mr. President, Ladies and Gentlemen:

Microbes or bacteria, as they are variously called, belong to the lowest order of the vegetable kingdom. Of the two grand divisions into which botanic life is placed—phenogamous and cryptogamous—bacteria belong to the latter. So very like both algæ and protozoa, they are to some biologists a lucid demonstration of the absence of any clear cut limits between the vegetable and the animal kingdoms. There can be no such doubt when a tree is compared with a quadruped. But these are more highly developed forms, the one in the vegetable, the other in the animal kingdom.

The scrupulous care given to the study of these microscopic plants now permits their classification quite as acceptable to naturalists as is that given to the larger plants.

Biologists who at first regarded these micro-organisms as animals named them microzoaria, from Greek words signifying "small animals." Those who regarded them as plants named them microphyta, meaning "small plants." As a compromise between these respective advocates, the French Academy of the Medical Sciences, in 1878, proposed the word microbes, meaning "small living things." While this word decides nothing as to the animal or the vegetable nature of the organisms, it is acceptable to the best neologists on its etymological basis.

Bacteria, meaning "little staff," is a name given to a group of cryptogams closely following the algæ. This order of plants was first designated by the word schizomycetes, meaning
“fungus” and “fission” because the organisms were thought to live without chlorophyll and reproduce by fission. The idea of fission was incorporated to distinguish them from moulds and yeasts. But since several species of the order have been found to possess chlorophyll and reproduce in other ways than by fission, the word schizomycetes is no longer used to designate them, though the word bacteria leaves much to be desired. As practically used in bacteriology, microbes and bacteria are synonymous terms.

Neither phenogamic nor cryptogamic plants can live without nutrition from carbonaceous material. The more highly organized plants, such as trees, are capable of digesting and assimilating some of the inorganic carbon compounds, like carbonic acid gas in the atmosphere, by means of the chlorophyll which is contained in their leaves and which alone gives them their green color. But the less highly organized plants, such as fungi, are unable to utilize inorganic carbon compounds as food, because they are not supplied with the chlorophyll of the larger plants. They must, therefore, feed upon the more easily decomposed organic compounds of carbon, such as sugar and albumin; that is, they must live on the tissues of other plants and animals.

Therefore, fungi may be defined as plants without chlorophyll, consequently cannot utilize inorganic compounds as food, but must grow only in a soil containing organic matter, which may be the dead or the living tissues of animals or plants.

Pathogenous or parasitic fungi, such as the tubercle bacillus, develop and multiply only within living organisms. Facultative fungi depend partially, obligate depend entirely, upon soil found within living organisms for their development.

Non-pathogenous or saprophytic fungi depend entirely upon dead tissues for nutrition.

Among the fungi, are three numerous classes of microscopic plants of great interest alike to the physician and surgeon:
1. The *moulds*, called flowering fungi, because they reproduce by rude flowers. Most of these plants are saprophytes, yet a few species are parasites and cause that class of dermatoid diseases called tinea, as favosa, circinata, tonsurans, syco-
sis, and versicolor. The plants are found in abundance in spots of ringworm. By dissolving this substance in ammonia the fungus is detached, and may be observed under the glass, if previously stained by an aqueous solution of iodine.

2. The *yeasts* or *ferments*, called budding fungi, because they reproduce by the simple protrusion of buds which enlarge, then separate from and develop all the functions of the mature plant. A cake of household yeast is but an aggregation of the organisms in this group. The plants forming this division are usually saprophytes, yet one species, the *oidium albicans*, growing on the mucous membrane of the mouth, causes the white spots called *thrush*.

3. The *bacteria*, called dividing fungi, because reproduction usually proceeds by division or fission of a plant into two parts, each of which possesses all the functions of the original plant.

These three divisions of microbes have no sexual reproduction analogous to that of the higher plants—no male and female organs like stamen and pistil—but propagate rapidly by *spores* and *fission*. The rapidity of increase by these processes is beyond conception. An eminent biologist has found that a single bacterium divides into two within an hour, and subdivides into four at the end of another hour. That the number derived from a single bacterium will amount to 16,-500,000 in twenty-four hours, and in five days enough bacteria to cover every ocean on the globe one mile in depth. Yet the survival of the fittest and the influences of environment have kept these prolific organisms so well in check that centuries passed before man even recognized the existence of these his microscopic contemporaries and possible ancestors.
STRUCTURE OF BACTERIA.

Each bacterium is a microscopic cell surrounded by its cellulose wall, within which is the homogeneous cell-body composed of protoplasm which presents little structure save granulations. The presence of nuclei and nucleoli is not fully settled in all cases. In certain species, hair-like protrusions called flagella, located at the poles or at the sides of the cell, are the organs of locomotion. The rapid vibrations of these cilia propel the bacterium across the microscopic field as the oars propel the skiff across the water. The organisms often perform the most elaborate series of movements—swim slowly, turn about, roll over, plunge off again, and so on till the eye tires in following them. A glass making one of these plants look as large as a pin's head, if it could be applied to him, would make a man look four times as big as Mount Washington.

SPECIES OF BACTERIA.

Bacteria include many different species of plants, each as distinct from the rest as the oak is from other trees. Nearly 300 species have been already identified and studied, but the work is still incomplete.

Bacteria cannot arise de novo, but must spring from pre-existing bacteria. One kind will not produce another kind—a bacillus does not arise from a micrococcus, nor does the typhoid bacillus produce the bacillus of tetanus.

CLASSIFICATION.

The nomenclature in bacteriology is still in a chaotic condition. Microbes are essentially polymorphous, and adapt themselves to varied conditions of existence, which influence the form taken by the organisms. Hence their classification does not yet rely on precise data, but proceeds by affirmation, negation, speculation, following one another in rapid succession, in accordance with Hegel's definition of progress "which," he says, "traverses three successive stages. The
second is the negation of the first. The last approaches the first in its form, but explains the contradiction of the first two.

In the rush of advancing science, much of that considered known to-day is relegated to the unknown to-morrow. But as enemies can be combated successfully only when their powers and peculiarities are known, we should, at least, be familiar with all that is settled concerning man’s most virulent enemies, these omnipresent micro-organisms. The most scrupulous care in their study becomes indispensable for their subjugation.

All individual bacteria have one of three shapes—glandular, cylindrical, or spiral. Hence, they may be classified into:

1. Micrococci of globular shape, like marbles. Growing in pairs, they are called diplococci; in chains, streptococci; in mass like a bunch of grapes, staphylococci.
2. Bacilli of cylindrical shape, like lead-pencils.
3. Spirilla of spiral shape, like corkscrews.

These divisions do not indicate definite species, but denote only the morphological character of the organisms, represented best by marbles, lead-pencils, corkscrews. Their better comprehension, as to function, demands qualification, as micrococcus pyogenes, bacillus tuberculosis, pathogenic, chromogenic, bromogenic, etc.

The diplococcus pneumonia is found in 90 per cent of croupous pneumonia, usually only during the "prune juice," or first stage. The principal etiological factor in pneumonia, it also stands in some causative relation with all infectious inflammations. Besides its favorite seat in the lungs, it is omnipresent in healthy mouth secretion, only requiring a break in the continuity of the mucous membrane to develop the disease.

The streptococcus pyogenes is one of the most important of the pyogenic cocci. Causing erysipelas, the microbe resides in great numbers in the lymphatic glands and ducts during the
infection. Inoculated subcutaneously into the ear of a rabbit, an erysipelatous condition soon develops and rapidly spreads from point of infection. This bacterium causes endocarditis when it grows on the valves of the heart, puerperal fever when it infects the endometrium.

The staphylococcus pyogenes aureus is found abundantly in air, water, earth, and sputum of healthy persons. Suppuration is nearly always produced by this microbe, it being found in 80 per cent of all suppurative inflammations. Brought into contact with wounds, they produce suppuration. They may even gain entrance through the uninjured skin. Garré, by rubbing these cocci into the skin of his arm, produced a carbuncle, in the purulent discharge of which he found staphyloci. This microbe grows in clusters like grapes, hence the prefix stapholo, which means "grape." It thrives at ordinary temperature without air.

The bacillus tuberculosis finds an abode in a large majority of mankind. It is probable that this microbe finds entrance into every human being at some period during life. The human tissues, as a rule, are unfavorable soil for its growth, yet one-seventh of our race succumb to its ravages. It is a small, slender rod, nearly straight, one-fourth the length of a red corpuscle's diameter.

The bacillus prodigiosus, one of the most interesting among the non-pathogenic bacilli, is familiar through legend and song—the bleeding bread, the bleeding holy wafer, etc.

The spirillum cholere, or comma bacillus of cholera, was identified by Robert Koch in 1883. The microbe is about half the size of a tubercle bacillus, is supplied with flagella, and is very motile.

HOW THE ORGANISMS ARE STUDIED.

The technique of investigating these microscopic plants is manifold. Microscopy alone is inadequate. Identification requires other tests than those afforded by the microscope.
These tests are:
1. Staining agents.
2. Appearance of cultures.
3. Reaction to heat and oxygen.
4. Pathogeny.

1. *Staining Agents.*—Watery solution of the aniline dyes penetrates the protoplasm in the cell bodies of most bacteria, yet the tubercle bacillus long eluded observation, because it absorbs the solution only when the water is reinforced by some other agent like carbolic acid or alcohol. This microbe is stained with great difficulty, but once stained, it is very resistant to decolorizing agents. Upon these facts all staining solutions and methods of staining are founded. Some operate slowly, others more rapidly.

In order to appreciate and differentiate the tubercle bacillus the following solutions and methods of use are more easy and simple to manipulate than any others with which the writer is acquainted. It is hoped they may prove as acceptable as those you are now using:

I.

<table>
<thead>
<tr>
<th>Fuchsin pulv</th>
<th>15 grains.</th>
</tr>
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<tbody>
<tr>
<td>Alcohol</td>
<td>2 drams.</td>
</tr>
<tr>
<td>Aquæ distillat</td>
<td>1 ounce.</td>
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</table>

II.

<table>
<thead>
<tr>
<th>Aquæ distillat</th>
<th>1 ounce.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquor ammonia</td>
<td>3 minims.</td>
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</table>

III.

<table>
<thead>
<tr>
<th>Alcohol</th>
<th>1½ ounces.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquæ distillat</td>
<td>6 drams.</td>
</tr>
<tr>
<td>Nitric acid</td>
<td>½ dram.</td>
</tr>
<tr>
<td>Aniline, green, to saturation.</td>
<td></td>
</tr>
</tbody>
</table>

To stain:

1. Gently press a small part of the most solid portion of the suspected sputum between two cover glasses.
2. During five minutes, place one cover glass in equal portions of solutions one and two, heated till vapor rises.

3. Rinse in water, put a drop of solution three on it, rinse again. If the mount is not a distinct green, put on another drop of solution three, wash again, dry and examine.

The use of the following will also afford gratifying results:

**ZIEHL'S SOLUTION.**

Fuchsin pulv................. 1 part.
Alcohol........................................... 10 parts.
Acid carbolic, 5 per cent. sol...100 parts.

**GABBET'S SOLUTION.**

Methylin blue....................... 2 parts.
Acid sulphuric, 25 per cent. sol...100 parts.

1. Prepare mount as above, hold high over a flame until dry.

2. Place cover-glass in Ziehl's solution five minutes.

3. Place cover-glass in Gabbet's solution one minute.

4. Dry, examine with oil immersion.

If a hurried diagnosis is unimportant, but permanent mounts desired:

1. Place cover-glass, with dried sputum, in Ziehl's solution twelve hours.

2. Hold in nitric acid, 25 per cent. solution, till brownish black.

5. Hold in alcohol five seconds.

4. Hold in water one second.

5. Dip once in two, three, and four, if color is deeper than light pink.

6. Cover mount with Gabbet's solution two minutes.

7. Dry and examine as above.

A one-eighth or one-sixth objective—in other words, the enlargement of 400 diameters, with or without eye-piece multiplication—produces a clear field sufficient for diagnostic purposes.
Alcohol mixed with fresh sputum to preserve it, coagulates the albumin, which should be softened with a two per cent. solution of caustic potash before spreading over a cover-glass. A saturated solution of borax preserves the sputum, liquefies the mucus and does not coagulate the albumin.

Most cocci take Gram's staining readily. The gonococcus, however, being an exception, will not take Gram's method, this being one of its main diagnostic features. It takes all the ordinary aniline stains.

**GRAM'S SOLUTION.**

Jodine................................. 1 part.
Potassi iodidi.......................... 2 parts.
Aque distillat.........................300 parts.

The potash is not indispensable, but added to facilitate solution.

2. **The Color of Colonies.**—If the individual bacteria in any given species be grown on a suitable soil, such as gelatine, bouillon, or potato, there results a mass or colony of these minute plants whose size, shape, and color afford essential means of differentiating the organisms, and the bacteriologist uses them for recognizing his minute plants just as the chemist uses the behavior of a given substance to identify his still more minute molecules. The streptococcus grows into light gray colonies, while the staphylococcus produces bright yellow.

It is only when growing in masses that enough color is formed to be visible. Not infrequently are these colored masses so luminous that they can be photographed by their own light when placed in a dark room.

Indeed, the color of our mischievous microbe played a conspicuous part in many of those natural phenomena which, by their lack of apparent cause, were in early times relegated to the domain of the supernatural. That wavering, cold, uncanny phosphorescent light, seen at night-time in putrid plants or by the seaside, is our innocuous microbe. The conse-
A wafer placed in the bacteria-laden air of the church edifice over night was found besprinkled with crimson drops in the morning. These crimson drops were called blood—a counterpart to the handwriting on the wall.

The legends are long and tragic of the dire calamities, unmentionable crimes, and swift retributions which the strange appearance of our chromogenic microbe was supposed to foreshadow. How many lives were sacrificed and homes destroyed through the ecclesiastical delusions—the will-o’-the-wisp and the miracle of the bleeding Host—it were useless now even to conjecture.

A recourse to the supernatural to elucidate all these natural phenomena is no longer necessary, for to-day we cultivate and study the tiny bacillus prodigiosus which made the drops of blood, the mingled green and blue phosphorescence.

3. Heat and Oxygen.—Like the larger plants, different species of bacteria require different temperatures for their growth. Most all grow well at 60° to 80° F., but the tubercle bacillus ceases to grow below 92° F.

As microbes assume very diverse forms in accordance with the nature of their environments, so also their habitat and mode of life divide them into very distinct classes.

The aerobines can subsist only when they breath the natural oxygen they withdraw from the atmosphere.

The anaerobines live within fluids and living organisms and derive the oxygen necessary for their respiration from the oxygenated substances in which they are found. To the latter class belong all microbes which provoke pathological changes when introduced into the blood.

4. Pathogenesis.—Living animal tissues afford unfavorable soil for bacterial growth. When introduced into animals a large majority produce no appreciable effect. It is now known, however, that upwards of thirty species are capable of nourishing themselves in animal tissues. No species is pathogenic in all animals, but each only in certain kinds. The anthrax
bacillus grows well in sheep, but refuses to grow when planted in dogs and cats. Hence, the behavior of a given species when inoculated into different animals is another means of differentiating the organisms.

RESULTS OF BACTERIAL LIFE.

The results of bacterial life can be better understood by reference to analogous phenomena exhibited by the larger plants. The latter elaborate from the soil and the air brilliant colors and fragrant odors in the rose, nutritious compounds in the fruits, deadly poisons in the alkaloids. But a tree is only an aggregation of cells, hence the best a priori evidence that an aggregation of these cells, called bacteria, would exhibit the same general phenomena. Such is the fact. Bacteria evolve colored products, pungent odors, nutritious compounds, poisonous substances, known as ptomaines,—leucocaines, ferments, alkaloids, toxins, toxalbumins,—which exercise a virulent influence upon the living organism, by circulating in the blood, and interfering with vital processes as do strychnine, morphine, and other poisonous products of the larger plants. These bacterial products are the result both of analytic and synthetic action of the microbes through:

1. Fermentation.
2. Putrefaction.
3. Infection.

1. Fermentation includes the various bacterial decompositions of carbohydrates, like the decomposition of grape sugar with the formation of alcohol and carbon dioxide, by the yeast plant and different species of bacteria.

Such chemical changes are caused by a nitrogenous, organic substance, either animal or vegetable, called a ferment, which acts by mere contact, the ferment itself remaining unchanged in composition and undiminished in quantity. So long as this organism is excluded, fermentation is impossible. Ptyalin is a ferment which converts starch into glucose. So are pep-
sin and trypsin, both of which serve to convert the albuminoids into peptones during the process of normal digestion,—the one in acid, the other in alkaline solution. These physiological ferments so essential to digestion are harmless in the alimentary canal, where they belong, but deadly poisons when introduced into the circulation, causing decomposition and coagulation of the blood, pyrexia, and all the symptoms of clinical septicemia. It is a ferment which makes the venom of the rattlesnake so deadly when introduced into the circulation. Like ptyalin and pepsin, it is harmless in the mouth, and may be sucked from the wound made by the snake with perfect impunity.

Certain bacteria elaborate products belonging to this class of poisons—the ferments. The cholera spirillum produces a substance which, like pepsin, changes coagulated albumin into peptone. This explains why death by cholera is so sudden, even when the comma bacillus is still only found in the intestines. Although the bacterium has not been absorbed into the blood, the poisonous alkaloid or ptomaine which it secretes is in the circulation and causes the nervous symptoms, such as cramp, which characterizes this disease. We can understand, therefore, why the introduction of such bacteria into the body is followed by violent and rapidly fatal poisoning.

Recent research tends to show that normal digestion, whether gastric, pancreatic, or intestinal, together with changes connected with nutrition and assimilation, are true fermentations; that numerous bacteria live in the digestive canal of a man in good health; that these microbes are not only innocuous, but play an active part in gastric digestion, especially the transmutation of albuminoids into peptones. Since they are living ferments, the transmutation is retarded if the organisms be eliminated. It is therefore probable that they manufacture products analogous to pepsin.

In all these phenomena of microbial life we observe a duality of action—analytic and synthetic. The microbe seems
to appropriate the oxygen in the substance to be fermented, then destroys the substance by the secretion of the fermented products.

This dual activity will be farther examined under:

2. Putrefaction.—The bacterial decomposition of albuminous compounds is called putrefaction. It is the beginning and end of that endless chain of nature, in which there is no creation, no destruction. Plants live from the soil and are devoured by animals; animals are devoured by microbes and return through putrefaction to inorganic matter, to serve anew for the nutrition of plants. The one has its birth in the corruption of the other. When that mysterious group of activities which we call life ceases to be manifested, bacteria enter and putrefaction begins in animals and plants alike.

These phenomena in putrid fermentation have a striking resemblance to those occurring in the fermentations which accompany the nutrition of animals and plants. Putrefaction may be the fermentation of necrotic tissues within a living organism, while the healthy, physiological tissues remain very resistant.

As the larger plants elaborate vegetable poisons like strychnine, atropine, etc., called alkaloids because they present certain general properties of alkalies, so the bacteria share with the larger plants the property of producing poisonous alkaloids, many of which have been identified and studied. Bacterial alkaloids have been discovered almost identical with morphine, atropine, strychnine, conine, veratrine, digitaline, and colchicine. These bacterial alkaloids have a wide range of toxicological interest, since they are formed in the human cadaver about three days after death, where their chemical reactions closely resemble those of strychnine and other vegetable alkaloids of the larger plants administered for a murderous purpose.

Indeed, it was the prosecution of some of the most noted murder trials the world has ever seen that led to the original
discovery of these microbial alkaloids in the human cadaver. You are familiar with many of the details. The prosecution endeavored to make out cases of poisoning by strychnine, conine, morphine, and veratrine, but on establishing the cadaveric origin of the alkaloids found, the prisoner in each case was ultimately acquitted.

These findings completely disproved the general conviction that alkaloids could be produced only by the larger plants, and pointed to the conclusion that microbes could elaborate in the living body the same products which they formed in putrescent tissues. In other words, that the infectious diseases produced by the microbes might give rise to the alkaloids in the diseased organism.

Such is now known to be the fact. Formed within the dead body, beginning on the third day after death, such products are called ptomaines, from “ptoma,” meaning cadaver; found in necrotic tissues within the living body, they are more generally known as leucomaines.

The term ptomaine includes three distinct classes of compounds, differing one from another in both chemical behavior and physiological effects—ferments, alkaloids, tox-albumins. Ptomaine thus used includes leucomaine. The name given to these bacterial products is unimportant, but their behavior when formed within living tissue is all important.

Putrefaction is always accompanied by the formation of ptomaines, so too, animal life, which goes on in the absence of free oxygen, leads to the formation of leucomaines, or tox-albumins, such as creatine and creatinine normally excreted by the kidneys, the arrest of which by acute nephritis, or otherwise, results in rapid and fatal intoxication or poisoning. The poisonous secretions of venomous animals are leucomaines.

Many of the pathogenic bacteria not only produce similar poisonous compounds, but some species produce several distinct poisons at the same time. The cholera spirillum
forms a poisonous ferment and an alkaloid; the tetanus bacillus an alkaloid and a tox-albumin; the diphtheria bacillus a ferment and tox-albumin.

“When the demand for oxygen within the body is augmented as in anemia and the infectious diseases, bacteria elaborate poisonous alkaloids. And it may be affirmed that alkaloids, whether formed by vegetables or by microbes, are of the same nature and everywhere derived from the same source,—albuminous decomposition in the absence of a sufficient quantity of oxygen.”

Ptomaines and leucomaines are products from both analytic and synthetic action of the microbes. In splenic fever, the bacilli which swarm in the blood abstract from the corpuscles the oxygen, and thus produce asphyxia and death. But it happens, even in anthrax, that death is so rapid that the bacilli have not yet had time to develop in the blood in numbers sufficient to produce such fatal effects. Some other cause, therefore, is required. It is found in the toxines formed by the synthetic action of the microbes of putrefaction. They are made, de novo, by the microbes, as truly as alcohol and carbon dioxide of alcoholic fermentation are made by the yeast microbes, at the expense of the tissues which they feed upon. Such microbial poisons not infrequently cause disease indirectly by the ingestion of such articles of food as raw meat, canned foods, etc., which have been fermented or putrefied by bacteria prior to ingestion. In these cases disease is caused by the toxines formed, not within the body, but within the food prior to ingestion. Such poisoning by preformed bacterial products is known as intoxication. A familiar example of poisoning by a preformed bacterial toxine is alcoholic intoxication.

3. Infection.—The bacterial decomposition of living tissues with the production of poisonous products is called an infection. The circulation of these poisons in the blood constitutes an infectious disease. An infectious disease, therefore, may
man tissues. One-seventh of the race perish from its ravages, yet a majority escape because the tissues do not permit the plants to grow.

An infectious disease, therefore, depends upon two indispensable conditions:

1. A microbe capable of producing ptomaines in living tissues.

2. Living tissues innocuous to this particular species of microbe.

The natural power possessed by animal tissues of destroying bacteria is increased by wholesome surroundings. Pasteur inoculated rabbits with tubercle bacilli. The half kept confined in cages all died of tuberculosis, while the other half allowed to run in the field suffered a loss of only one. Clinical experience accords with such experimental evidence. The best remedial agent in the treatment of phthisis is residence in a proper climate.

Not only does the power of destroying microbes vary in the tissues, but the other factor of infection—the ptomaines secreted by the microbes—presents still greater variations.

The products of the larger plants vary in quality with climate and soil. The peach grown in Florida is more luscious than the one grown in Minnesota.

Similarly the fruits of the smaller plants, the bacteria, are found to vary with the surroundings of their development. The ptomaines of anthrax bacilli growing on gelatine at 70° F. are poisonous to sheep, rabbits, guinea-pigs, and mice, but if the temperature be raised to 108.7° F., the ptomaines produced become gradually less poisonous. In ten days they are too feeble to kill sheep, though still fatal to the other animals named. In twelve days they fail to kill rabbits, though still destructive to guinea-pigs and mice. In twenty days the bacteria produce a ptomaine too feeble to kill guinea-pigs, but will still kill mice. After twenty-five days the ptomaine is so harmless that even mice escape its ravages.
Similar loss of poisonous qualities can be induced by unfavorable temperature and soil upon many other bacteria, notably those of diphtheria and pneumonia.

A comparison of different sowings or plantings of the diphtheritic microbe shows a difference in its vitality and virulent properties. Some multiply rapidly, succeeding each other up to many generations, while others only go to the second, third, or fourth generation. The organism is the same in each case, but modified by the medium in which it is developed. The activity of the plant is increased by its culture and by the vitality of the original plant which gave it birth. The microbe of diphtheria, as well as that of all infectious diseases, becomes more or less virulent according to these conditions, hence those of malignant diphtheria are more to be dreaded than those of the ordinary benign type of the disease. Developed within favorable soil, they are still more to be dreaded than those grown within unfavorable tissues. The dual nature of diphtheria, the one dependent on micrococci, the other on bacilli, as indicated by the original researches of Klebs and Loeffler, is not supported by fact. Both the symptoms and the histological lesions of this disease are in favor of its unity, and it is owing to the specific ferment and tox-albumin elaborated by the microbe that the disease is more or less severe.

If the seed plant is not healthful, if the tissues in which it grows do not furnish suitable food for its nourishment, the ferment and tox-albumin which the microbe secretes will be dwarfed or attenuated, and consequently will produce a mild form of the disease. Analogous phenomena are observed in the life history of all pathogenic species of bacteria and in all infectious diseases.

Microbes especially cultivated or attenuated are employed to confer

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on animal tissues. Inoculated into living tissues, attenuated
bacteria produce a mild attack, through which the animal acquires immunity against the disease, until the tissues regain the proper pabulum which the microbes feed upon. It is probable, though not proven, that cow-pox and human smallpox are caused by the same bacterium; that the organism finds a less favorable soil in the tissues of a cow, and growing in that animal undergoes a weakening or attenuation. Hence, when removed from the cow to the human tissues, the organism produces only a mild form of the disease. The steel coil burns with dazzling brightness in a jar of pure oxygen, but combustion of this material becomes impossible in diluted or "attenuated" oxygen as found in the atmosphere. The seed and the soil run pari passu in all the infectious diseases.

The work of making animal life immune against all pathogenic species of bacteria is one of great pecuniary value in preventing infectious diseases in the lower order of animals, and reveals vast possibilities in human prophylaxis and therapeutics.
Médical Experience Among Indians.*

By Geo. W. Ira, M. D., Santee Agency, Nebraska.

The medical department of the Indian service has been under civil service rules since March 1, 1892. Any physician desiring to enter the service, by addressing the civil service commission, Washington, D. C., will receive blank forms of application giving all necessary information and instruction. The age limitation is between twenty-five and forty-five. Examinations are held at stated times and at different points in the United States. Applicant may select time and place. As soon after the examination as papers can be examined applicant is notified by mail whether or not he has passed. If passed, applicant is then eligible for appointment and liable to be notified at any time. After appointment applicant reports for duty; he is then on probation for a period of six months. It is required of an officer under whom a probationer serves to carefully observe and report in writing upon the service rendered, the character and qualifications of such probationer as to punctuality, industry, habits, ability and adaptability.

The agency physician is required to devote his entire time and professional skill to the Indians and agency employees, use his best efforts to overcome the influence of the native medicine men, to abolish their superstitious rites and barbarous customs, to gain the respect and confidence of the Indians, and to extend his influence among them by kind treatment, exemplary habits, and prompt attention to the cases requiring medical and surgical treatment. He is not only to attend to those who call upon him at his office, but to visit them at their

*This and all the following papers were read by title only.
homes, and, in addition to prescribing and administering needed medicines, to use his best endeavors to educate and instruct them in proper methods of living and caring for health; carefully look after the sanitary condition of the agency and the schools, and promptly report to the agent any condition of buildings and grounds liable to cause sickness. He is also required to make regular visits to the schools and give brief talks to the pupils on the elementary principles of physiology and hygiene, explaining in as plain and as simple a manner as possible the processes of digestion and assimilation of food, the circulation of the blood, functions of the skin, etc., by which they may understand the necessity of proper habits of eating and drinking, for cleanliness, ventilation, and other hygienic conditions; the correct manner of treating emergency cases, such as dangerous hemorrhage, syncope, prostration from heat, etc.; form classes of the most advanced and intelligent pupils for special instruction in regard to nursing and caring for the sick, administering medicines and preparing food for invalids. Monthly sanitary reports must be made to the Indian office showing the number of cases and the nature of the diseases treated. All cases treated must be properly accounted for by recovery, death, or otherwise. Births must also be recorded. The number of Indians on a reservation varies from 1,000 to 18,000; and, of course, when a man is required to do what it would take from three to ten men to do properly, much of his work will not get the attention that it properly should, and some of the most unimportant be neglected entirely. I noticed in a recent report of a commissioner of Indian affairs, where a comparison was made of the average cost of treatment of each case reported in the army, navy, and Indian service, the army was $18, navy $22, and in the Indian service $1.25 each. My experience among Indians extends over a period of over seventeen years, and has been confined to the Omahas, Winnebagoes, Poncas, and the Santee Sioux of Nebraska, and the Yankton Sioux of South Dakota,
and differs in many respects to practice among a more civilized
people, although all of the above are considered semi-civilized.

Perhaps one of the most difficult things a physician has to
contend with on entering the service is his inability to talk
the language. He has to depend upon interpreters, many
of whom, while they understand both languages, are as igno­
rant and superstitious as the full-blood Indian, and often in­
terpret to suit their own ideas, regardless of the physician's
directions. The Indian dislikes to be questioned, consequently
it is difficult to get at the facts in the case. It is difficult to
get intelligent answers. One has often to put his questions in
many different forms before an answer is obtained, and then
you may not get a truthful one. They think a physician
should look at a patient and know all about his disease with­
out asking questions (and this before Röntgen's X rays were
ever heard of). And after you take pains with your diagno­
sis and prescription they are liable to use their own judgment
about taking it. They never hesitate to call you. It costs
them nothing except the trouble. They seldom send in the
night. If an Indian gets sick enough in the night to die
they usually let him die. A physician in the Indian service
is usually isolated and has to depend upon his own resources
almost entirely, and when assistance is needed has to utilize
whatever is in reach, Indian or white, and with the limited
supply of medicines and instruments furnished by the gov­
ernment his ingenuity is frequently taxed to its utmost capac­
ity. They are much like children, and are often very un­
reasonable in their demands. When I have time I frequently
make visits to satisfy them, when I know a visit is unneces­
sary. The present supposed-to-be wise and hopeful policy of
the Indian bureau to break up tribal distinctions, give the
Indians land in severalty, educate them, abolish polygamy,
barbarous customs and heathenish practices and to keep
whiskey from them, has by no means accomplished what was
hoped and expected of it. It has some very serious draw-
backs. When you make citizens and voters of Indians that takes nearly all authority over them out of the hands of their agent and makes him simply a disbursing officer, and they are by no means slow to find it out, and the result is, in most cases under our observation, an increase in drunkenness and debauchery. Of course for such offenses you can have recourse to the courts, but that is tedious, expensive, and unsatisfactory, as there is as yet no provision made for funds to prosecute for crimes and misdemeanor cases. So unless the injured parties are able and willing to guarantee expenses, offenders frequently go unpunished. In fact the Santees are no further advanced toward civilization than they were ten years ago, if they have not retrograded. And in my opinion they never will be until they are thrown on their own resources. My plan would be for the government to give them all that is due them and give them distinctly to understand that hereafter they must take care of themselves (root, hog, or die).

According to the many reports published at different times in the last ten years of the rapid strides of the Santees toward civilization, one would think they were almost self-supporting; that they were liable at any time to notify "Uncle Sam" that they did not need and would not accept any further assistance; but the facts are, the government is furnishing them their food, clothing, farming implements, horses, cows, hogs, seeds, houses, barns, schools, employing mechanics to do their repairing, and furnishing material, medical supplies, and a physician to dispense them, and most of the money to buy their whiskey, and they furnish the rest. One marked change, however, among the Santees for the better is the marriage relation, which I attribute to Christian civilization. When I first knew them marriage was mainly a matter of convenience, with nothing especially serious or binding about it; either party leaving the other as they thought best, many of them having more than one wife. Polygamy is now unknown, and
all are legally married and look upon the marriage relation as binding; and any that wish to be relieved from it apply to the courts the same as whites.

The diseases prevalent among Indians are similar to the whites in the same vicinity, except tuberculosis, which is much more prevalent than among the whites. I think, without exaggeration, four-fifths of the adults or those over fifteen years old die of tuberculosis in some form or other, and those under fifteen are by no means exempt from it. It seems to be hereditary, and develops as readily among the most healthy pupils in the boarding schools, with the best of sanitary surroundings and an abundance of wholesome food, as those that remain at their homes; which proves to my mind that it is not developed by their mode of life and unsanitary surroundings. A disease that is almost unknown among them is diphtheria. In all my experience I do not remember of but two well developed cases among Indians, both of which yielded readily to treatment.

Puberty is reached from the twelfth to the sixteenth year. I believe that savage life neither hastens or retards puberty, but that climate, occupation, and hereditary tendencies are the factors of greatest importance. The menopause seldom causes any trouble. The age at which it comes shows as wide a diversity as it does among civilized women. It may come abruptly or it may require several years. Marriage in most tribes is consummated very early in life,—at sixteen or under; in many cases almost as soon as puberty is reached.

The ease with which parturition is accomplished among Indian women is an interesting fact, and it is a fact that the squatting or kneeling position that they assume during labor is more favorable to muscular effort than the position with which we are familiar in the "lying-in-chamber;" and it is a very suggestive fact. So also is the total absence of puerperal disease; and I believe it to be the result of pure air and abundance of exercise, and not of antiseptics or even ordinary
hygiene. The rapid recovery and return to their ordinary duties of the Indian parturients suggest the possibility that we sometimes unnecessarily make invalids of our obstetric patients. Accidents occasionally occur, just as they do among animals, Nature's work being sometimes far from perfect. This means death to mother or child, or to both, unless an intelligence beyond that of the Indian is summoned to avert it. They have what they call midwives, but they simply do nothing, for they know nothing to do.

As an illustration, I will relate a recent experience or two. Was called in a cold night to a log hut, about 6x24, with an earth floor and shingled with the same material, one room containing five beds, with an average of three persons in a bed, room heated with a cooking stove near the center. My patient was in a kneeling position at the rear of the stove, in her ordinary clothing, on a bunch of hay with a blanket spread over it, surrounded by her attendants—three Indian women. I halted at the stove to warm my hands and take observations. In from three to five minutes the child was born and cried vigorously. They cut the cord after tying it and wrapped the child in a blanket; they then requested the woman to stand up; one of the attendants persistently holding on to the cord (I presume to keep it from getting away), not using any traction. The placenta failing to come away, they then called to the husband and directed him to stand directly in front of patient with back to her, she putting her hands over his shoulder, he taking hold of her wrists and leaning forward so as to raise her feet off the floor, and by an up-and-down motion attempted to shake the placenta out, but that did not succeed. I discovered about that time there was profuse hemorrhage. I stepped to the front, directed them to lay her down, removed the placenta, saw to the proper contraction of the uterus, and left them, very glad to get a breath of fresh air. If you are fortunate enough on such occasions to get hold of a towel or rag it is dirty; water ditto. They may
have some common soap and they may not. That, gentlemen, is the kind of antiseptic midwifery we practice among the Indians, and with no perceptible deleterious results. The above patient was up and around in a day or two, apparently well.

Again I was called, and arrived late. This was in a large tent. Found patient in usual position, on her knees, near center of tent; child born and lying on the ground, exercising its lungs vigorously; patient flooding profusely; an Indian woman standing over patient with a large tin dipper full of cold water; said Indian woman would fill her mouth with water and spray or blow it down the spinal column of patient, one mouthful after another, as fast as possible. It required more water than the modern spray producers.

The medicine man or conjurer was once looked upon with great respect and always appealed to in all great and important undertakings. But he is fast losing his influence. In fact, he is almost obsolete. I once asked a medicine man if he was ever called in case of obstetrics. He replied, only as a last resort. He said they usually left that to the women. He laughingly related a case that he was called to after all else had failed. He said the woman had been sick for three or four days; was in a tent alone, not knowing he had been called. It was raining. He took off his wet moccasins and slipped quietly into the tent, threw his moccasins on the ground with great force, and gave a war-whoop which frightened the woman and the child was born forthwith. He saw what had happened and then began to use his rattle (a gourd containing the dried seeds), and sang for a few moments, then quickly painted a turtle on the side of the tent and shot through it (the conjurer always carries his gun and rattle). He informed them the turtle had caused all the trouble, but he had killed it. That being an extraordinary case he charged two horses for his services, his usual fee being only one.

An abnormal presentation is of rare occurrence. I have never known of a ruptured perineum, and have never but
three times, in all my experience with Indians, resorted to the use of forceps. The first was a multipara with a normal presentation and roomy pelvis; but my time was limited, and I applied the forceps and delivered simply to gain time. The second was a half-breed with twins, primipara; had been in labor forty-eight hours when I arrived; normal presentation, but pains weak; applied forceps at inferior strait and delivered first child. The second was delivered in the course of half an hour without forceps. The third case was a full-blood multipara with roomy pelvis; had been in labor twenty-four hours. Found on examination face presentation with head engaged, chin posterior. I first made an attempt to convert the presentation into that of the occiput, but made a dismal failure. I then applied the forceps and delivered without any special difficulty, and without injury to mother or child. It is a rare thing for labor to interfere with their usual duties for more than a day or two at most. The case above last referred to was up and around on the second day.

The fact that pelvic disease has been treated but little among Indian women does not prove that it does not exist. Those diseases that result from infection, deformity, mal-development, and faults of circulation do exist to a limited extent, but they will usually go untreated and mostly unheeded until the suffering caused by them becomes greater and confidence in educated physicians stronger. Malignant diseases of the reproductive organs are almost unknown among Indians, which shows that neither privation, hard work, laziness, exposure, or giving birth to many children necessarily result in the neoplasms that so frequently afflict civilized women.

It is generally understood that both local and constitutional forms of venereal disease abound among Indians, but in my experience I have seldom seen the initial lesion of syphilis. But acquired syphilis never develops spontaneously. It always begins with the development of a local lesion. As Ricord graphically remarks: "Syphilis never invades the
organism without causing its gap." This gap, this port of entry, is the accident of contagion (initial lesion), which is the prelude of all others, while it is always separate from them by an interval more or less long, and which is the indispensable exordium. But the great mortality among infants and the great prevalence of glandular and pulmonary diseases among many of those that survive infancy are unmistakable evidence of the inroads that venereal disease has made upon Indian vitality.

Syphilitic dactylitis is quite common among Indians. It is a rather late manifestation which may affect either the fingers or the toes. It first manifests itself by reddening of the integument, which soon becomes tense and quite resistant. The tense condition becomes so marked that the lines of the skin disappear. A swelling manifests itself, and this varies greatly in shape and size according to the nature of the process itself and to the tissues which are involved. In all cases the enlargement is gradual and assumes marked dimensions, this increase in size interfering with the mobility of the affected member, more especially if the process is most marked about a joint, as occasionally happens. There are two varieties of syphilitic dactylitis observed in the acquired form of the disease. First we have that in which the subcutaneous tissue and the fibrous structure about joints which are involved; and second, that in which the periosteum and bone are involved, implicating other structures secondarily. There are certain peculiarities or differences to be observed in the respective implications of the fingers and toes; when the latter are implicated the entire member is included in the process, whereas, when a finger is affected by this trouble it is usually the proximal phalanx which is attacked. Some of the characteristics of syphilitic dactylitis which should be noticed include the fact that the swelling and thickening are most marked on the dorsal surface. The palmar surface shows very little, if any, changes of such a character
as to attract attention, unless it be the increase in width of the affected member. While the proximal phalanx is most often involved, the next one may share in the process, or the whole finger may even be affected. While it may be the periosteum and subcutaneous structures alone which may be implicated, cases occur in which the bones are affected, osteomyelitis or specific periostitis being present. In such cases there is a marked difference in the appearance of the affected member. In the first form described there is more or less of a fusiform shape; whereas, in the second, the phalanx has a round appearance and the diameter is quite large, giving the finger an appearance as though it had been stuck through a small lemon. It is not an unusual thing in cases of syphilitic dactylitis to observe a permanent thickening of the bone, which may remain alone or be accompanied by a compensating circular atrophy of the phalanx. In some cases of dactylitis in which bone involvement has been marked, it is not unusual to find involution take place at a comparatively rapid rate, and where there was hypertrophy atrophy sets in, which may be either circular or longitudinal, as it is no rare thing to observe necrosis in these cases. Loss of bone is apt to follow, and absorption, together with a shortening of the finger, results. This shortening is an absolute and marked one. A strange circumstance in connection with all of these cases is that little or no pain is felt, and when absorption of the bone occurs there is no ulceration of the soft parts.

Much care is necessary not to mistake cases of enchondroma of gummata or of hyperostosis for dactylitis. A critical examination should be sufficient to determine which variety of the lesion is being dealt with, as well as define the form and extent of the implicated tissues. The subjective symptoms can hardly be used as a guide, and more dependence is to be placed upon palpation in order to establish a differential diagnosis. As this trouble is a late secondary manifestation, or one showing itself at the transition period, when the deeper tissues
and structures become involved, the iodides are manifestly in order, more especially as the fibrous structures about the bones and the bones themselves are attacked. Locally, if the periosteum be thickened and much tension exist, a free and deep incision will prove of benefit. Systematic mercurial friction, however, will be found quite sufficient and effective as an aid in causing the disappearance of the trouble.

Surgery is limited to an occasional amputation, fractures, dislocations, necrosis, benign tumors, wounds, etc. In my early experience I avoided all incisions and cutting operations, so far as possible, on account of the suppuration following and the difficulty experienced in getting wounds to heal. I then thought it impossible to secure the healing of a wound by first intention on an Indian, but I have learned better. I now almost invariably get healing by first intention under antiseptic treatment, notwithstanding the subject, and almost invariably unfavorable and unclean surroundings. Healing by granulation is now the exception and not the rule.
BUSINESS MATTERS OF THE PRACTICE OF MEDICINE.

BY C. S. MINNICK, PALMER.

It is a common remark that physicians, as a rule, are poor business men. Suppose that we admit that it is true, and then let us seek the reasons for the same. Is it because the physician, as such, has no capacity for learning proper business methods? Hardly! Is it because the doctor has no business to attend to that he may not learn by experience? God forbid! The writer believes that the physician does not learn proper business methods because he is never taught them.

In the first place, the physician must be an educated man, and for that reason is commonly sent to school by his parents or friends, and after a more or less prolonged literary training, by the same parents or friends, is matriculated in medicine, and in due time a "doctor" is sprung onto suffering humanity. The student thus far has never had a single lesson in business matters. Too often he has never earned a single dollar thus far spent, and too often has spent more money obtained from his parents or friends than he was justified in doing, and has not learned the value of money, nor the proper use of it, because he never earned any by his own efforts. The doctor enters practice, and two to one he makes other drafts on his former source of supply before he becomes self-supporting. This is one type of business training that the student gets.

A second type is that in which the student gets through school partly by his own efforts and partly by the help of others, but his knowledge of business matters obtained in this way is apt to be rudimentary.

A third type of training is that in which the student gets through school by his own efforts; and this type will make a
good business man out of a raw student if anything will. Andrew Carnegie, whom you all know to be a wealthy man, says that he is thankful, first, that he had good and pious parents; and thankful, secondly, that he was reared in poverty, so that at a very early period of his life he learned well the value and use of time, labor, and money. Let the student get his education by his own efforts, and then he will learn those exceedingly valuable habits of industry and true economy that will be so valuable in after life. He will, because he must, then learn the value and use of money. By his contact with the world, he will learn by enforced study some very valuable lessons about man (i.e., human nature). If at the same time he learns to be honest; never to buy anything until he can pay the money for it; never to sign a note either for himself or any one else; never to go surety for anything or anybody, he will have learned some of the lessons that may make him a successful professional, not to say business, man.

Well, now, suppose all medical students were indigent to begin with. What then? In the first place, then there would be fewer starving doctors with families on half rations. There would be a larger actual percentage of physicians with good dear-bought education and business experience that would fit them to fight the battle of life with such ease and vigor and success that by the time they had reached fifty years they might retire from the field in comfort and affluence. I am writing of general rules. Often the student is put through school by his friends and becomes a shining light in professional and business circles (natural business talent); and sometimes the student gets through by his own efforts and is not heard of afterward; but these are the exceptions. This appears to be a statement of the conditions as they exist as regards the business training of the physician: he learns business in his youth, or he never learns it as a rule.

But what shall I say to those already within the profession
about business methods? Shall I presume to try to teach you how to conduct your affairs? Dare I venture within inner sanctuaries? Shall I venture rough-shod upon sacred ground? Spare me. But honestly, now, how many of us here would recognize a great business opportunity should it stare us in the face? If we all did recognize it, how many of us would be prepared to take the tide at its ebb and be borne along to ease and independence?

It has been said that the love of money is the root of evil; but it is not the root of all evil. Men in the pulpit have much to say on this subject. But did any of you ever see a preacher that would not take the biggest salary he could get? They attempt to get around this by saying that the call of providence is the call of Providence. Do we not read in sacred Scripture that in the parable the man who made good use of his ten talents was commended by our blessed Master? Do we not also read in the same parable about the poor knave who wrapped his one talent in a napkin and interred it?

To the younger men of the profession I would say that it might be to your advantage to devote some thought and attention to the study of business methods in your calling. Learn, if you will, the difference between the three terms, "needs," "wants," and "luxuries." Luxuries and wants are too often treated as synonymous terms. The definition of the term "needs" is quite a different matter altogether. Learn true economy if you may. But why all this talk about economy? Because it is the road to wealth. The doctor may think that because he is making money constantly that he will always have enough for his wants. Let that man look forward a little. Especially let him investigate the business methods of successful men, and let him see the incomes they derive, and from other sources than medicine. Let me say to him that there are physicians in this room that live well and pay all their expenses from their well invested hard earnings. Why should such men care if it rains or shines? Such men can have the "luxuries" of life if they "want" them. I say that
a physician needs the vigor of early manhood to lay the foundation for an easy income in the later years of physical decline.

If medical men would be as careful of their money after they earn it as they are careful of their business while earning that money, the profession would soon be placed in the wealthy class. I say to you that business is a hard study, and few men learn its lessons aright. Attorneys have business law and business methods at their finger tips. They learn it in school, in the office, and in their transactions. Merchants must know it or the sheriff calls and assumes possession of their premises.

Why will physicians, as a class, not learn it? Many of them do learn it and become independent for their pains. I often wonder why some leading points of business are not taught in our medical schools.

The slow, plodding, careful man is sure to win. Be content to get along gradually. Fortunes are not made in medicine very quickly. Great ability is not necessary, but care and thought are. You owe yourself and your family more than you owe any one else. Make that excuse for a man that owes you pay you. As long as he owes you he will hate and avoid you. Make him pay you and let him curse you afterwards if he will. Ten to one the next time he wants anything in your line he will call you. Collect your bills promptly. A good method is to employ a collector. It is a method to which the writer resorts in "bad cases." You will offend some of your patrons by this method, but they are patrons you can well afford to lose. They are the "weeds" in your garden. I find it pays to root them out. Of course the physician must dispense charity in deserving cases. Do it gladly, but let those who can, make it up to you. Be reasonable in your charges. Be careful in your work. Be attentive to your business, for Solomon said long ago, "Seest thou a man diligent in his business: he shall stand before kings; he shall not stand before mean men." Study hard to keep up with recent advances in your calling, and you are bound to succeed, even though the Creator has not blessed you with ten talents.
REPORT OF A FEW SURGICAL CASES.

BY A. B. ANDERSON, PAWNEE CITY, NEB.

CASE I.—CHRONIC OBSTRUCTION OF THE BOWELS, OPERATION, DEATH.

During the month of June, 1895, was consulted by W. M., a tinner by trade, for soreness of the bowels and diarrhoea. I found tenderness of lower bowels, not confined to one spot, but general over the lower portion.

Patient had been in rather poor health for several years, although most of the time able to work. He complained of rheumatism, hemorrhoids, and stomach trouble. At this time the bowels were moving five or six times every day, each stool containing quite a quantity of blood and mucus. No tenesmus, no fever, very little distension of the abdomen. Enjoined quiet in bed and gave various astringents, such as bismuth, salol, silver nitrate. Also used large enemas, thoroughly irrigating the large bowels. Nothing seemed to effect anything for ten days or two weeks, when the symptoms gradually subsided and the patient apparently recovered his usual health. He continued fairly well until the following fall, November, five months after the above illness, he sent for me, complaining of severe pain and constipation. I found tenderness and some griping, but no fever, and no evidence of tumor or strangulation. As the symptoms were quite moderate I gave a hopeful prognosis, and as to treatment proposed to open the bowels with salines. Small doses were given, but only a small quantity was tolerated by the stomach, and with no effect upon the bowels. These were followed by injections without result. He could only retain about one quart of water at a time. Opiates were used to control the pain, which
was inconsiderable, except when peristalsis was encouraged by the use of salines. This treatment was continued for four weeks, concentrated nourishment being given as patient could bear. Some vomiting every day, but only once, and that late in the case, was the matter ejected stercoraceous.

The pain was most severe very low across the bowels, and on the left side. At one time I thought a small sausage-like tumor could be felt in the left iliac region. At another examination I could not detect it. Very small molded stools were passed once or twice during the six weeks of illness, which showed the stricture very low in the large intestine. A rectal tube was passed for five inches, but injections through this availed nothing. The bowels became less and less tolerant of water, and the enemas were soon expelled with severe straining. During one of these spells of straining he was assured that something gave way, but as nothing passed and as no evidence of rupture followed, I thought him mistaken. However, the pain after this was in the right side instead of the left. As no progress at all was obtained by medication, he was importuned from time to time to submit to an operation; to this he finally consented. After six weeks of obstruction, much vomiting, and little nourishment, his strength, of course, was well nigh exhausted. The diagnosis at this time was a chronic stricture caused either by cicatricial contraction upon the healing of a simple ulcer, or a morbid growth of a specific or malignant character.

On December 26, one month from the time I first saw him, in the presence of the resident physicians and Dr. Henry, of Omaha, I made an exploratory laparotomy. A small tumor was found low down in the right side and was brought up into the lower angle of the wound. The tumor was dense and hard and about the size of a small orange, completely abliterating the caliber of the gut. Further exploration revealed this to be located in the descending colon just above the sigmoid. It was doubtless displaced from its proper moorings
by the severe straining, and which accounts for the feeling that something had given way and the shifting of the pain to the right side immediately afterward.

As the patient's condition forbade any attempt at extirpation of the growth at this time, an artificial anus was made, hoping to give temporary relief until a better systemic condition would justify an excision of this part of the intestine. The cause of the growth was at this time supposed to be specific, as there was no evidence of tubercle or carcinoma. However, subsequently a small piece of fine wire about one inch long was found sticking from the wall of the bowel and was doubtless the cause of the ulceration, five months previously, as well as the initial step in the morbid growth. The patient seemed to rally, hold his own for three days, and then died from exhaustion. There was no increase of temperature either during the disease or after the operation. Doubtless the wire was accidentally swallowed while at work, as he was frequently engaged in tin roofing and carried his mouth full of nails.

CASE II.—OSTEOMYELITIS.

Someone has said that the treatment of cases of osteomyelitis is a thankless task. Some very unfortunate results have followed an expectant treatment, because of a mistaken diagnosis, or because friends object to the surgeon carrying out the bold and heroic treatment necessary.

Osteomyelitis has been often mistaken for rheumatism. Nor is this very strange, as in some cases at least the pain is referred to one or more points before the disease seems to settle upon a definite site to the exclusion of others. In two cases coming under my own observation was this singular feature presented.

I was consulted by a young man with the following symptoms: High fever, pain in the right ankle, and left shoulder. Examinations revealed simply tenderness at these points with no special signs of localized inflammation. Two days after-
ward the shoulder pain was better, but a circumscribed swelling at the second sterno-costal articulation on either side with apparent fluctuation in each. Pain in the right arm, and a distinct swelling over the lower end of right fibula. At the first visit a diagnosis of rheumatism had been made which at this time had to be modified. Shortly after this an incision was made over the lower end of the fibula and a small quantity of pus evacuated. The fever subsided in a few days, as also did the trouble at the costo-sternal junction and the arm. At a subsequent period a gouge was used on the lower end of the fibula, removing quite a portion of its lower end, the disease having its origin in the medullary canal. The cause in the above case could not be ascertained. One parent has since died of tuberculosis and one sister now has the disease. The patient fully and rapidly recovered.

The unique features in the above case were the coincident joint inflammation with an increase in synovial fluid in two articulations, with a subsidence of all, the osteo-myelitis continuing to the development of pus and a destruction of the lower end of the bone.

Another case with which I was connected late in the disease was as follows: A little girl, eleven years old, was taken ill with a very high fever, severe pain in the left shoulder and right leg. Under the care of a reputable physician of large practice, the case was treated for one week as one of rheumatism. Consultation was called and conservative operations made upon the right leg; these consisted in free incisions and drainage. After several weeks, the disease making continued progress, sepsis existing to a marked degree, the entire tibia and bones of the foot being involved, the same physician amputated at the knee joint. At this time the temperature was 104 degrees and pulse 150. The temperature scarcely declined after the operation. In a few days the flaps sloughed and the general condition was discouraging indeed. The pulse ran to 160 and temperature 105 degrees, the countenance
indicating the most profound infection and exhaustion. In consultation I advised the free use of stimulants, thorough irrigation of the wound-surface with aluminum acetate, and, as soon as her condition would justify it, an amputation at the middle of the thigh, or at least through sound tissue.

It was with difficulty that the family were persuaded to give their consent to further operative measures; but as they could plainly see that death would follow inevitably any other course, they finally consented. At this time there was a swelling at the upper part of the left humerus that seemed to involve only the soft tissues and possibly the periosteum. It was only slightly tender to the touch and presented the appearance of oedema rather than an abscess. It was well circumscribed and infiltrated, and involved the anterior half of the arm from the shoulder to the insertion of the deltoid. Iodine had been applied freely to this swelling, and it was thought to be receding. The child, eleven years old, was given brandy, two teaspoonfuls every hour, and the stump was irrigated with the above solution, aluminum acetate, with the result that in twenty-four hours temperature was 103 degrees and pulse 130, with a decided improvement in facial expression and general condition. I amputated at the middle of the thigh, using thorough irrigation and free drainage. The patient bore the operation remarkably well. The next morning the temperature was normal and only reached 100½ degrees during the after treatment. The swelling on the upper arm seemed to increase, and I was assured that I could detect fluctuation, and urged that I be allowed to incise it. The parents utterly refused it. The former treatment was continued and the enlargement entirely disappeared. The child at the present time enjoys the best of health.

Interesting points.—Manner of infection.—A small abscess on the top of the head, severe pain in upper end of tibia and also in shoulder. Treated for one week for rheumatism, incision, drainage, amputation at the knee-joint, and still the
disease progressed. This was probably due to the flaps being infected where they were taken from the head of the tibia. A point worthy of notice is the effect of free stimulants by alcohol to overcome temporarily the condition of sepsis, or rather the effects of sepsis. In the above case the marrow at the point of amputation (middle of the thigh) did not appear healthy, but was dark and pulpy. In another case I should thoroughly curette this out, as advised by Wythe; however, drainage and irrigation produced good results in this case, and this is the desired end.

CASE III.—APPENDICITIS.

A report of surgical cases would be incomplete did it not contain a case of appendicitis, and I crave your indulgence while I simply refer to the case of a man sixty-five years old who suffered for four weeks with inflammation about the appendix, which finally developed into an abscess. An operation was finally consented to. Incision was made four inches long, beginning just inside the crest of ilium and extending in an oblique direction. The peritoneum was inadvertently opened, but protected and made secure by a few stitches before the abscess was drained. About eight ounces of extremely fetid pus was evacuated. On the second day portions of fecal matter were plainly discernible in the discharge. The patient hovered between life and death for a week, finally making a good recovery. I report this case as not in any way justifying the delay in operating, but showing rather how Nature sometimes protects the sacred precincts of the abdominal cavity until she has by dint of persevering prodding pain compelled the sufferer and his friends to submit to the knife. The case is also interesting, in that the patient, sixty-five years old, not only succeeded in getting this fashionable disease, but weathered through four weeks of active inflammation and survived a large appendical abscess.
ONE YEAR'S EXPERIENCE WITH APPENDICITIS IN COUNTRY PRACTICE.

BY M. D. CARTER, M. D., TOBIAS, NEB.

I have no apology to offer for reporting, in a brief manner, a number of cases of appendicitis, occurring as they have in a country practice, and bringing to recognition certain important facts relative to the saving of life in a certain class of cases and under certain peculiar conditions and surroundings, removed as they necessarily are from the conveniences of hospital services, and, too often, under conditions not in harmony with the requirement of an ideal state board of health, and never having met with any literature on the points to be presented, prior to the date of my first operation; and this, too, after a considerable inquiry in various ways, not only in this but in other states as well. I come with a message that is, as far as I know, original, and with suggestions that I trust may be the means of saving lives under similar circumstances, heretofore considered hopeless, and beg your indulgence a few minutes.

I was called April 12, 1894, to see W. J., aged 33 years, male. Early recognizing the trouble, I recommended an operation, which was refused. April 18, patient delirious, but no tumor perceptible. April 20, when death was apparent, with the consent of the wife, operation was performed under as filthy surroundings as is possible to imagine, with excellent results; patient being discharged at the end of six weeks. Surroundings absolutely filthy, and a very untidy nurse and housewife with which to contend.

Second case: L. A., girl, aged 10, American. Called May 21, 1894. Found pain, tenderness, at McBurney's point, and the usual symptoms of appendicitis were rapidly developed.
and early recognized, and operation suggested; but only after endless persuasion and after all hopes of parents for recovery of their only child had vanished, they, on June 1st, consented to an operation. The tumor by this time assumed the appearance of an overdistended bladder, when, having consent of parents, an incision was made, liberating a large quantity of characteristic, offensive pus. The surroundings were excellent and the nursing was all that could be desired. Recovery uninterrupted and perfect, case being dismissed in about six weeks.

Third case: J. B., boy, aged 14. Called June 5, in consultation. Case four or five days' duration. I diagnosed appendicular abscess; the other consultant and also the attending physician differed as to diagnosis and opposed immediate surgical interference. I was again summoned in the morning of the sixth and reluctantly made the incision, as the indications were that the abscess had already been evacuated into the peritoneal cavity, which was verified by the fact that the intestines were found lying in a large quantity of extremely offensive pus. The boy recovered the operation, but died in comparative ease several hours afterward. This being the only fatal case of the six reported occurring between April 12, 1894, and April 12, 1895. Surroundings excellent.

Fourth case: Was called July 26, 1894, to see W. B., age about 50, Bohemian. Diagnosis, probably appendicitis. On August 1st symptoms being serious, tumor distinct at McBurney's point, operation proposed and performed. Liberated a large quantity of offensive pus; appendix partially obliterated. Uneventful recovery in seven or eight weeks. Surroundings very good.

Fifth case: Called in consultation with Dr. McCleery, of Exeter, August 29, 1894, over a three or four year old boy, the doctor operating on the strength of what he had seen in two of the cases already reported, and patient made a good recovery.
Sixth case: Called by Dr. McCleery June 5, 1895, and assisted in an operation on the father of case No. 5. Good recovery.

Now, here are six cases of appendicitis obliterans occurring in the space of one year, all of which a few years ago would have died for want of an incision and an outlet for the pus, and five of whom recovered, leaving but one death, and this, perhaps, might have been averted had it been recognized and consent to surgical interference been obtained a few hours earlier.

Now, to briefly conclude: Case first proves that appendicitis occurred in the country and under the most unfavorable hygienic surroundings, with no hospital facilities and trained care, and the patient made a good recovery after operation.

Case second illustrates the reluctancy to consent to operation, even when it is the only means of saving life, and the necessity of educating the people to rely on the advice of the physician and surgeon.

Case three illustrates the fallacy of delaying in these cases, caused by the patients and his friends, and the only termination when the physician fails to recognize the trouble and apply the proper remedy. It also suggests that many cases die of inflammation of the bowels, or idiopathic peritonitis, when a simple operation would reveal an infected appendix, resulting in an abscess, as a cause of the peritonitis. It also explains the fact that the danger in transportation is too great, and that they must be treated promptly and where found.

Case four is proof of the fact that though we may not be able to always correctly recognize a disease, an exploratory incision may be made with perfect immunity, and that by the country physician, not an expert, and without the so much desired hospital facilities and attendants, and that the time is here when the country physician must be competent and willing to do, on short notice, such surgical work at least as will not permit of being carried to hospitals.
The fifth and sixth cases illustrate the rapidity that reputable physicians will see and profit by these advancements, and thereby save valuable lives who are financially, as well as otherwise, unable to avail themselves of the good hospitals and surgical skill that we all so much admire and appreciate.

The cases as a whole show, so far as I have investigated, that it is not common for the country practitioner to do such work, and that certainly a great field for life-saving can be opened in the country, and that by the average physician; and that it is his sacred duty to qualify himself to not only do these operations, but first of all to recognize them and judge correctly the class of cases that demand treatment when and where found.

We, as medical men, are on the great sea of life as a life-saving crew, and why not awake to the fact that as we recognize these ailments and apply the proper treatment we will have fewer deaths and not so many cases of inflammation of the bowels, idiopathic peritonitis, etc., outwitting our most dreaded enemy, Death, and the too well known consequences of his visit, in at least all cases of appendicitis obliterans wherever found.
PUERPERAL ECLAMPSIA.

BY CHARLES ROSEWATER, M. D., PROFESSOR OF OBSTETRICS IN THE CREIGHTON MEDICAL COLLEGE, OMAHA, NEB.

Of all the emergencies with which the physician is liable to be suddenly confronted in his daily rounds, none present a more serious aspect nor tax his self-possession and obstetric knowledge in some instances more than this. Two lives which are in jeopardy are placed in his care, and upon his prompt and intelligent action their maintenance or destruction depends. Upon his accurate knowledge of the exact nature of the conditions underlying the train of symptoms he observes depends the selection of the means for their relief. Nay, more than this, upon his careful watching over the prospective mother depends the early detection and rectification of conditions which, if allowed to remain uncorrected, would be liable to lead to the very convulsions we are about to consider.

Let us first consider what is usually understood by puerperal eclampsia. It is generally understood to include all convulsions occurring during pregnancy, labor, or the lying-in state, except such as are due to hysteria, epilepsy, or cerebral lesions.

Convulsions due to the action of certain poisons might be added to this list. Lusk* defines eclampsia as a "term applied to convulsions tonic and clonic in character, the foundation of which is laid in processes connected with pregnancy, labor, and childbed. By this definition it is intended to exclude convulsions due to hysteria, true epilepsy, and cerebral lesions, which occurrences in pregnancy are to be regarded simply as accidental complications. In eclampsia there is

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loss of consciousness during the attacks, with at first a disturbance of the intellectual faculties in the intervals, afterwards deepening in severe cases into coma.

It is a fortunate thing for humanity that these convulsions are comparatively rare, coming on, according to the general average of statistics, in one out of every 175 to 200 pregnancies. Prof. Lusk * gives their frequency as one in 500 pregnancies, but a little mathematical calculation will readily show the fallacy of this statement. He claims that in New York in a given time there were 284,000 deliveries, and of these 408 cases were recorded as having died of convulsions, or about one in 700. As only an average of thirty per cent of the women attacked by convulsions die, according to the same author, this would make the number of cases occurring in all just about as I have given it. A few years ago I called Prof. Lusk's attention to this slight error, but have seen no correction of it in his later editions.

Having shown the frequency of the occurrence of convulsions in pregnancy, let us now examine into the causes underlying this malady. Albuminuria has been found to be almost always present in such cases, and this coincidence was soon noticed, leading to the theory that eclampsia in the pregnant woman was due entirely to some kidney trouble, and a symptom simply of renal insufficiency and uraemic poisoning. This theory was accepted and upheld by some of the leaders in the profession, such as Frerich, Simpson, Braun, and hosts of others, and indeed explains a large number of the cases met with.

Soon, however, cases were reported of albuminuria in pregnancy without the occurrence of eclampsia, as well as of convulsions occurring in pregnant women who showed not even traces of albumin. The theory above referred to could not explain all cases, and pathologists soon began to look in other directions for a cause.

* Lusk, loc. cit., p. 567.
Of them all, Traube and Rosenstein were the foremost, and presented views which were soon adopted by the mass of the profession. They said that the convulsions were not due to the condition of uræmia, but rather to hydæmia; that the headaches, swelling of limbs, cardiac murmur, and poor appetite were due to the impoverished condition of the blood allied to anemia. The albuminuria was looked upon as of secondary importance, the actual outset of the convulsions being supposed to be due to an acute anemia of the brain brought about by pressure of transuded serum upon the brain substance and blood-vessels.

Lantos and Osthoff* look upon puerperal eclampsia as due to a violent reflex vaso-motor disturbance and class it as an acute peripheral epilepsy.

"In 1887 Blanc* discovered in the urine of an eclamptic woman a micro-organism, which, when inoculated into rabbits, produced convulsions. Continuing his investigations Blanc has lately found a peculiar slender bacillus, 1–2 micromillimeters in length, which also, inoculated, produces convulsive phenomena and later an acute nephritis. The blood and fluids of inoculated animals also produce convulsions. From these experiments the conclusion is reached that there are some cases of puerperal eclampsia due to an organism which causes infectious nephritis and which appears itself to generate a convulsive poison."

These theories all sound very plausible, and yet no one of them explains the occurrence in all cases of eclampsia. We must consequently conclude that there are several causes operative in producing eclamptic attacks, such as the diminished excretion of urea, the general anemic condition of the system, and a neurotic disposition of the patient. Whether there is really a micro-organism at the bottom of all this is still an unsettled question. We are to-day living in an age of bacilli

and micrococci, and every ill to which human flesh is heir is being traced to these organisms.

Case I.—On April 1, 1883, I was called to see Mrs. H. F., a primipara, in labor. She was twenty years old, of medium height, and inclined to be fleshy. Six weeks previous to above date she had had an attack of diphtheria, and for three weeks previous to confinement her limbs had been swollen and she suffered from frequent headaches. She had been in labor four hours, and was being attended by a midwife. I was sent for on account of convulsions, which set in while the head was passing through the pelvis. I found vertex presenting, os fully dilated, head well down in pelvis, pains of medium severity, patient semi-conscious. Shortly after my arrival she went into another fit, about one-half hour after the first one. She became cyanotic in the face, developed muscular twitchings about the eyes and mouth, gradually increasing and extending to the muscles of the neck and arms. She threw her arms about, rolled her eyeballs, tossed her head from side to side, wildly clinching her teeth, and became utterly unconscious. This only lasted a few minutes and then she quieted down. I applied forceps immediately and delivered her of a healthy twelve-pound baby. The placenta was delivered by expression (Crede's method), but soon afterwards she went into another convulsion in spite of having received a large dose of chloral and bromide. I now sent for Dr. M. R. in consultation, who, upon his arrival, witnessed another convulsion and gave a hypodermic of about 1½ grains of morphia. This soon quieted her and she remained in a stupor for over twenty-four hours, but ultimately made a good recovery. The urine was drawn by a catheter and found to contain a large quantity of albumin and a few casts.

Five months afterwards she informed me that she had had those "fits" frequently since the confinement and was still an occasional sufferer from headache and backache. About two years afterwards she was delivered without complications of another healthy child.
TWENTY-EIGHTH ANNUAL SESSION.

CASE II.—Mrs. B. M., a small Irish lady, well built and of healthy appearance, sent for me in May, 1889. She was at that time pregnant seven and a half months. Her husband claimed that she had pains, but as I was sick at home, I sent him to Dr. G. When he reached home he found that the supposed pains had quieted down and so he sought no further medical aid.

In June, while calling at Dr. G.'s office, I found Mrs. B. M. there. The doctor was not in and I did not wait until he returned. I was told afterwards that Mrs. B. M. did not wait nor seek other medical advice. She had gone to Dr. G. on account of headache and swollen feet. I met Mr. M. several times after that, but thinking his wife was under Dr. G.'s care did not warn him (Mr. M.) of the danger approaching. In the early part of July, Mrs. M. was taken down with labor pains during the night, and Mr. M., not finding Dr. G. at home, called in Dr. B. The latter found head presenting, patient in convulsions, and sent for Dr. B. No. 2 to aid in applying forceps. Meanwhile the people, being quite anxious on account of repeated convulsions, sent after Dr. T. When the latter reached the house he was met at the door by the nurse and informed that the patient was dead; there was no need for his services. A hypodermic had been administered for the convulsions, but the patient died one-half hour after the birth of her child.

CASE III.—Mrs. O., primipara, 31 years old, who had been subject to occasional headaches ever since reaching puberty, engaged me to attend her in childbirth, which event she expected toward the end of September. I called on her September 1st, and found the following condition presenting: Small, Swedish woman, with pale face, puffy eyelids, pale lips, coated tongue, bowels constipated, nervous temperament, feet oedematous. Patient complains of almost continual nausea, headache, and backache.

Auscultation reveals a systolic murmur at apex of heart;
otherwise nothing abnormal about heart or lungs. Abdomen not enlarged more than one would expect at this stage of pregnancy. Fœtal heart sounds distinctly audible. Vaginal examination reveals pelvis roomy; nothing else worthy of mention.

Urine is passed in small quantities, highly albuminous, but contains no casts. Assuming this to be a case of hydræmia or anemia, I prescribed

R. Pulv. digitalis,
  Ext. nuc. vom................... aa gr. viii.
  Ferri carb........................ 5 ss.
  Quin. sulph........................ 5 i.
  Ext. gentian........................ q. s.

Ft. pil. No. xxx.
Sig. One pill three times a day.

Also ordered patient to take three compound cathartic pills every third night, and to make a tea of uva ursi leaves to be used during the day as a diuretic.

In about two weeks the oedema disappeared, the headaches subsided, appetite returned, and the patient was able to rest much better through the night. The urine also contained much less albumin and was passed in larger quantities. I warned the husband of the danger ahead, and told him to report to me from time to time as to the patient’s condition. I did not hear from him again until October 14th at 1 P. M., when I was sent for. Patient claimed that pains had begun at 6 A. M., and came on at various intervals, sometimes in rapid succession, and again letting up for quite a stretch of time. I found child lying with head on right brim of pelvis. Through the slightly opened os I could feel a small string-like body, corresponding in size and feel to the funis. No pulsations could be felt in this supposed funis, but the fœtal heart sounds were distinctly audible in the left iliac region. Bowels moved this morning. Patient complains of slight headache. Feet not swollen. I directed patient to be inclined slightly toward the left side to favor engagement of the head
in the superior strait. Ordered digitalis and iron pills to be continued. 4 p. M. Os completely closed; no pains; head over pelvic entrance, but still movable. Labor did not set in on that day.

October 22d. Was called at 3 a. m. on account of convulsions. Her condition previous to my arrival was described as follows: She became very restless and nervous, and attempted to get out of bed, but after slight muscular twitchings fell down in spasms, during which the thumbs were held within the closed fist, the tongue was protruded, the eyeballs rolled about, and the patient became blue in the face and unconscious. These convulsions occurred twice before my arrival, and during one of them the husband had to push the tongue back into the mouth to prevent it being bitten. At the time of my arrival the os was probably one-half inch in diameter, pains few, far between, and ineffective.

4 p. m. Os fully dilated, head low down in pelvis, pains frequent and hard, child born without further trouble 5:30 p. m., the passage of the shoulders causing quite a tear in the perineum. Following the birth of the child the uterus failed to contract properly, severe hemorrhage ensued, and I was compelled to remove the placenta by introduction of my hand into the uterus. I then gave fl. ext. ergot and prepared to sew up the perineum.

While the second stitch was being passed patient went into a convulsion—a characteristic puerperal convulsion as described in connection with one of the previous cases. She was soon quieted by inhalation of chloroform, and then an enema containing 30 grains of chloral and 30 of bromide of soda was given. She fell into a natural sleep and awoke toward morning feeling somewhat dazed and without any recollection of what had happened.

Proper antiseptic precautions having been pursued all through the management of the case, the patient made a rapid and complete recovery with an entirely afebrile course. I saw
her on December 18th, and was informed that she had had no further trouble and was abundantly able to nurse her child.

Cases II and III illustrate beautifully what timely care will do under certain circumstances, and what will result where the early warnings of disease go unheeded and unchecked. There is no doubt but that in case II the attending physicians pursued the only course open to them, and a course which is endorsed by the majority of authorities.

The death of this patient is rather to be attributed to her passing by, unheeded, the serious symptoms which showed themselves several weeks prior to the onset of labor, and which might possibly have been relieved if taken hold of at that time. This was done in case No. III, and the result was, that when the patient did finally get the convulsions they were milder and easier to overcome.

The treatment of puerperal eclampsia may properly be divided into two distinct categories, the preventive and the curative. As the tendency toward the accumulation of effete material (especially urea) in the blood, an impoverished condition of the latter, an inactivity of the excretory functions, and a peculiar sensitiveness of the nervous system, are the main predisposing causes of puerperal convulsions, all those measures which tend to correct these various morbid conditions are the proper means to be used in preventing the onset of eclampsia.

Diuretics, diaphoretics, and cathartics, to eliminate the urea held back by the renal insufficiency; tonics, to improve the appetite and the condition of the blood; fresh air, judiciously combined with rest and avoidance of all sources of nervous excitement, are all the measures properly coming under the head of the prophylaxis of eclampsia. As will be seen at a glance at the cases noted, it is of importance to see the prospective mother from time to time during pregnancy and check in their incipiency any derangements which might occur. Examine her urine from time to time, so as to see that the
kidneys are performing their function properly. In this way derangements which might ultimately lead to serious complications may be averted by timely treatment.

The prophylactic treatment must aim at putting the patient in the best physical and mental condition possible for her safe conduct through childbirth.

The curative treatment, or, in other words, the measures to be resorted to when eclampsia once sets in, is a great field for dispute among leading authorities. In order to consider this question properly it will be necessary to discriminate between convulsions occurring during pregnancy, those occurring during labor, and those occurring post-partum.

Where convulsions occur during pregnancy, and prior to labor, opinions are divided as to whether it is advisable to immediately interrupt the pregnancy by inducing labor, or whether the pregnancy should be ignored and the convulsions simply quieted, and the case treated as I shall explain farther on. Were I to have my choice, I would prefer to alleviate the convulsions first if possible, and then, if the child has reached a period of viability, labor could be induced. The methods of induction of labor do not come within the scope of this paper, therefore I shall not go into further detail regarding them.

If the convulsions occur during labor, by all means hasten the latter by whatever measures are the most practicable in the given case. Where the head is presenting, and in proper position for delivery by forceps, the latter should be applied to expedite labor. Be careful that the uterus is thoroughly emptied, and see to it that all proper aseptic and antiseptic measures have been followed to prevent sepsis.

The treatment of the convulsions seems to be the disputed point among the leading authorities, such as Cazeau, Lusk, Fordyce Barker, Kleinwaechter and others. In the main there are four lines of treatment laid down, and as each seems to have its ardent adherers each must possess some virtue;
but inasmuch as neither has appreciably lowered the mortality from puerperal eclampsia, it seems that there is still room for improvement, and that the right method of treating this dreaded complication of childbirth is still unknown.

The one line of treatment representing the views of Cazeau, Fordyce Barker, and others, especially of the older authorities, is venesection.

"Bleed the patient freely," says Cazeau,* "drawing from 14 oz. upward. If the first venesection of 14 oz. makes no impression, wait two or three hours and draw again an equal quantity; and if this is of no avail, and you have to deal with a plethoric patient, another pint of blood may be drawn." Cazeau seems to have great faith in this procedure, and pronounces it decidedly the best. Simultaneous with the venesection, he advises the administration of cathartics and diaphoretics—castor oil, one to three ounces, or, still better, calomel, 2 grs. every fifteen minutes until it purges. If the patient cannot swallow give purgative enemata. Cazeau disapproves of the use of opiates and anesthetics, and will only allow of their use after his favorite remedies have proven unavailing.

Lusk and Kleinwaechter stand directly opposed to Cazeau in their views, the latter more so than the former, for, while Lusk allows of the use of venesection followed by narcotics and anesthetics, Kleinwaechter claims that venesection is at best only a measure to relieve the existing convulsions, but tending to favor their early return, and only weakens the patient, thus diminishing her chances for ultimate recovery.

After venesection, or independent of it, chloroform and morphia seem to be the most widely used agents in allaying convulsions and preventing their return. Chloroform should be only inhaled in sufficient quantities to allay the existing convulsions, and then a hypodermic of \( \frac{1}{6} \) to \( \frac{1}{2} \) gr. of morphia should be given. After beginning with the inhalation of

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*Cazeau and Tarnier's Midwifery.
chloroform an enema containing 30 grs. each of chloral hydrate and bromide of potassium are given, the anesthetic being suspended as soon as the effect of these remedies has set in (Lusk).

Lusk as much as condemns the use of chloroform and venesection as remedies for convulsions post-partum in the following language: "Chloroform and venesection should be employed with extreme caution, if indeed they are ever entitled to confidence at that time." * He relies mainly on the use of opium, chloral, veratrum viride, or digitalis as the special case may indicate.

Veratrum viride has had its ardent advocates for many years, but none have been more ardent in its support than Professor Reamy, who, in an article read before the American Gynaecological Association about a year ago,† cites a series of brilliant results achieved by the use of veratrum viride judiciously supported by hypodermic injections of morphia. He gives it in doses of 15 minims every hour or two till the pulse drops to below 50 per minute, and the depressing effect of the remedy becomes marked. The danger of too great depression is overcome by the timely administration of a hypodermic of morphia (⅛ to ¼ gr.).

Pilocarpin also has its advocates, having been used apparently with great success in a certain number of cases. It should, however, be used very cautiously, as fatal results have followed its use under such circumstances as to make it appear that the pilocarpin was the cause of death (Eulenburg). Kleinwaechter recommends that it be used only in the beginning of convulsions.

As has been said before, while there are numerous methods of treatment and numerous remedies, each of which has its ardent supporters, the latter have failed to reduce the mortality from puerperal eclampsia appreciably; and until this has been done it may reasonably be doubted whether we are in the right at present in our views as to the pathology and treatment of this disease.

OF WHAT USE IS SURGICAL TREATMENT IN OVARIAN NEUROSES?

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In preparing this paper it has been a task to bring its length within the time allotted for the reading of papers. The difficulty has been rather what not to say. While thinking along the lines as followed out in this imperfect dissertation, the facts and material crowded in so fast that a volume could easily have been written. I have endeavored to select from the mass of material that which seemed most essential and important. Much of the matter excluded would have rounded out many crude points, and would have added strength to the argument, but time forbade.

If I seem severe in my criticism, it is only from a desire to be correctly understood and not from any motives of personal feelings.

When we have labored along certain lines, it is necessary to stop every now and then and review what we have accomplished, in order that we may see whether good or bad has resulted; so to-day I desire to direct your attention, for a brief period, to affections with which you are all familiar.

The term neurosis, as commonly used by the profession, has an indefinite meaning. It may mean a pain, severe or slight, of a "neuralgic" character. It is often applied to irregular functional organic disturbances, as, for example, the gastro-intestinal functions may be perfect to-day, less so to-morrow, violently disturbed the next day, and normal the fourth, without any assignable cause. Neurosis may mean
emotional manifestations, irritability of temper, explosions of unprovoked grief, attacks of epileptiform convulsions, such psychical disturbances as melancholia and maniacal conditions. Ecstasy, delirium, hallucinations, and trance have been called by that convenient term. It is often applied to that indefinite symptom complex known as neurasthenia, or more popularly called hysteria. In short, we may say that no matter what the train of symptoms may have been, when it seemed impossible to find structural changes due to inflammatory process, acute or chronic, or when it could not be shown that there existed an atypical cell-proliferation in the form of a neoplasm, or other new formation, it has been the custom to speak of neuroses, or a neurotic condition. We may say, in brief, that when there has been observed pain, aberration of glandular or organic function,—psychical or mental disturbances, convulsive manifestations, without discernible organic structural changes, that much-used and much-abused term neurosis has been found of great convenience.

Under the modern system of specialism, when each organ has its special custodian, whose sole duty seems to be to stand as a guardian angel over that which he has selected and adopted, it seems clear to each specialist that this long train of neurotic symptoms are nothing more nor less than reflexes (another term used with so much delight, and no more understood than the other), beginning in that particular organ which happens to be the pet of a given specialist. There is such a strong tendency for every specialist to attempt to look into the human body through his own little speculum. The ophthalmologist, if he can find nothing visible by external inspection or ophthalmoscopic examination, discovers slight errors of refraction or accommodation, and in that a reflex neurosis, which explains that headache, the disinclination for work or pleasure. The otologist is sure to find the origin for vertigo and fretfulness in the ear. The rhinologist is positive that the dyspnoea and its accompanying train of symptoms origi-
nate in the deflected septa, spurs, thickened turbinated tissue, and post-nasal adenoids. The lung and heart specialist is inclined to ignore what the aforesaid authorities have diagnosed, for he hears through his stethoscope sounds that explain all. The gastro-intestinal authority finds matters very plain. He removes the stomach contents after giving a test meal, and with reagents and microscope, and possibly, if he be well advanced and properly equipped, he may employ the gastroscope, gastro-inflation, and the gyromele, he indicates to you, as plainly as the writing on the wall, what is at the bottom of all. The orificial specialist,—but why speak of him; he is positive, beyond all powers of argument, that all neuroses, even appendicitis, begin in the external orifices.

The gynecologist,—the Lord have mercy on his soul,—nearly one-half of the physicians of our cities are professed gynecologists, and a large portion of them never fail to trace an ache and pain to the pelvic organs. The uterus and its adnexa are centers which to their minds control every function in a woman's body. Every ache and pain is a neurosis, and when located in a region remote from the pelvis is a reflex condition. Under the head of neurosis, according to our enterprising and pushing gynecologist, is included a wide range of disorders, and, I fear, a multitude of sins.

When we view this vast subject from the standpoint of the true gynecologist (not the six weeks' polyclinic fledgeling, but I mean the earnest, honest, broad-minded, careful, painstaking, scientific gynecologist, whose specialty is the culmination of a wide experience as a general practitioner, and whose skill as a specialist is the outcome of a long and large experience at the bedside), we soon find that we must eliminate the larger portion of nervous manifestation from our consideration, as diseases originating strictly from the organs of generation which are frequently denominated as ovarian neuroses.

Under the caption of ovarian neuroses we may include all such affections as are characterized by primary pain or other
disturbances referable to the ovarian regions, unattended by inflammation or any ascertainable structural lesions.

If we adhere strictly to this definition, we will find that the vast majority of the gynecological cases that come to us are of a neurotic, nervous character. The pelvic distress and hyperesthesia, local or diffused, is, in a large portion of cases, unaccompanied by structural change; and nearly all of these cases complain of distress involving one, and, in some cases, nearly every vital organ in their bodies.

For convenience of description, in our discussion we may adopt the classification of Baldy:

1. Neuro-asthenia.
2. Hystero-epilepsy.
3. Psychoses-insanity.

The more modern, and I may say, more esthetic, and possibly more scientific appellation, neurasthenia, has largely displaced the term hysteria. The latter has become to be regarded as a reflection upon the mental balance of the sufferer, and is often believed by the laity to be a stigma not easily gotten rid of. To say that a woman suffers from hysteria, often means a forfeiture of sympathy on the part of her friends. But to designate her long and variable train of nervous and mental disorders as neurasthenia makes her an object of solicitude and the tenderest care from the side of her friends, and stamps the doctor, in the estimation of all concerned, as a skillful diagnostician and a profound physician. While hysteria and neurasthenia are described under separate heads, still when we study their symptomatology we find that both have much in common. We find in hysteria (Webber) "an almost innumerable variety of symptoms, which may be analyzed, in a general way, into signs of increase, diminution, or perversion of various nervous functions. It is commonly classed as a functional nervous disease, and has no recognizable pathological anatomy. Post-mortem investigation gives no clue to the morbid process."
For neurasthenia (James J. Putnam) we find "certain states of the nervous system of which the anatomical basis is unknown, but which is characterized on the one hand by lack of vigor, efficiency, and endurance, affecting usually a large number of nervous functions, and on the other hand by signs of active derangement, which in part seem to occur as positive symptoms, and in part are due to failure of the mutual control which the different parts of the nervous system afford each other in health."

When we make a critical analysis of the cases that come to us for treatment, we find that nearly two-thirds of them belong under the above headings. Their subjective symptoms are innumerable, their objective signs, aside from feebleness and pallor, due usually to too close confinement and inactivity, are few. Among the endless subjective symptoms, a few usually predominate and are referred to some special organ, and in these progressive days, when pelvic organs have met with such terrible "onslaughts" and have been sacrificed in and out of season, and when public attention has been so persistently directed to the pelvis, the poor sufferer, being a woman, naturally thinks of those organs which make her such. She seeks comfort and advice from the specialist, and he, being ambitious and anxious to distinguish himself, and being imbued with the idea that the culmination of all skill is in blood, seldom fails to find something in the pelvis that, to his mind, solves the entire condition and offers him opportunity for sanguinary achievements. If he does not find a laceration of cervix uteri or perineum which need repair, it is a metritis, that must undergo the ordeal of curettgement; and if not that, a "thickening" in one or both broad ligaments, which means chronic salpingo-ovaritis; and if he be an up-to-date specialist, he can invariably diagnose adhesions; or he finds adherent flexions and versions. The diagnosis having been complete, a grave prognosis made, an operation is urged as the only means of cure, and often the only possible means of saving life, for
blood he craves, and nothing short of blood will appease his craving. The frightened patient gives her consent; elaborate preparations are made; a half dozen or more colleagues are invited to witness the marvelous feat; the operator, clad in spotless gown, in his sterilized hand he holds aloft a gleaming, keen-edged knife, calls time; with a sweep or two the peritoneal cavity is open, two fingers are rapidly thrust into the sacred recesses of the pelvic cavity, an unoffending ovary and tube, a marvel of perfect anatomical form, is drawn forth and instantly pronounced cystic; it is tied off by a specially devised method, cut away, and the pedicle dropped. The same procedure is followed on the other side, and to vary the condition, and to give proof of his wonderful knowledge of morbid structure, unhesitatingly pronounced the second ovary (which really does not differ from the first) to be scirrhotic. Abdominal wound closed by a new method, dressing applied, and the time-keeper announces the startling information, seven minutes. A triumph of modern surgery and individual dexterity. Patient is put to bed, recovery uneventful, discharged, cured on the fourteenth day. Cured, did you say? By that you mean that her neurasthenic manifestations have vanished. Did you ever see one of these chronic sufferers cured in fourteen days? When Lawson Tait, only a few years ago, published his remarkable tables, of a hundred or more cases in a table, and we found ninety-eight out of a hundred cases were discharged cured, you and I, in our verdant simplicity, imagined that when he said “cured” it meant to be relieved from all pain and distress, and the departed bloom of youth had returned. And when we found that our cases had not been cured in six months or a year, and some were even worse, it slowly dawned upon us that “cured,” in published statistics, meant a survival of the surgical ordeal only. When we examined the appendages removed by the aforesaid seven minutes operation, we found that what we had been taught to be normal, unruptured graffian follicles, had suddenly, according
to the aforesaid operator, become cysts. The old sites of the ruptured follicles had become evidences of a "fibrous condition," which was proof positive of scirrhosis. The Fallopian tubes were open at both ends and otherwise so perfect as to delight the teacher of anatomy who is in search of normal specimens to demonstrate to his class. One well known surgeon, after he had removed the uterine appendages, found that what the text-books describe as sites of newly ruptured graffian follicles, as "ulceration of the ovaries." Who has not seen several pairs of such ovaries with open Fallopian tubes, with beautifully branching fimbræ, exhibited before medical societies, as a result of a half day's labor? You and I have no hesitancy in pronouncing them to be normal, and we ask, why were they taken out? The answer can always be anticipated. Why, she had ovarian neuralgia, the "cystic" and "scirrhotic" condition caused reflex neuroses.

We have often wondered why operators in comparatively small towns have such a large proportion of pus tubes among their abdominal cases. Recently we had some light thrown on this point by an operator who lives in a country district where specific infection is a rarity. Being a spectator, I saw uterine appendages, identically almost like those described in the foregoing seven-minute operation, removed in ten minutes. The operator carefully squeezed the Fallopian tube from its fimbriated towards its uterine end, and succeeded in pressing out of it a very few drops of fluid that had a very slight opaque appearance; instantly the diagnosis of pyosalpinx was made. The microscope was superfluous with a surgeon who possessed such microscopic vision.

I am convinced that if we could examine all the specimens removed from cases in the many reported series where the mortality is small, we would find a large proportion to be those of absolutely normal uterine appendages. Have you taken pains to follow the subsequent history of these cases? You will find that a large proportion, you may say the majority of them,
are not benefited. Many have been made worse. Why? If these cases had been carefully investigated, the conclusion would have been forced upon the operator that the local pain was only a local expression of a general nervous condition. In these cases we sometimes have persistent pain in the stomach, liver, heart, lungs, head, arms, and especially the legs. Why not extirpate or amputate one or more of these occasionally? But the resourceful gynecologist promptly decides that the pains in these various organs are of a reflex nature, which take their origin in the womb or ovaries. Poor maligned organs, "more sinned against than sinning."

A few years ago I had occasion to do a successful Morton's operation in the case of metatarsalgia in the left foot of a young married woman. The uterus had been faithfully painted with silver nitrate solution twice a week for several months by a gynecologist of the school of high attenuations, under the supposition that the pain in the foot and calf of the leg was a uterine reflex.

About a year or more ago I was visited by an unmarried lady who had suffered for several years from nervous debility, probably due to mental overstrain and deficient physical activity, with some pelvic pain, somewhat exaggerated during the menstrual period; she had undergone much local treatment of the form termed "uterine tinkering" by Lawson Tait. She was referred to me for operation because drugs which had been given chiefly in the form of high potencies (1 x 500,000) had not cured her—(strange when medicine fails, the knife must cure). On bimanual examination, the pelvic organs, which could be unusually well palpated, were found to be absolutely normal. Her chief complaint was gastro-intestinal disorders, obstinate habitual constipation. These had been regarded to be due to reflexes. She was advised to return to her physician, a regular (who had given her no treatment previously, but had referred her to me), sending him a written opinion. She failed to follow my advice; she sought another operator, who
promptly removed her ovaries and tubes, and collected a large fee, and discharged her cured. A few weeks ago she appeared in my office again. A nervous, fretful, emotional, broken-down woman (?). No, hardly a woman, for that which distinguished her sex and made her a woman had been taken from her, without any compensation for her loss. If her tubes and ovaries had undergone structural changes, as the result of disease, she was unsexed already, and to have removed them would have given her health; but to remove her normal uterine adnexa the surgeon is directly responsible for the aggravated neurosis. As she sat in the chair bemoaning her fate and denouncing her surgeon, she cried: “If I had only followed your advice. What shall I do? What shall I do?” I have seen many such cases, and I am sure other doctors have seen similar cases that I have operated on. My personal experience in abdominal work began when pelvic surgery, aside from the removal of large ovarian cysts, was in its infancy, shortly after the field had been opened by Beatty, Tate, and Hegar for the removal of diseased uterine adnexa. We all of us looked to these men for guidance. While their lists of cases were long ones, the information they conveyed was imperfect and meager, and referred only to the immediate results of the operation. Little or nothing could be learned regarding the ultimate outcome. We were compelled to learn much by our own experience; we had no precedents established as we have to-day. In my anxiety to relieve suffering I frequently operated on cases belonging to the class under discussion, but the ultimate outcome was usually so unsatisfactory that with accumulating experience with each succeeding year I refused to operate on cases that I would have advised surgical procedure in the preceding.

I unhesitatingly declare that all cases in which no structural changes in the pelvic organs can be made out should not be subjected to operation, and in cases where, under mistaken diagnosis, the abdomen is opened and the appendages found
to be normal, they should not be removed, no matter what the local subjunctive symptoms. The experience of such men as Gill Wylie, Boldt, Howard Kelley, Charles Noble, Baldy, and many others, has shown that no benefit can be expected, but the cases are often made worse.

TRACHELORRHAPHY.

An operation which in popularity stands next before salpingo-ovarectomy is trachelorrhaphy. A minor operation, which every tyro can do, is out of sight, and illustrates the ready credulity of the average patient. It brings the operator as large a fee as the average abdominal section, and has established the reputation of many a man as a fine surgeon who will shrink from an ordinary amputation.

Every laceration, however slight, must be repaired, upon the assertion that nerve endings are adherent to the cicatrix, which, if they have not already produced, soon will cause, a neurosis and innumerable reflexes. This operation, when done according to the indications laid down by Emmet, is useful, but as usually done is useless in four-fifths of the cases, as proven by the results.

HYSTERO-EPILEPSY.

According to Charcot and his pupils, hystero-epilepsy "is distinctly a symptom of hysteria, and in no way confounded with epilepsy, when it assumes its typical form. * * *
The seizure is usually preceded by a change in disposition, perhaps for some days, and more directly by an aura, abdominal or epigastric, which affords the patient time to seek a position of safety. The attack proper is divided into four periods: (a) the epileptoid; (b) the period of contortions and great movements; (c) the period of emotional attitudes; (d) the period of delirium." — (G. L. Walton.)

"During the intervals between the attacks the patient suffers from incomplete hysterical hemianesthesia, ovarian hyperesthesia, and other hysterical symptoms. * * * The
aura, which is in the nature of a globus hystericus, and seems to proceed from the affected ovary. The patient shrieks and falls insensible, and tonic spasms results; this is quickly followed by clonic spasms, and these are succeeded by muscular relaxation, stertorous respiration, and coma.

"The second stage (phase des grandes mouvements) consists of movements which are rhythmical or disordered, and which are sometimes violent and ludicrous. The next stage (phase des attitudes passionelle) is marked by a rapid succession of attitudes and gestures which suggest the term phase of lubricity. Hallucinations of terror, sorrow, joy, etc., follow. The paroxysms may recur frequently and may be provoked by slight pressure upon the ovarian region on certain hyperesthetic spots; sudden and firm compression of the ovary will sometimes arrest a paroxysm."—(Foster.)

Charcot and his followers believed that this affection had its origin in the womb and its appendages. This view seemed confirmed by the observation that the attacks often became worse during the menstrual period. When abdominal section became a comparatively safe procedure, surgeons did not hesitate to drag forth and remove tubes and ovaries that were usually models of anatomical perfection. Occasionally a case was benefited and sometimes cured. These were reported with all the extravagance of which the English language is capable; and many more were reported before sufficient time had elapsed to note if the case had even been temporarily benefited,—one of the blots of this progressive period in medicine, the premature report of so-called cures.

But what became of the fifty that were not benefited and not reported, but were permitted to wend their miserable way, unpublished and uncured. Hence those of us of more limited opportunities and less experience were led into the error of holding up to our distracted patients a light of hope, that burned a short while, then flickered feebly and went out. Have you ever experienced the despair that follows hope? The darkness that succeeds a dazzling light?
My own experience comprises eight cases. When we study these cases, we find in all the attacks were aggravated during the menstrual period. In seven the attacks occurred between the periods. In one only during the period. In six the attacks could be brought on by compression of one or both ovaries. In the one case where the attacks occurred during the period only, a complete cure has been effected. In one case, that of a married lady, mother of eight children, the attacks sometimes numbered two or three during an hour. After five years I am informed that she seldom has more than one convulsion during twenty-four hours, "but that they are very much milder." We see she is not cured. The chief benefit that has been derived is, that she cannot propagate any more of her kind. In the remaining six cases, we imagined for a time that they were improved, but gradually relapsed into their former condition.

When we take into consideration that some of these cases recover spontaneously, we wonder whether those which are seemingly benefited by an operation might not have recovered without one. My own limited experience is not encouraging. A consultation of recent literature, by those of large experience, is no more encouraging, and we find that the weight of opinion is in favor of surgery only in such cases where the attacks are confined entirely to the menstrual period. In all other cases it is worse than useless to operate.

Even the insane woman has not escaped the enterprising abdominal surgeon. He studied his cases profoundly, and selected carefully such in whom the mental disturbance seemed worse during the menstrual period. They were often reported improved immediately after operation, but we have been kept in the dark in reference to the ultimate outcome. My own experience has taught me that it is an exceedingly hazardous procedure to operate on man or woman who has exhibited unusual mental peculiarities. It has been my misfortune to have had four cases of post-operative insanity.
ate recovery in all the cases was uneventful. Convalescence had practically been completed when mental disturbance appeared. As I intend to describe these cases at another time and place, I will not burden you at this time with details of them. Without any evidence to the contrary, I feel that we are not justified in doing salpingo-ovarectomy on the insane woman except for organic changes, no matter how aggravated her condition during the period, if she be not perfectly sane during the inter-menstrual time. In cases where insanity occurred only during the flow, we might expect recovery after inducing a premature menopause by operative interference.

You ask why, in the face of this evidence, do men continue to mutilate women for functional disorders?

We may answer, first, inexperience and mistaken diagnosis. No man should begin pelvic work until after many years of general practice; until he has served a long apprenticeship with an experienced diagnostician and operator, so that he may avoid the pitfalls into which those of us have fallen when there were no precedents to guide us. The opportunity for acquiring diagnostic skill in our large medical centers is almost unlimited; but it requires time and patience to acquire it. The great trouble about our post-graduate teaching is, that somehow, although the opportunities for becoming proficient in diagnosis are abundant, the student returns to his chosen field with his head full of technique and not enough of diagnostic landmarks.

Second—The desire to do many abdominal sections and to show a low mortality rate in his reports. At this time nothing is more tiring and time-robining in our society meetings than to report a long series of abdominal sections, each case differing from every other in the list. A surgeon who aims to do many laparotomies always does many useless ones. Such a surgeon takes his own reputation solely into account, irrespective of what benefit his patients may derive. His policy is a short-sighted one. His selfishness predominates
in all his work. His many needless operations will in the end cost him his reputation, for which he has so zealously and short-sightedly labored.

Third—The prospects of a good fee. The man who is prompted chiefly by a fee (and we know of such) is unworthy of the confidence of his patients and his fellow practitioners. He should be relegated to that oblivion from which he came.

Fourth—The pleadings of the patient. Who can sit by unmoved when the poor sufferer, who has exhausted many methods of treatment without relief, appeals to you as a surgeon. I have often found that it required more courage to refuse an operation than to do one. Surgeons should lay sentiment aside at such a time, and look the stern facts in the face and decide accordingly.

Fifth—The fear of losing your patient; that she may go to another surgeon. Have the courage of your convictions, state them frankly and plainly, and in the end you will be the gainer; subsequent patients will place confidence in your opinion.

We have endeavored to point out what must not be done for these cases. And now, more than ever, the great question confronts us, what can we do for these unhappy beings? To go into this question thoroughly will take us beyond the scope of this paper, but you will permit me a suggestion or two.

Experience has shown us that the surgery of the present is a failure. We must seek in other directions and for other means which may offer a hope for relief. We have seen that the majority of these cases, with functional disturbances, are inactive, physically and mentally; they are anemic, have muscular atony, poor circulation, gastro-intestinal distress, especially obstinate constipation. It has been my practice for years to insist on some form of physical exercise. If the case is too feeble to do this alone, begin with the aid of an assistant, who assists in the various passive and active movements, followed by massage. Later, various forms of gym-
nastics, then riding, walking in the open air. But the difficulty has been the patient soon ceased to be interested and she fell back into her old condition. Of late I have succeeded better. I have prescribed that fascinating and popular modern innovation, the bicycle, one of the most useful machines invented in the last century. In nearly every case the patient has forgotten her medicines and her doctor, and she now goes wheeling merrily along, with new interest, new plans for life and happiness, and better health.

In this dissertation it has been my aim to call attention to some of the abuses in our profession. If I have been severe in some of my statements, they have been prompted by motives for the betterment of surgery. You have observed I have not spared myself. I have frankly spoken of my failures in the hope that my small contributions might assist us in the future to avoid a useless remedy and search along new lines. As broad and progressive surgeons, we must become, first of all, diagnosticians, not along special and narrow lines, but we must be willing to give the time to study and learn the nature of all diseases to which the body is heir, and all possible means for their proper recognition. The gynecologist especially should have a most thorough knowledge of neurology, gastro-intestinal diseases, and affections of the urinary tract. Unless we are thus prepared, we will be blunderers, groping mostly in the dark, and our therapeutics will be solely experimental. I am confident, however, that even now we have at our command the means which can and will remove from our profession the stigma of an inexact science. Much has been done for the cure of woman's ills in the last decade. We have only begun to find means for the relief from suffering in her who is the better, nobler, and kinder half of humanity—she who is man's inspiration, his joy and his hope.
REPORT OF CASE OF INTRA-UTERINE HYDROCEPHALUS.

BY IRA G. STONE, M. D., MEAD, NEB.

INTRA-UTERINE HYDROCEPHALUS OF UNUSUAL SIZE, WITH EVACUATION OF THE FLUID THROUGH THE SPINAL CANAL, FOLLOWED BY EASY DELIVERY OF THE HEAD.

On the morning of December 30th, 1895, I was called in consultation to see a case of difficult labor. Arriving at 5:30 o'clock I obtained the following history:

Mrs. D., of Irish extraction, rather under medium size, with small bones, but pelvis of fair capacity. Two normal confinements preceded the present one. At this confinement she was taken in labor on the evening of December 29th after a normal gestation, and at 2 o'clock on the morning of December 30th a breech delivery of the foetal body occurred, but the head could not be induced to descend. On examination found the foetus to be of rather small size, poorly nourished, and with contractions of both lower extremities (talipes equino varus of both feet). The arms were delivered, but the shoulders remained well up in the lower vaginal tract, with the right resting under the pubes and the left low down in the sacral concavity. In this condition she had remained from 2 to 5:30 o'clock A. M. By making strong traction on the foetal body I succeeded in stretching the neck sufficient to lower the shoulders to such an extent that an examination with the finger, though difficult, could be made per vaginum alongside the neck and up to the base of the skull. By withdrawing and reinserting the examining finger at various points I finally succeeded in carrying the examination sufficiently far to satisfy myself that the retention was due to an enlarge-
ment of the foetal head, as the finger when reaching the base of the skull was met at all points, excepting the chin, with a distension of the head, though owing to the difficulty in reaching high enough the cranial bones could not be mapped out sufficiently well to locate them and ascertain the extent of their separation.

On examining the surface of the abdomen the uterus was found to extend about two inches above the umbilicus and was filled with a semisolid substance in which nothing definite could be outlined. Its contour was nearly round, and pressure at all points over the uterine surface yielded the same degree of resistance, with no well defined hard points or projections. The even surface of the uterus as presented by inspection over abdomen; its semisolid contents, without any marked points of resistance; the enlargement of the head as felt per vaginum, together with the contractions of the lower extremities, led me to diagnose the case as one of intra-uterine hydrocephalus, and from size of uterus as presented by abdominal inspection concluded the head must contain an unusual amount of fluid. The question of relieving the woman at the earliest possible moment was imperative, as the expulsive efforts on the part of the uterus had become very feeble and her condition expressed extreme exhaustion.

Of the several methods adopted for tapping the fluid contained in the head I chose the one suggested by Van Huevel and first performed by Tarnier in 1876; that is, by reaching the accumulated fluid by way of the spinal canal. My reasons for adopting this method were based on the following facts:

First—Owing to the large size of the foetal head it could not be brought low enough in the pelvic cavity to be easily reached alongside the neck.

Second—To reach the base of the skull between the vaginal walls and the side of the trunk and neck of the child, which crowded the vagina to its utmost capacity, would have been very difficult, to say the least.
Third—The danger of wounding the maternal tissues with either a cutting or perforating instrument, and the subsequent absorption of septic material, was to be considered of no small consequence.

Fourth—The lack of the proper instruments, which is so common to the practitioner in the more remote districts. While on the other hand the advantages of tapping through the spinal canal, in this case at least, were:

1. The ease with which the fluid is reached through this hollow tube, protected on every side by the hard resisting walls formed by the vertebra.
2. The absolute safety to the maternal tissue, they being in contact with no cutting or perforating instruments, are free from the danger of accidental wounds.
3. The few and every-day instruments required to do the operation.
4. The last and most important reason for tapping through the spinal canal is the fact that the operation is wholly outside the maternal body and directly under the supervision of the operator's eye.

As to the operation, it is quite easily made and requires only a small knife and catheter. After deciding for the above reasons to reach the fluid through the spinal canal, I proceeded as follows:

Placed the woman in easy position with the foetal back well exposed and easily accessible. Then made a transverse incision about two inches long across the spinal column as near the external parts of the mother as convenient. This incision was carried down between the spinous processes, and in this case was located below the center of the scapula. Then an incision was made parallel with the spinal column, and about the same length as the first, being made directly over the ends of the spinous processes and carried downward. After making the incision, the flaps were turned back on either side down to the spinal column, and then the posterior segment of
one of the dorsal vertebra was removed to facilitate the entrance of the catheter. Having with me only a soft rubber catheter, I found it too flexible to force its way through the canal, so withdrew it and placed the end of a uterine sound in the eye of the catheter and had no difficulty in passing it on into the foetal head, and as soon as the catheter entered the head a flow of almost transparent fluid occurred and continued until sixty-four ounces had been drained off. About this time uterine contractions became stronger again, and by moderate traction on the foetal trunk, aided by suprapubic pressure, the head was delivered, still containing considerable quantity of fluid that had not passed off through the catheter. Placenta was delivered in due time and the patient made an uneventful recovery. The fluid had a specific gravity of 1006 at the body temperature, and well marked alkaline reaction. Beyond the specific gravity and reaction no analysis was made.

In reporting this case I have two objects in view: The first is to point out the advantage of entering the cranial cavity by way of the spinal canal over that of tapping through some point at the base of the skull, gaining access thereat by way of the vagina. These points have already been set forth in the body of this report, and I need here only mention the fact that this method presupposes a case of head last labor in which it is necessary to draw off the hydrocephaic fluid to complete the labor. The second point which I wish to bring out does not necessarily belong in this report, yet I will endeavor to present it from the fact that the condition of which I wish to speak was present in this case, and, taken into consideration with the other evidences, aided me in making a diagnosis of intra-uterine hydrocephalus. The proposition is this, that congenital contractures of the extremities are due to an intra-uterine irritation located somewhere in the cerebro-spinal tract.
METAPLASTIC TUMOR; SARCOMA OF OVARY; TUBERCULAR PERITONITIS; OVARIAN CYST.

BY BYRON B. DAVIS, M. D., OMAHA, NEB., SURGEON TO Immanuel Hospital.

The cases which I wish to bring before the society fell into my hands at about the same time and were in Immanuel Hospital together. Each has some point of interest which merits a few minutes consideration.

CASE I.—Myo-Fibroma of the Uterus Containing Bone.—Mrs. N., aged 42, married twenty-three years, has had eight children; five at full term, living; one at six months, dead; one at seven months, dead; and the last one at seven months is living, aged fifteen months. An abdominal tumor was first noticed during her first pregnancy, twenty-two years ago. It rapidly reached a large size and has not grown much since. The menses are regular and painless, but for a year she has been disabled and kept in bed two or three days of each week by a severe aching pain, through abdomen and back. In the intervals she is free from pain and feels well.

Examination.—A strongly built woman, of medium height, with an abdominal enlargement suggestive of full term pregnancy. A hard, movable tumor, somewhat lobulated, was found, extending to two inches above the umbilicus. The uterus moved with the tumor and the sound passed in to the depth of three and one-half inches. Operation was advised and agreed to.

Operation.—Dr. Detwiler assisted and Dr. Driver, the house surgeon, gave the anesthetic. Ether was first used, but after ten minutes there was so much accumulation of mucus
in the bronchi and such alarming cyanosis that chloroform was substituted and the anesthesia from that time was uneventful. As a preliminary to the abdominal operation the vulva and vagina were thoroughly scrubbed with soap and water, followed by bichloride. The cervix was then dilated, the uterus curetted and packed with a strip of iodoform gauze. This procedure is carried out in all my hysterectomies to minimize the chief danger in this operation, ascending infection from the vagina. The abdominal incision extended from near the pubes to the umbilicus. The tumor was found to have its origin in the anterior wall of the uterus and to have no pedicle. Hysterectomy was done by the Chrobak or Goffe method, the chief point of which is in making an anterior and a posterior flap and securing the uterine arteries before amputating through the neck. It is almost bloodless and obviates the necessity of temporary elastic constriction. After removal of the mass the mucous membrane of the stump was seized and trimmed out, and the cavity cauterized with a drop of pure carbolic acid. By means of buried continuous catgut sutures, sterilized by heat, the stump was next closed in and then covered by the peritoneal flaps, the whole pelvic cavity now presenting a smooth surface of peritoneum. Convalescence was uneventful, the temperature never rising above 99.6 degrees, except on the third day, when it reached 100.4 degrees, due evidently to distress produced by an enema. The bowels moved on the third day, and after the fourth day the pulse and temperature were normal. Sat up on the fourteenth day and left the hospital on the twenty-second day.

Examination of Tumor.—The weight of tumor and uterus was thirteen pounds. On cutting through the growth after its removal the knife came upon a substance like bone. It was about the size of a goose egg, situated almost exactly in the center of the tumor. It was found histologically to consist of a shell of true bone enclosing calcareous matter in its center. The remainder of the tumor was found to be a myo-fibroma.
It was the existence of one tumor within another which led me to bring this case before the Society. It had never been my fortune to meet with such a condition before and it was thought that others might be interested. Calcareous matter, mere degeneration, is frequent; but this is transformation, or, as Ziegler and Delafield express it, a metaplasia. The pathologists generally do not mention this phenomenon. Delafield dismisses it with less than a page, and Ziegler gives a fairly complete description. In his seventh German edition he says: "The metaplasia of connective tissue is to be distinguished equally from simple degeneration and from the 'process of growth.' In the first, no new tissue is formed, but the old perishes; in the second, new growth originates from the multiplication of cells. Metaplasia stands, as it were, on the middle ground between the two. New tissue is indeed formed, but cell-proliferation is lacking, or at least is not apparent." Ziegler concludes that metaplasia is a true metamorphosis.

Cells of one germinal layer cannot be transformed into cells of another germinal layer. One type of connective tissue can, by metaplastic change, become another type, but it is still connective tissue. The same is true of epithelial tissue. Sometimes the columnar epithelium of the endometrium is transformed into squamous epithelium. In this case the muscular or fibrous tissue, one form of connective tissue, was transformed into bone, another form of connective tissue.

Case II.—Sarcoma of the Ovary.—Mrs. M., aged 20 years, married, was referred to me by Dr. Butler, of Beaver City, with the following history: Never pregnant; good family history. For over a year has been falling off in general health, and for the past eight months has been menstruating every two weeks, copious, and preceded for nearly a week by intense abdominal pain and shortness of breath, evidently due to gaseous distension. Has lost ten pounds in weight during the last three or four months.
Examination.—A spare brunette, with a countenance indicative of suffering. Abdomen enlarged to what we expect at the middle of pregnancy. External palpation discovers a hard, nodulated, pelvic tumor extending half way from the pubes to the umbilicus and well out into each iliac fossa. On bimanual examination it was found to extend well down to the sides and behind the uterus, the latter being well forward but apparently within the mass. The diagnosis of uterine fibroid with the possibility of sarcomatous degeneration seemed a natural one. It was also deemed probable that a nodule on the left side was intra-ligamentous and perhaps one on the right side.

Operation.—Dr. Brown assisted and Dr. Detwiler gave ether. The usual sterilization of the vagina, curettage, and packing of the uterus were done. Then the patient was put into the Trendelenburg position and an incision made from near the pubes to the umbilicus. The fundus of the tumor was found to be intimately adherent to many coils of small intestines by means of very vascular adhesions, many of the arteries varying in size from that of a slate pencil to that of a lead pencil. Very carefully one by one these arteries were ligated double by means of catgut and cut between,—the raw surfaces left on the coils of the intestine being covered by peritoneum. It was now found that the sigmoid flexure and upper portion of the rectum were closely adherent to the posterior part of the tumor by similar highly vascular adhesions. They were so intimate and the parts so inaccessible that for a time the difficulties seemed insurmountable. At last, by dint of hard work, using many ligatures and loosening where possible with the finger, the tumor was freed from its posterior attachments, though the hemorrhage and general oozing were great, and the patient's pulse at this time was reported as very weak and 144 per minute. Now, for the first time, the tumor could be examined more closely and it was found not to spring from the uterus, but from the left ovary. The uterus
was anterior to the growth and in a groove, the tumor, after prolapsing into Douglas' space, having grown around it and become adherent to the posterior wall. The patient being now in an almost pulseless condition, the growth was tied off and separated from the uterus as quickly as possible. The chance of recurrence would doubtless have been lessened had hysterectomy been performed, but the condition of the patient was desperate and it was desired to get her off the table alive. The right tube and ovary were in a perfect condition and were not molested.

The very bad laceration of the walls of the sigmoid flexure was repaired by a rapid continuous suture of fine silk. The mucous membrane was nowhere torn through, though in several places it was laid bare, the other coats of the bowel having been lacerated. The tendency for the free oozing of blood and the danger of a fecal fistula influenced me to introduce a Miculicz drain, and the upper portion of the abdominal wound was quickly sutured with silkworm-gut. Large doses of strychnine and digitalis had a favorable effect and within three hours reaction was fully established. There was never any abdominal distension from gas, and the bowels moved naturally on the third day. The Miculicz drain was removed on the fourth day and a small wick of iodoform gauze substituted. Patient sat up in three weeks and left the hospital the thirty-second day, with a good appetite, increased weight and feeling well.

Was the error in the diagnosis in this case avoidable? In the light of the relationship of the parts found at the operation it does not seem possible that the real condition could have been determined beforehand. Other men in whose diagnostic skill I have great confidence arrived at the same conclusion and were no less surprised at what the operation revealed. The surrounding of the uterus by the tumor, the adhesions, the metrorrhagia, all gave countenance to the diagnosis of a uterine tumor. The microscope showed the
growth to be a fibro-sarcoma, spindle cells and large round cells predomination. Its weight was five and a half pounds.

Case III.—Tuberculosis of Endometrium, Tubes, Ovaries, and Peritoneum.—Mrs. B., aged 29, married seven years, never pregnant, was referred to me by Dr. McClanahan, her family physician, with the following history: With the exception of menstrual pain, had not had any serious illness until four years ago, when she had an attack of peritonitis, of which she almost died. Has had several attacks of pelvic inflammation since, the last occurring seven weeks ago and confining her to her bed for four weeks. She has also, during the past four years, suffered from pain in the right lower extremity corresponding with the distribution of the sciatic nerve. Crutches have been necessary much of the time as an aid to locomotion.

Examination.—Bimanually two masses were found in Douglas’ pouch to either side of the median line. Drs. Brown and McClanahan examined her at the same time, and we were all agreed that her continuous and prolonged invalidism, with no relief from any form of palliative treatment, rendered an operation imperative.

Operation.—Dr. Ewing Brown assisted, and Dr. McClanahan give ether. The uterus was first thoroughly curetted, a large amount of soft friable granular material being scraped away. Next a four-inch median incision was made and a coil of small intestine found adherent to the anterior abdominal wall. As soon as the cavity was entered, the parietal and visceral peritoneum were found to be thickly studded by military tubercles. Absolutely no ascitic fluid. The fundus of the uterus and other pelvic contents were roofed in by a veil of exudation and coils of adherent intestines. These were carefully separated and on the left side of the fundus what was supposed to be the left tube was found, but when followed away from the uterine cornu it was found to curve downwards and backwards into and across Douglas’ cul-de-sac and
the other end to come out from the right cornu. It was then more carefully traced and found to be the right tube, elongated and much thickened, extending through posterior adhesions to the left side, its fimbriated extremity being adherent to and, so to speak, melted into the left tube near its uterine extremity. The right ovary was found imbedded in adhesions in Douglas’ pouch and it and the tube ligated and removed. The left tube was now traced and found to be intimately adherent to the upper part of the rectum in a mass of extremely dense adhesions. In loosening it, although most painstaking care was used, an opening was made into the lumen of the rectum large enough to introduce the tip of the forefinger. This was carefully closed by means of Czerny-Lembert sutures. The left ovary was a disorganized mass in Douglas’ pouch found to the left of the right ovary, imbedded in exudation. The pelvic cavity was next flushed out with hot sterilized water. For the same reason as in Case II, a Miculicz drain was carried down to the bottom of the rectouterine space, and the upper part of the abdominal wound united by silkworm-gut sutures. Stood the operation well, there being only slight shock. Passed gas per rectum on the second day, and bowels moved nicely in response to a small enema given on third day. There was no gaseous distension at any time. Highest temperature reached was 100.8 degrees, though pulse was rather rapid and irritable for the first week, but no more so than has occurred before when no operation had been performed. The Miculicz drain was removed on the fourth day and a rubber drainage tube substituted. Wound at site of the drain was healed on the eighteenth day. Allowed to sit up on the eighteenth day. Gained strength rapidly and at once found that the right lower extremity was freer from pain than it had been for many months.

The twelfth day after the operation Dr. McClanahan began treatment by the daily injection of aseptolin. He has kindly consented to discuss her progress under this mode of treat-
ment. Patient left the hospital on the thirtieth day. The scrapings from the endometrium, the tubes, and the ovaries were carefully prepared and examined microscopically. Tubercles and tubercle bacilli were found in all the sections examined. I did not suspect, and neither of the other gentlemen interested believed, that tuberculosis was present until the abdomen was opened. Dr. McClanahan had previously considered the possibility of tubercular peritonitis, but rejected it from the fact that there was no ascites, no enlarged superficial abdominal veins, no enlarged glands, and no suspicion in the family history. According to Penrose, tuberculosis of the Fallopian tubes is much more frequent than is generally supposed. In fifty-two cases of inflammatory disease of the uterine appendages, nine were found to contain tubercles. In the case here reported there is only one way in which I can see that the nature of the disease could have been recognized before the incision. A curettement of the uterus and a careful microscopic examination of the products of the curette would have revealed the presence of tuberculosis, but even that would not have suggested that the disease had reached the peritoneum. The question which now naturally arises is, Where was the primary infection? There can be but little doubt that in most of these cases the tubercular endometritis is the primary lesion, and there is an ascending infection to the tubes, ovaries, and peritoneum consecutively. This was the probable order in this case, but I see no means of demonstrating it. Many cases of tubercular peritonitis in the female probably arise in this manner. Whenever a case is found where tuberculosis of the peritoneum or of the uterine appendages is suspected an examination of the products of the uterine curette is of value. If tubercular endometritis is found it makes the diagnosis almost certain; but failure to establish the presence of the disease in the endometrium would be only of negative significance.

CASE IV.—Multilocular Ovarian Cyst, weighing forty-
seven pounds.—Mrs. L., aged 56 years, widow. Has given birth to ten children; no miscarriages. Leucorrhoea since the birth of her first child. Backache and dysuria for ten or twelve years. Menopause was passed three years ago. Fifteen months ago first noticed an abdominal tumor, and it has been growing rapidly since, but without pain. It has now reached a great size, obstructing respiration and causing much irritability of the heart. Has been emaciating rapidly, and for the past month oedema of the feet and legs has been present.

Examination.—A large framed, much emaciated woman, with an immense fluctuating tumor filling the abdominal cavity almost to bursting. Flat percussion note everywhere, except in flanks and near ensiform cartilage. Girth at umbilicus 53 1/2 inches. Distance from symphyses to umbilicus, 12 inches; from umbilicus to ensiform cartilage, 13 inches. An attempt was made by a physician a few weeks ago to aspirate, but the fluid was too thick to run. Many superficial veins are to be seen over abdomen. Temperature ranges from 99.6 degrees to 100.4 degrees; pulse from 112 to 120. A small amount of albumin in the urine, but no casts.

Operation.—Dr. Detwiler assisted and Dr. Liliedahl gave ether. Abdominal incision five inches long. The tumor was found adherent to the abdominal wall for some distance around the track of the aspirator. The contents were gelatinous, and it was necessary to thrust in the hand and break up the hundreds of small cysts of which the tumor was made up. The external wall of the tumor was very friable and had previously ruptured, and much of the viscid gelatinous substance was found adhering closely among coils of intestines in all parts of the abdominal cavity. The omentum had the appearance of gelatine and was adherent to the tumor. About one-third of the omentum was ligated and removed. The tumor had its origin from the left side by a narrow pedicle and was easily removed. The abdomen was then flushed by pouring in pitcherful after pitcherful of hot normal salt solu-
tion, which was churned around among the intestines by means of the hand introduced into the cavity. All was then made dry by wiping with sterilized gauze. The parietal peritoneum was much thickened and the visceral peritoneum was red, thickened, and injected, presenting the appearance usually found in cases of chronic peritonitis. At the close of the operation the pulse was 108, and neither pulse nor temperature ever rose again as high as before the operation. No pain at any time. Bowels moved the third day in response to a small dose of Epsom salts followed by an enema. The stitches were removed the eighth day and the abdominal wound found to be healed. It is now the thirteenth day and the patient is sitting up.

Examination of Tumor.—The contents of the cysts and the cysts themselves were saved and found to weigh forty-seven pounds. In view of the very rapid growth and the gelatinous contents a suspicion of malignancy arises. The cyst walls were carefully examined with the microscope, and found in many places to be lined by a true mucous membrane, the epithelium being of the columnar variety. Some portions of the walls present a glandular structure. There is little question that the growth should be classed as an ovarian adenoma. Bland Sutton says of this form of growth: "The malignancy of ovarian adenomata requires careful investigation. Evidence is accumulating in favor of the view that rapidly growing adenomata of the ovary may, if the loculi rupture, infect the peritoneum. In some isolated cases there is reason to believe that the growth recurred in the pedicle."

The future history of this case is of especial interest because of the following facts: (1) The very rapid growth; (2) some of the cysts having previously ruptured and discharged their contents into the general peritoneal cavity; (3) the bad condition of the omentum; (4) the presence of columnar epithelium and glandular structure in the cyst walls; (5) the imperfect knowledge still existing of the malignancy or benignancy of this form of neoplasm.
THE EMBRYOLOGY OF UNDESCENDED TESTICLE AND CONGENITAL HERNIA, WITH TREATMENT.

BY CHARLES C. ALLISON, M. D., OMAHA, NEB.

A study of the embryology of monorchidism and congenital hernia is a practical aid in determining upon a plan of treatment. The relations of sac and cord can be more concisely grasped by looking to the migratory history of the testicle. Developed in the post-peritoneal lumbar region, it descends about the sixth month to the internal ring and normally reaches the scrotum about the eighth month. Before this, a pouch of peritoneum (*processus vaginalis*) has descended into the scrotum, carrying portions of the internal oblique and external oblique muscles, viz., cremasteric and spermatic fascial tunics. This pouch becomes shut off from the abdominal cavity and forms the proper covering of the testicle. The gubernaculum testis, attached inferiorly to the scrotal integument, passes upward through the inguinal canal and rings to the lower part of the epididymus. When the processus vaginalis is formed the gubernaculum lies behind the serous sac, and the descent of the testicle is accompanied (or caused) by a shortening of this fetal cord, which guides the testicle into the scrotum, hence this organ reaches the posterior part of this peritoneal pouch, which is thus invaginated from behind, and the testicle and its proper (spermatic) cord are covered by the shut sac of peritoneum, yet they are without its cavity. This point must be borne in mind particularly in our estimation of tissue relations in congenital hernia when the incomplete closure of the vaginal process in the canal leads to
the same relations of cord and sac that is normal between testicle and tunica vaginalis,—indeed the cord is intimately attached usually to the posterior part of the neck of the tenuous sac, and the separation is often most tedious.

Monorchidism or cryptorchidism, or the absence of one or both testicles from the scrotum, is suggestive of an arrest in descent of these organs,—yet they may be in the thigh or perineum,—their most common location being in the inguinal canal, or just within the external abdominal ring, the right side leading in frequency. The greater frequency of congenital hernia on the right side may be ascribed to this embryological cause. The retained testicle is generally histologically primitive, it may be degenerated, and when within the rings or canal it is from pressure, sometimes sufficiently painful to warrant removal. The recurrent traumatisms, furthermore, to an undeveloped organ, invite an arrangement of cells, malignant in character to this degenerated embryonic matrix.

The treatment is palliative and operative. The former includes gentle intermittent traction to the testicle with a view to elongating the cord and placing the testicle below the pubic arch. A truss may be applied when the testicle can be drawn below the external ring,—this is the proper line of treatment when congenital hernia and partially undescended testicle exist. The Rorick truss, fitted with a sympathetic and an air pad, is most appropriate. The operative treatment should be applied when the above measures fail, when pain is a prominent symptom, when degenerative changes in the testicles are apparent, and when mechanical support fails to improve the associated hernia. The management of the complicated hernia is not such an unsettled question now as formerly.

About one person in twenty-three suffers with hernia of some variety. In males, one in fourteen, and of these, 96 per cent is inguinal. The difficulty in determining the congenital nature of hernia makes it impossible to say what per cent is of this type, but Berger (Universal Medical Journal,
December, 1895) says that about one-half may be counted as congenital. The frequency of this kind of hernia in childhood and its comparative rarity in adolescence points towards its disappearance with non-operative measures, yet the safety of operative steps taken for its cure when persistent, or when associated with an inguinal testicle, or its incidental repair when the testicle is diseased, leads to the claim that the operation is justifiable in many cases. The features of the operation do not differ from those of transplantation of the cord, employed by Bassini,—yet careful separation of this cord from the sac is followed by removal of the upper portion of the sac, leaving just enough to cover the testicle, which should be covered by a purse-string suture of fine catgut. The cord is then disposed in the usual way. The general management is as follows:

First—Support to the congenital hernia in infancy by the Hank or celluloid truss.
Second—Intermittent traction upon the testicle to gain egress from the canal, where it may be held by a truss.
Third—Anchorage or normal but retained testicle in scrotum, with radical operation for hernia.
Fourth—Castration for painful or diseased testicle, with cure of hernia.
Fifth—Injections are never admissible in this variety.

In my twenty-two operations for the radical cure of hernia, two have been of the congenital kind; in one of these the undescended testicle was safely anchored in the scrotum. The other cases have been inguinal, but not congenital. The Bassini, with kangaroo tendon, has been employed in nineteen, the Halstead in the remaining. No recurrence nor death has followed. In two, suppuration occurred, one being due to faulty dressing, the other doubtless to some imperfection in asepsis.

A feature of considerable importance in children is the dressing. This plan was followed: Over the accurately apposed
wound crystalline iodoform is used. This is covered with sterilized gauze, which is sealed with collodion. Over this a layer of cotton with a collodion coating. This is covered by a larger piece of rubber tissue, which is made to adhere to the skin at its edges by the application of a small quantity of chloroform; over this cotton a snug gauze roller and a plaster dressing to the leg and pelvis maintains uniform position and rest.

Coley, of New York, reports in February, 1896, 280 cases, with one death and two recurrences; and Bassini, in July, 1895, 520 cases with fifteen recurrences, and no deaths, giving us a substantial encouragement for careful work in this common yet frequently painful and dangerous affection.

**BASSINI’S TECHNIQUE.**

First—Exposure of the external oblique tendon is followed by its incision over the canal to a point external to the internal ring.

Second—The exposure of sac and cord is then accomplished, and ligature of the neck of the sac is followed by suture (with kangaroo) of the transversalis and internal oblique to the deep border of Poupart’s ligament.

Third—Approximation of external oblique and of skin and fascia over the cord finishes the operation.

The Andrews imbrication method of suture, it seems to me, is a reasonable departure from the Bassini operation in long standing cases of hernia with dilated and elongated internal ring. In these cases very marked tension must fall upon the deep sutures approximating the conjoined tendon and rectus with the posterior border of Poupart’s ligament. To overcome this, Andrews suggests (*Chicago Medical Record*, August, 1896) overlapping the edges of the tendon of the external oblique as follows: The upper flap is included with the transversalis muscle and fascia, and the internal oblique
in their suture to the posterior inferior part of Poupart's ligament, thus giving additional strength to the posterior wall of the reconstructed canal. The cord is then brought in front of this and is covered by the lower flap of the external oblique, which is sutured to the anterior surface of the upper flap.
TRACHOMA.

BY J. W. BULLARD, M. D., PAWNEE CITY, NEB.

If this were a society of ophthalmologists instead of one of physicians in general practice, I feel that I would owe its members an apology for reading this paper, for many eminent men have written exhaustively on the subject, but these papers have usually been read and discussed before bodies of specialists. The man in general practice is the one into whose hands these cases first come, and many of necessity must remain, hence a study of the subject at this time will not be out of place.

The majority of cases presenting themselves to the specialists do so for the relief of the results of, rather than the treatment of, the initial disease. Trachoma, like many other diseases, rejoices in many synonyms, but the writer will make use of but one, granular ophthalmia; eschewing the terms granulated and granulation, as belonging or having reference in the surgical sense to the process of repair. Defined, trachoma is a specific, infectious, inflammatory affection of the conjunctiva, or, to be more specific, of that part of it lining the under surface of the lids and constituting the fold of transmission from the lids to the ball, and spoken of as the retrotarsal fold. It is characterized by the presence in these parts of the conjunctiva of more or less numerous small elevations, or excrescences, varying in size, color, and appearance, according to the stage and severity of the disorder. Certain races of people are predisposed to this disease; especially is this true of the poorer classes belonging to these races,—those who are poorly housed and fed. Close crowding, as in factories, schools, alms-houses, asylums, and military barracks,
under unfavorable environments, tend to the development of this malady. The cause under these circumstances is twofold: First, the vitality is lowered, hence, resistance is less; and second, wash basins, towels, and other articles are used in common, which gives very favorable opportunity for the infection. Granted that the individual is in perfect health, with a perfectly healthy conjunctiva, and I doubt very much the probability of the party becoming infected by means of this general exposure, any more than the healthy lung tissue will become infected by the constant exposure one is subjected to, who is habitually in the presence of those who are afflicted with tuberculosis, under the same conditions. The individual, however, with the predisposition or tendency will contract the disease quite readily, just as the young man or woman with the tubercular inheritance will, under unfavorable surroundings, contract tuberculosis. I believe with Nettleship, that this liability to the development of trachoma is transmitted from parent to child.

I do not wish to go on record as advocating the doctrine that the healthy eye is wholly exempt from the effect of the infectious material from trachoma, but that a healthy conjunctiva is a great barrier to infection. In acute conjunctivitis there is swelling of the papillæ, which causes the palpebral conjunctiva to be very rough, and in catarrhal and purulent ophthalmias, in addition to the enlarged papillæ, the glands of the conjunctiva are also swollen, but this does not constitute trachoma. The trachomatous nodules are hemispherical in form, grayish-yellow in color, and have a peculiar semi-translucent appearance, and are the result of infection from eyes similarly diseased. The particular micro-organism has not been sufficiently demonstrated to be accepted as an ophthalmologic verity, yet with our present knowledge of infectious diseases in general, we are quite safe in averring that such an organism does exist, and is the infecting principle in trachoma.
Let us study for a short time the anatomy of the conjunctiva before we take up the consideration of pathology. In health the palpebral conjunctiva is thick, has a pale red appearance, is very vascular, and is closely adherent to the tarsal cartilages. Its general structure is that of mucous membrane in other localities. Near the borders of the lids, especially in elderly people, the Meibomian glands, imbedded in the posterior surface of the tarsal cartilage, and lying almost parallel with the roots of the lashes, shine through. The mucous membrane is covered with epithelium, which sends prolongations into the deeper tissues between the papillae. The underlying tissue or stroma consists of fibrous connective tissue, interspersed with adenoid tissue. The retrotarsal fold or portion which passes in a fold from lids to ball is loose and consists of many layers. Here the papillae are less numerous and the epithelial pouches or prolongations are larger. In this part of the conjunctiva are found the tubulo acinous glands of Krause, more numerous near the outer canthus, in both upper and lower lids; a few are also scattered over the tarsal portion. Here, too, the adenoid tissue is gathered together in distinct masses, forming follicles.

In the different forms of conjunctivitis, as has been previously stated, the papillae become prominent, the mucous membrane is very red, and the lymphatic follicles, which are not visible in the healthy state, become enlarged. If the inflammatory process is mild there is an increased production of mucous corpuscles, some infiltration of the subepithelial tissue with leukocytes, and a few follicles may show themselves, but there is no transformation of tissue here. If the inflammatory process proceeds further, there may be great proliferation of epithelial tissue, and the palpebral fold becomes thick through disease and crowding together of the enlarged follicles. It is held by some eminent authorities that these are the beginning stages which in progression lead up to well rounded cases of trachoma, but such is not the opinion of the majority
of writers on the subject. The burden of testimony is that it is a specific, hence a microbial disease, and that the infecting element (secretion from a trachomatous eye) is necessary to its production. Certain transitional forms are conceded, but the non-specific ophthalmia is secondary, the result of the irritation caused by the trachoma, or the latter is only coincident. The acute form of granular ophthalmia, which is quite rare, is not a specific disease *per se*, but is probably a complication, *i.e.*, when an eye becomes infected by the secretion from a very active or virulent case, one with concomitant blenorrhoea, the two processes are jointly set up in the same eye, or what is probably more frequent, the case has been one of mild trachoma when the eye takes on the catarrhal or blenorrhoeic process. Dr. De Schweinitz states, however, that acute trachoma "must not be confounded with the violent exacerbations to which the chronic forms of the malady are liable." In many of these cases after a few weeks there is absorption of the hemispherical bodies and the conjunctiva returns to its normal condition without any cicatricial tissue, evincing the fact that it was not a case of true trachoma, but probably one of acute, simple, or complicated follicular conjunctivitis, for the effects of genuine trachoma are so indelibly stamped in cicatricial characters in the conjunctiva that time cannot efface them beyond the recognition of the experienced observer.

The chronic form, the trachoma verum, is the one in which we are most interested, as it is followed by such disastrous sequelæ. It may follow the so-called acute trachoma, but its onset is usually more insidious, in fact in the mild cases the host hardly realizes the fact that he is the subject of any eye trouble, until the condition is quite well advanced. Methodic writers on the subject divide the disease into several different forms, thus Stellwag von Carrion classifies them as follows: First, "pure granular form;" second, "papillary form;" third, "mixed form;" and fourth, "diffused form." Other writers have followed more or less closely. The writer of this article,
however, is content to consider the subject under the general head, chronic trachoma.

The condition known as follicular conjunctivitis, in which there is hypertrophy of the physiologic follicles, is not trachoma. In this disease the enlarged follicles are to be found mostly on the lower lid and the outer portion of the upper lid. They appear as hemispherical or oval, whitish or pale red vesicular-like granules, the size of a pin head. They are often transparent and project above the conjunctiva, are usually discreet, but may be arranged in rows. The intervening conjunctiva is transparent in mild cases. When they disappear the conjunctiva shows no cicatricial change. This condition is regarded by advanced ophthalmologists of to-day as an entirely separate and distinct disease from trachoma. The transitional forms which Nettleship and others have recognized are, in the writer's judgment, cases of complication, yet there is no doubting the fact that the two diseases occur more frequently among the same classes, i.e., those who live under poor hygienic surroundings and have hereditary tendencies. Follicular conjunctivitis is also a predisposing cause, in that it prepares the soil for infection by the secretion from trachoma, and will not develop into true trachoma unless such infection takes place.

Soelberg Wells regarded this disease as hypertrophy of the closed lymphatic follicles of Krause, and this, the writer believes, is the generally accepted view. Schmidt-Rimpler states that he has never seen a pronounced case of follicular conjunctivitis which led to the formation of "granulations"?though he has followed many cases for years. In true granular conjunctivitis there is decided cell infiltration of surrounding lymphoid tissue. The trachoma granules are more yellow, larger, and more numerous than the follicles of follicular conjunctivitis. They may occupy nearly the entire palpebral conjunctiva, are more deeply seated than the former, and though the case may be mild, the conjunctiva loses its
transparent condition. It may manifest itself in different grades of severity, from a few scattered trachoma granules to the condition in which the entire mucous membrane of palpebrae and fornix is one mass of trachomatous tissue, with general involvement of the conjunctiva and all its glands. The instances cited by Fuchs to establish what he considers a fact, viz., that cases of chronic blenorrhea will develop into trachoma, and eyes inoculated with the secretion from cases of chronic blenorrhea will also produce trachoma, in its different forms, and vice versa, are, in my opinion, cases of mixed infection. Dr. Würdemann goes further and states that inoculation from any morbific source may do precisely the same thing, provided the infection be not so severe as to cause an acute reaction by which the products of inflammation are re-absorbed, and moreover the disease itself not be self-limited. The view taken by De Wecker, that true trachoma granules are neoplastic formations, due to extensive infiltration, and are akin to tubercle, is not far from correct. The masses of infiltration which goes to make up the trachomatous nodules appear as rounded aggregations of lymph corpuscles somewhat analogous to those of Peyer's patches. This cell aggregation may pass without any line of demarcation into the surrounding tissues, which are also very rich in cells, or be confined by an incomplete capsule of connective tissue.

Cases of trachoma pure and simple must, in the very nature of things, be quite rare for, as has been shown, not only are new formations (true trachoma granules) present, but the papillae, lymphatic follicles, and all other conjunctival structures are involved, hence, as Fuchs remarks, the mixed trachoma of Stellwag is almost the only form that occurs. When the trachomatous condition has spent itself, or has been hastened to a termination by appropriate treatment, we have the beginning formation of the cicatricial process, which, according as the infiltration has been slight or extensive, causes the less or more serious changes in the conjunctiva, which
lead to such disastrous results to the function of the eyes. What seems to take place in this process of cicatrization is as follows: The cell-products going to make up these bodies, and those which are more or less thickly infiltrated into the general conjunctiva, begin to disappear, some by resorption, while others are transformed into spindle cells and later into connective tissue. This fibrillar tissue contracts and we have remaining the different sequelæ of trachoma, the particular form dependent largely on the extent of the conjunctival involvement, as trichiasis, entropion, ectropion, symplepharon posterior (which if severe may lead to lagophthalmus, or inability to close the lids), or more or less pronounced xerosis or dryness from complete destruction of the normal elements of the conjunctiva, and the existence in their stead of cicatricial tissue.

Before taking up the discussion of treatment, and that I may be more concise, I will recapitulate.

Trachoma is a chronic specific inflammation of the conjunctiva, more particularly that part of it which covers the under surface of the lids and constitutes the fold of transmission or fornix.

While there is, at least in severe cases, involvement of all the structures of the conjunctiva, including its glands, papillae, and follicles, its distinguishing feature is the presence of more or less numerous nodules or bodies, which are new growths, and when they disappear, always leave the conjunctiva scarred to a greater or less extent, and if severe or badly treated, are often followed by distressing and disfiguring sequelæ.

It is always the result of infection from a trachomatous eye, and does not arise as the result of inoculation from other forms of ophthalmia.

It is entirely separate and distinct from follicular conjunctivitis, in which the enlarged follicles are hypertrophies of physiologic follicles, and not new growths.

The end sought when we study disease is that we may be
able to successfully treat it. In our study of trachoma we have learned that it is particularly prone to attack certain classes and to spread when many people are crowded together under unsanitary environments, and use certain articles in common, such as towels, wash basins, etc. Thus we see that much can be done in the way of prophylaxis by improving as far as possible the hygienic surroundings of these classes. When large numbers are crowded together in institutions their eyes should be frequently examined and all diseased cases isolated and cured as speedily as possible. In private practice all cases should be cautioned to use separate beds, towels, wash basins, etc., from other members of the family. The eyes of inmates of institutions where trachoma is likely to develop should be kept in the best possible condition of health.

In the treatment of all cases the general health should be looked after, all errors of refraction accurately corrected by properly adjusted lenses. Good food, tonics, and favorable surroundings should be provided. The treatment of trachomatous conjunctivitis may be said to have a twofold object in view: First, it should be directed against the inflammatory complications and their consequent increase of secretion; and second, to hasten as quickly as possible the disappearance of the conjunctival infiltration and hypertrophy. In this way we reduce to the minimum the cicatricial contraction of the conjunctiva, and avoid the annoying sequelæ.

There is, unfortunately, no known treatment that will rapidly cure firmly established cases of trachoma, and heroic efforts in this direction have quite uniformly been more or less disastrous, aiding rather than preventing the disastrous cicatricial formations which it is the object of treatment to prevent. Much may be done by appropriate treatment to prevent extension, and hasten to a comparatively favorable termination, this disorder.

A condition which is too often overlooked in the management of cases of trachoma is spasm of the orbicularis, keep-
ing up the irritation. Where this is present canthotomy will give valuable aid as a preliminary in the way of further treatment. "It is now known that an important factor in the production of entropion is spasm of the orbicularis muscle, especially the border fibers. By this means the posterior border or angle of the lid is whetted off and allows the ciliary angle to come in contact with the cornea."—(Beard.)

In cases with acute manifestations the initial treatment should be mild, cold by means of compresses wrung out of ice or very cold water applied to the closed lids and frequently changed, together with irrigation of conjunctival sac with solutions of boric acid or bichloride of mercury (1 to 4000 to 10000). As soon as the secretion is established, the judicious use of silver nitrate in solution is very efficacious. It is antiseptic, astringent, and caustic, and, therefore, while it stops the development of the irritating micro-organisms, it also hastens the exfoliation of the exuberant mucous corpuscles and disorganized epithelium, and allows regeneration from the less affected epithelium of the crypts or prolongations that dip down deeply into the mucosa between the papillae.—(Würdemann.)

As the secretion causes an agglutination of the upper and lower lids during sleep, which prevents the escape of the irritating secretion, it is advisable to use an unguent at night. Simple vaseline, or what I prefer, one of the following, smeared on lids and into lashes, either one or the other according to the stage and irritability of the individual case:

R. Pulv. opii, aq. ext.
Acid boric............................. aa gr. v.
Zinci oxid............................. gr. x to xv.
Vaseline.............................. 5 iv.
M.

R. Hydrargyri oxid. flav........... gr. i.
Vaseline.............................. 5 i.
M.
The strength of the silver solution varies according to stage and severity of the case and views of the surgeon. Some authorities advocate one thorough application to all parts of the diseased conjunctiva, except that covering the sclerotic and cornea, of a strong solution (10 to 20 per cent) in severe acute cases, and claim that one application is usually sufficient. Instead of the simple aqueous solution, some advocate the use of equal parts of water and glycerine to make the solution. The strength usually adopted by the profession, and the one I am in the habit of employing, is a simple aqueous solution, varying from 1 to 5 per cent, which should be applied to the diseased membrane of the everted lids by means of plegets of absorbent cotton, from twice a week to once each day, and before replacing the lids it should be washed off with a sterilized 1 per cent salt solution. In lieu of the silver solution many oculists prefer strong solutions (1 in 100 to 500 parts of water) of bichloride of mercury, used in the same way.

When the acute manifestations subside and we have the hypertrophy of the papillae, trachoma nodules, and general infiltration, or, in other words, a full grown case of trachoma, its treatment, in its different forms of intensity, involves one of the most perplexing subjects of ophthalmic surgery. As Dr. Casey A. Wood well remarks: "There is no disease whose conduct requires more judgment, skill, experience, and more variations in its treatment than a genuine case of trachoma, especially when its ravages have extended to the sulci or to the deeper layers of the mucosa."

The two remedies which have overshadowed all others from time almost immemorial, and which still hold first rank in the treatment of trachoma, are nitrate of silver and sulphate of copper. The indications for their respective uses are quite plain—silver in solution when the disease is in its earlier stages and secretion more or less abundant, when corneal ulceration is present, and when the conjunctiva is succulent. The solution in varying strength to suit the individual case,
is applied to the everted lids and fornix from once every third or fourth to once or even twice a day, the frequency being governed by the reaction following its use, severity of the case, and strength of solution used. When there is comparatively little inflammatory action and scant secretion accompanying the case, and especially if it is one of long standing and the conjunctiva has lost its succulent condition, and the cornea intact, it is better treated with a pencil of sulphate of copper, thoroughly rubbed on all affected parts from one to seven times a week. The lapis divinus stick, or the mitigated solid nitrate of silver of the British Pharmacopeia are preferred by many. Boro-glycerid in 30 to 50 per cent strength is a good remedy to hasten absorption in the later stages, and is said to prevent, to a certain degree, the tendency to xerosis. A solution of tannin in glycerine, 20 to 60 grains to the ounce, or sulphate of alum in substance applied to the lids in mild cases are favorite remedies with many. If corneal complications arise, atropin and hot water should be used in a majority of cases, but we must remember that the diseased lids are the cause of the corneal trouble, and when we have cured that we have usually gotten rid of the corneal disease.

Many methods have been proposed looking to the rapid destruction of the trachoma bodies; thus, expression of the contents of the nodules by the aid of the thumb nails or some one of the many ingeniously devised forceps, those modeled after the inventions of Drs. Knapp and Noyes being most in favor. If the infiltration is deep seated, the conjunctiva is frequently scarified before expression, to facilitate the escape of the contents. The procedure known as "grattage" or "brossage," which consists in brushing briskly with a short stiff-bristled tooth brush the trachomatous conjunctiva and afterwards applying a strong solution of bichloride of mercury, is highly spoken of by many operators. Curetting away the diseased tissue with a sharp curette, excision of the individual nodules, or of large portions of the retrotarsal fold, especially
of the upper lid, galvano-cautery applied to the separate neo-
plasms, electrolysis, scratching with specially devised rakes, 
and numerous other methods have been proposed and had 
their advocates. Of the different procedures noted above, ex-
pression seems to be held in greatest favor by a majority of 
the profession, but it is far from being suitable in all cases, 
being more generally applicable in the cases of so-called 
"follicular trachoma," and in those cases where the infiltration 
has not extended to the deeper structures of the mucosa. All 
of these procedures possess merit, and in suitable cases may be 
made use of to advantage, but time will not permit going into 
detail regarding the specific indications for the employment of 
each, and it is expected that the discussions of this paper by 
my colleagues and the other oculists present who have had a 
riper experience than the writer will give us light on this 
part of the subject.

In a translation by Dr. Dunbar Roy, of Atlanta, of an ar-
ticle by Dr. Ed. Pergens, of Belgium, entitled "On the Value 
of Mechanical and Surgical Treatment of Chronic Trachoma," 
the author has shown that after all of these methods of opera-
tive treatment, the disease still remains demonstrable by mi-
croscopic section, after months and even years.

To my mind the success attending the use of these different 
methods is dependent on the fulfillment of three things, viz., 
first, the direct removal of diseased tissue; second, the in-
creased powers of resorption brought about by the resultant 
reaction; and third, the more direct access that our medica-
ments (which our experiences have taught us must always be 
used after all operative methods) have to the diseased tissues 
as a result of the operation. These different methods must be 
used with great care, that we do not defeat our purpose, the 
aim being to remove the pathological elements with the least 
possible harm to the conjunctiva and lids. Professor Fuchs 
in his experiments, in which he treated similar cases, one, by 
some one of the several operative procedures, and the other by
ordinary methods, with results in favor of the latter, has taught us a great lesson in conservatism. The writer is partial to the curette in properly selected cases, as it can be used under cocaine anesthesia and confined wholly to the diseased tissue; it does not bruise the tarsus and is effectual in removing the diseased tissue, but is, however, capable of much injury unless used with great care.

It remains to say a few words with reference to the condition known as pannus, in which there is a layer of new formed vascular tissue starting from the corneal limbus, usually at the superior portion and spreading over upper part of the cornea. Histologically it is rich in cells, which greatly resembles the infiltrated trachomatous tissue. It insinuates itself between the epithelium and Bowman’s membrane, and it is said to be due to the mechanical action of the roughened upper lid playing over the cornea; but as it is anatomically analogous to trachoma of the palpebræ, we must conclude that this is not the essential cause. This condition occurs most frequently in cases of inveterate trachoma. Several different varieties of pannus are spoken of by methodic writers, but as in trachoma I will speak of it in its general relation. If it is cured in its recent state before the membrane of Bowman is destroyed, a perfect recovery with a transparent cornea will result; but ere long this structure is invaded, and, in healing, cicatricial tissue forms and perfect transparency is out of the question. The treatment of this condition involves the general treatment of the trachoma. The operation of syndectomy, which consists in the removal of a narrow strip of conjunctiva and subconjunctival tissue structures down to the sclerotic, entirely around the limbus, thus cutting off the hyperabundant blood supply, is good practice in some cases. The old method of inoculating the eye with gonorrheal pus is now obsolete, as it is too dangerous, although it sometimes performed wonders. Its place has been filled by jequirity, in solution or powder, the object being to set up a reactive inflammation
and thereby cause absorption of the pannus. In the April number of the *Ophthalmic Record*, Dr. Savage, the editor, gives his experience with the use of weak solutions of the drug, continued over a long period, in the cases of very chronic trachoma with pannus. The results were quite satisfactory. The digestive ferments have been used by some ophthalmologists with good results, the theory being that the tissue composing the pannus is possessed with a low power of vitality, and hence is less capable of resisting the action of the ferment than normal tissue, and will be dissolved. Dr. Lydston, of Chicago, claims great success in the treatment of this condition by dusting the growth once or twice each day with a powder composed of equal parts of boracic acid and papoid.

Space will not permit me to speak of the numerous sequelae of trachoma other than to name them, which I have previously done.

The writer wishes to acknowledge the aid extended by the following gentlemen in the way of answering certain questions involved in the discussion of this subject: Drs. Casey A. Wood, Chicago; D. B. St. John Roosa and W. F. Mittendorf, New York; S. C. Ayres, Cincinnati; G. C. Savage, Nashville; G. E. De Schweinitz, Philadelphia; Myles Standish, Boston; and Charles W. Kollock, Charleston, S. C.

The following authors have also been consulted:


"Diseases of the Eye," De Schweinitz.


DISEASES OF THE LACHRYMAL APPARATUS.

BY H. S. BELL, M. D., KEARNEY, NEB.

Diseases of the lachrymal passages are frequently brought to the attention of the general practitioner, and I am inclined to believe that our substantial knowledge of the causation, course, and treatment of these diseases is not as full and practical as it should be. The reason for this scant information cannot be explained by the relative infrequency of this class of cases, but mostly from the comparatively little attention writers and teachers have heretofore given this subject. Believing this, I have thought I could best serve this Society by a discussion of this very common, but too much neglected, class of diseases.

Being a general practitioner myself, I shall only attempt to speak to my fellows who, in the absence of specialists, must, of necessity, see these cases first and last, as many of us are too far removed from large centers to be able to refer them to the oculist for skillful treatment. The diseases which most frequently affect the lachrymal passages are those involving the ducts leading from the eye. Near the inner canthus of each eye there may be found two small openings, one in the upper and one in the lower lid, called puncta. These are the orifices of the canaliculi, two very small canals leading into the lachrymal sac, which is the upper dilated end of the nasal duct. Here in this expanded pouch, or lachrymal sac, is the most common seat of disease, and from this vulnerable point the trouble is liable to involve either the nasal duct or the canaliculi, or both.

The nature of the diseases affecting these passages is that of mucous and purulent inflammation. The most common
form is a catarrhal inflammation of the lachrymal sac and its ducts, the most prominent symptom of which is an overflow of tears, and it is for the relief of this symptom the patient first seeks advice. The tears accumulate in the lachrymal sac and distend it in such a manner that it stands out from the side of the nose as a distinct prominence, and for the relief of this fullness the patient is obliged to empty it several times a day by pressing it with the finger in an upward and inward direction. This pressure will often cause the watery secretion to be discharged in a continuous stream, as if from a hypodermic needle. If the conditions upon which this catarrhal form of the disease depend are not relieved, it will finally result in what is termed "blenorrhoea," or mucocele, which is characterized by a mucous or gelatinous discharge which the patient presses out with the finger. Dacryocystitis is an acute purulent inflammation of the lachrymal sac, and the skin and cellular tissue just below the inner canthus of the eye becomes swollen, red, and tender to pressure; in fact, the symptoms of a localized cellulitis with abscess. This acute form of the disease is not so common as the catarrhal variety, and requires prompt treatment to prevent a fistulous opening in the lachrymal sac.

It is refreshing to find such a unanimity of opinion as to the causation of these lachrymo-nasal affections. It is fully agreed that they have their starting place in subacute or chronic coryza. In fact, chronic rhinitis is said to be not only the cause of all the affections of the lachrymal ducts, but to be the prolific source of most all the inflammations of the ocular and palpebral conjunctiva. Dr. Ziegler, of Philadelphia, in the New York Medical Journal of November 3d, 1894, says: "I think we may safely say that fully 90 per cent of corneal lesions take their origin directly from pre-existent pathological processes affecting the intra-nasal tissues and secretions." Dr. Woodruff, of Auburn, N. Y., in the Medical Record of April 25th, 1896, in a résumé of a recent work by
Dr. Finck, of Hamburg, Germany, says: "Not a few affections of children can be traced back to a chronic coryza."
"Zieme even asserts that two-thirds of all eye diseases are due to nasal affections." "Von Hasner found that among fifty-nine cases of diseases of the lachrymal duct, fifty-one showed a pathological condition of the nasal cavities." J. Michel and Seifert observed among thirty-eight cases of dacryo-blenorrhea thirty-seven with affections of the nose. Farravelli and Kruch found among cases of diseases of the lachrymal sac thirty showing nasal catarrh. The consensus of opinion is overwhelming, that lachrymal and ophthalmic diseases have their origin in the catarrhal inflammations of the nasal turbinals.

From what has been said of the causation of diseases of the lachrymal apparatus, it would seem the treatment would be exceedingly simplified, and should be directed to the existing coryza. Indeed, this is the logical conclusion and the natural key to the successful and intelligent treatment of this class of affections. Expediency, however, will sometimes control in the decision upon a given line of attack. Little children, in whom these diseases mostly abound, are naturally timid and impulsively shrink from the attentions of those with whom they are unfamiliar. They will not even permit their parents to use the simple means of treating these nasal inflammations. Much has been said by teachers and writers of diseases of children upon the best means of humoring children in general, or any one child in particular. Manifestly we should endeavor to get on good terms with our little patients and avoid any abruptness of speech or of manner that might cause fear. The low and gentle voice, the bribe of palate with sweets, or the attention with a fine gold watch, are all well enough when the diagnostic search is not projected beyond a glimpse of the tongue. But when it comes to flattering a child up to tolerance of intra-nasal sprays and more stable and useful applications, then, in my experience, the line is drawn between the doctor and his little patient.
After having fully posted myself on the etiology and pathology of these lachrymo-nasal diseases, and lamenting the difficulties with which I was handicapped in conducting their logical treatment, I read a paper by P. Richard Taylor, M. D., of Louisville, Ky., in the issue of January 4, 1896, of the Journal of the American Medical Association, in which he advocated the use of a tube which he designed for the treatment of these lachrymal duct diseases. I had previously read in the Medical Record, of June 1st, 1895, of “A Simple and Effective Method of Keeping the Obstructed Lachrymal Duct Open,” and which was said to be a “trick” worth knowing. This method by Dr. Walter N. Vilas, of El Paso, Texas, consisted in passing a small sized probe, armed with a canula, through the nasal duct, when the probe is withdrawn and through the canula is passed a strand of silkworm-gut, the lower end of which is brought out through the nose and a split shot is clamped upon it. The canula is now withdrawn, and the silkworm-gut is pulled up until its further progress is arrested by the shot within the nose, when another shot of lead or aluminum is clamped upon the strand of gut as it emerges from the inner canthus of the eye. It was said in the article referred to, that this method had been tried in a number of cases of lachrymal obstruction and abscess of the lachrymal sac with unfailing success, and commended itself for its simplicity, practicability, and radical effectiveness, as well as the important consideration of abridging the treatment of these cases to one sitting.

Dr. Taylor’s tube is seven-eighths of an inch long and three-eighths inch angle, and can be made of any size and of any metal. It has a lateral slit on both sides of the short end, leaving a duck-bill spout with upper and lower blades, both of which are to be beneath the surface of the lids or entirely in the passage and hidden from view. The slit prevents the soft tissues from closing the opening of the tube or hindering the passage of the tears through the tube. Each of
these methods is designed to effect a cure by drainage. I had about made up my mind to try the plan of Dr. Vilas, but in the meantime the method of Dr. Taylor engaged my attention and appealed to my judgment as being the best. Having three patients with obstruction of the nasal duct, with the prominent symptom of weeping eye, I ordered three of Dr. Taylor's tubes.

Two of my patients were children under five years of age. One of these, a little girl, had had frequent attacks of dacryocystitis which had resulted in openings from the lachrymal sac through the skin just below the inner canthus. From these fistulous tracts pus and tears were constantly escaping, producing an ugly eczematous eruption over that portion of the cheek. This child was given chloroform, the lower puncta entered by a Weber probe-pointed canaliculus knife, the canal was slit into the lachrymal sac, when, with Bowman's set of probes, the nasal duct was rapidly dilated, and this tube, which was introduced in January last, was inserted. I removed it a few days ago for the purpose of exhibiting it to this Society to-day. I shall, upon my return home, reintroduce it. The fistulous openings have closed, the eczema disappeared, and nothing remains but a faint cicatricial scar. The chronic conjunctivitis with its purulent exudation has also disappeared.

The second case was a child presenting only the catarrhal form of the lachrymal sac with obstruction to the passage of tears through the nasal duct. This child also had chronic conjunctivitis. Prout, of Brooklyn, has described this condition as conjunctivitis lachrymalis, and adds that it cannot be cured except by relieving the obstruction in the nasal duct. This child was anesthetized, the lower canaliculus slit into the lachrymal sac, and with the same probe-pointed knife the nasal duct invaded, and the stricture cut, after which Bowman's probes were rapidly introduced and a medium sized tube inserted. After some weeks I decided that the angle of the tube was too long, as it rubbed the eyeball and increased...
the conjunctivitis. The child was again given an anesthetic, the tube removed, and about one-half the short arm of the tube was cut off, when it was again introduced. This was two months ago. The eye symptoms rapidly disappeared, as well as the overflow of the tears.

My third case was a young man 23 years old, with mucocele of the sac of twelve years' standing. In February of this year, with local cocoaine anesthesia, I did the same operation with the best result.
Mr. Chairman, Ladies and Gentlemen:

I submit this report with feelings of hopefulness for the future of sanitary progress. The manifestations of a general public interest in sanitary work is one of the most promising signs observed at the present time. Preventive medicine has made steady advancement during the past year. Sanitarians have established, beyond doubt, the fact that many diseases are preventable. Consequently, by the observance of given laws, man in a measure possesses the power of preserving health, avoiding disease, and prolonging life. No sanitary improvement will be effective, regardless of special powers conferred upon public officers, unless an intelligent interest in the subject is created among the people at large.

The regulation of matters which concern the health of the people is certainly one of the most important functions of the medical profession. One state after another has taken its place in establishing boards of health, and in my opinion the time is ripe for our own state to fall in line. We already have a fairly good medical practice act and should now turn our attention to, and use our best endeavors in, securing an amendment providing for sanitary powers. A state board of health should have for its first and chief object the prevention of disease. It should be empowered to take such action as should guard the public from illness and death arising from preventable diseases, by means of efficient sanitation. When we reflect that one-third of all the deaths that occur are preventable—that is, result from the lack of efficient sanitation—the relations of health to material prosperity stand out in clear re-
As the same is true of the attendant cases not terminating fatally, estimated by some as thirteen cases of illness for each death that occurs, the value of thorough sanitation is manifest. Regarded from a mere monetary point of view, such illness and death means an immense loss in cash to the state where it occurs. There are several elements, however, not included. One is the enormous tax upon the material resources of the people that unnecessary sickness involves. The rapid decline in self-respect and in the whole moral tone of a family that has been assisted by public charity, when in health it was self-supporting, has been carefully watched, and the ease with which the vicious and dangerous classes of a community are recruited from this source shows how closely sanitary science is related to political economy. The great falling off during the past few years in the death-rate and the decided decrease in epidemics are directly attributable to the better sanitary regulations adopted by the various boards of health.

The states have wisely and rightfully assumed the authority to enact sanitary regulations and enforce their observance. Every incorporated town in the state should have its local board of health and provision should be made for extending the system to the rural districts. We have all felt the necessity for such local self-government. In order to control disease and death, occurring from preventable causes, it has been found wise and necessary to have a complete organization, consisting of a central board of health, with local boards and their necessary officers throughout the country, to carry into effect the instructions, regulations, etc., of the main board. The collection of sanitary information, through reports of diseases by physicians and local boards, and the dissemination of sanitary information by means of bulletins, annual reports, sanitary conventions, and special investigations in different localities, would be only a part of the benefits to be derived from such an organization. The work would also include investigations into the causes of disease, such as dis-
posal of sewage, destruction of refuse, and subsoil drainage. Outbreaks of disease would be investigated, vaccinations and quarantine enforced, and a careful inquiry made into our food and drink supplies, which includes water, meat, milk, flour, and other foods. School hygiene would receive careful attention, and the construction, ventilation, and drainage of the buildings looked after. At the present time a large majority of the pupils of our public schools have never been vaccinated. The safety and protection of our children from the dreaded disease small-pox should be secured. All hardships arising from the enforcement of the law can be removed in providing for the free vaccination of all pupils who are unable financially to bear the expense.

The Michigan State Board of Health, which has been doing efficient work for the past dozen years, has made a record of the saving of human life and health in that state, which fully demonstrates the necessity for its existence and the wisdom of its establishment. Its secretary has recently shown the saving of over one hundred lives per year from small-pox, four hundred from death by scarlet fever, and nearly six hundred from death by diphtheria, an aggregate of eleven hundred lives per year, or three lives per day saved from these three diseases. This same board has lately been investigating the subject of consumption in animals and in man, and has clearly shown the great danger in using the milk from tuberculous cows. An instance is given where a farmer, who lost two head of cattle from tuberculosis, had the disease developed in his family, consisting of six members, all of whom, together with two attendants, died with consumption.

I desire to next invite your attention to the personal precautions necessary to be taken by the medical attendant in cases of contagious and infectious diseases. A physician, when called upon to attend a case that is suffering from a communicable disease, should take every personal precaution against spreading the infection. In visiting a case of scarlet fever or
diphtheria he should protect his clothing by wearing, while in the sick room, a long rubber coat or linen duster, well buttoned up to the chin. A skull cap could be worn to protect the head. If such garments are not at hand, the overcoat and hat should not be removed. Each visit should be made as brief as possible, and upon leaving the room it is always well to thoroughly wash the hands and face. All preparation of medicines, writing of prescriptions, and leaving directions should be attended to outside the sick chamber. If these simple precautions are taken it will be safe to visit other patients after being exposed to the open air a short time. If a large number of infectious cases are seen at the same visit, then it would be well to change at least all of the outer clothing before mingling with the public. When the cases have ended, the clothing should be carefully disinfected. We should ever bear in mind that the liability to convey the infection of scarlet fever is as great during the period of desquamation as during the febrile stage of the disease. No precautionary measure should be omitted or relaxed until desquamation has ceased. The physician should take every precaution to prevent an infectious or contagious disease from spreading. The first thing after making a diagnosis is to isolate both patient and attendant. The room should be cleared of all unnecessary furniture, curtains, carpets, etc., and the well known means for disinfection employed. The above remarks are made because I know of at least two instances where physicians have carried scarlet fever and diphtheria to their own families. It may be that I am mistaken in supposing it possible for this to often happen, but a word of warning cannot come amiss.

At a recent meeting of the American Public Health Association, the secretary of one of the state boards of health, in discussing the responsibility of the physician in contagious diseases, related the following impressive incident: "In a certain town there live two families opposite one another on the
same street. There are children in each, the mothers are in-
timate and dear friends, and a day does not pass that the
families are not more or less together. Recently a child in
one was taken sick. The attending physician diagnosed the
case as scarlet fever; but, as it was a very mild case, said he
did not think it worth while to create an alarm by mentioning
the fact. The children of the family opposite, several in
number, visited the little sick friend daily, no one dreaming of
danger. They all took scarlet fever and one died. The first
time the stricken mother met the physician of the first case
she upbraided him with "Doctor, you killed my child." He
attempted to excuse himself, but to the mother, mourning in
bitter agony over the needless sacrifice of her child that might
have been so easily prevented, there could be no excuse. 'Doc­
tor,' she repeated, 'you killed my child. If you had told my
friend that her child had scarlet fever, she would never have
permitted my children to enter her house.' What an awful
accusation! The motive of the physician was doubtless, in a
certain sense, a praiseworthy one—the indisposition to say or
do anything disagreeable,—but that fact cannot evade the
dreadful consequence of his failure to do his plain duty. Any
physician who knows that he has a case of contagious disease,
dangerous to life, and who neglects to have carried out to the
very best of his ability every sanitary precaution to prevent
its spreading, is guilty of criminal negligence and trifles with
human life.

In concluding this report I only wish to add that I have
merely touched upon a few points which to me seemed the
most prominent and important. Nothing new has been
offered, but simply an effort made to arouse additional inter-
est in this large field of usefulness. My deep interest in
sanitary work must serve as my apology for having yielded
to our worthy president’s kind invitation to act as chairman
of this section.
ENDOMETRITIS TREATED BY CURETTEMENT
—REPORT OF TWO CASES.

BY W. DAYTON SHIELDS, M. D., HOLDREGE, NEB.

There is perhaps no other diseased condition, properly belonging to the specialist, which is met with more frequently by the general practitioner than endometritis. Endometritis is an inflammation of the endometrium. This condition is only known by a thorough study of the literature on the subject, together with close observation in clinical work and practice. It is best known or diagnosed by a careful study of the subjective and objective symptoms. As this paper is not intended to give a compilation of the literature upon the subject, I shall proceed at once to give report of cases which will probably cover the symptomatology of the majority of endometritis cases.

CASE I.—Mrs. G., age 38, has been married twenty years, and had given birth to four children. In her second confinement she was in labor an exceedingly short time and was almost paralyzed for six months afterward, and has been in poor health since then. When I first saw her she was nervous, was afraid she would become insane, had poor appetite, aching in back and top of head, aching in small of back, and a seropurulent leucorrhea. Her sleep was broken; hands and feet were cold, and her general condition was greatly disordered. She was not able to do her work or walk any distance. Constipation was also a marked symptom. The menses were irregular and the flow excessive; so free at one time that she was alarmed and sent for me to stop the flow. She always felt better after a free menstruation. There was more or less pain and bloating at this time.
On digital examination there was tenderness on pressure, radiating toward left side. A speculum revealed some redness of the external os and dilatation of the cervical canal. A bilateral laceration existed, but had healed so that it needed no operative interference. The uterus was abnormally enlarged, with thickened walls, enlarged uterine cavity, which was indicated by turning the curved sound in the organ. Some blood followed removal of the sound, showing a vascular condition of the mucous membrane. From these symptoms and physical signs I diagnosed general endometritis.

The treatment followed was general tonics; elixir phosphate, iron, quinine, and strychnia, with laxatives; applied one part carbolic acid to two parts tincture iodine into the uterus once a week, with a daily hot water douche. The result was nil. After following this treatment for some weeks I used the sharp curette under chloroform anesthesia. The uterus was packed with iodoform gauze. Vomiting followed the operation and continued until the gauze was removed. The patient made a good recovery from the operation and was greatly relieved of her symptoms. The menses were normal; the bloating and pain in left side were absent. I continued applying carbolic acid and tincture of iodine to the cervical canal once a week for four months, when the redness about os externum and the leucorrhea disappeared. I should have stated that on account of the thickened uterine walls I again used a dull curette soon after the second menstrual period following the first operation. But the condition was only slightly improved by the last curettement. She is in very fair health and doing her work at present.

Case II.—Mrs. C., age 32, has three children; youngest five years old. She always got along well in confinement and there was no resulting sequelæ. She came to me complaining of feeling out of sorts; she had gone over her time to be sick (menstrual period), as she expressed it. She had been regular in time, but sometimes a free flow and occasionally scant flow
was the history given as to the menses. Constant headache, with a feeling of fullness in the head, nervousness, backache extending down the thighs, were complained of. She was afraid she might be pregnant. The only cause she could give for the distressing symptoms was that she was bending over the manger to get some eggs when she was taken with a pain in the side, in the region of left ovary, and she took cold immediately and it seemed to settle there.

Bimanual examination elicited tenderness of left ovary. On introducing the speculum I found a tenacious, purulent discharge,—congestion of the os externum, and slight dilatation of the cervical canal. From these symptoms and history a diagnosis of endometritis and congestion of left ovary was reached. The congestion of ovary soon subsided under the treatment of Dover’s powder and acetanilid comp., 4 grs. of each, every three hours, with hot applications, hot douches, and rest. Mild laxatives were given to overcome costiveness which existed.

She came in again about a week later and said she felt some better, soreness had left her side, menstrual flow had started one evening and stopped the next morning. She complained of headache and felt miserable when she was on her feet or tried to do anything; she had poor appetite and her bowels were irregular and had been for two or three months. At this time I made another examination with speculum and sound; the same condition appeared that was present on first examination. After a brief explanation of what was necessary to be done in the operation, the next day was appointed to make a curettement. The operation was done with the happiest result.

With antiseptic precautions I dilated the canal with Goodell’s dilator, then used the dull curette, removing a fibrinous mass which resembled very closely the scrapings from the fleshy side of sole leather. Aside from this there was nothing remarkable about the operation. No anesthetic was used.
The uterine cavity was thoroughly cleansed with equal parts of water and hydrogen-peroxide through Jansen's uterine douche. A strip of iodoform gauze was inserted for the purpose of drainage; on the third day this was removed and another strip inserted to remain the same length of time, after which no dressing was used. After the first and second menstrual periods succeeding the operation applications were made as in case I. She made a complete recovery.

I have concluded from these and other similar cases that much valuable time is lost and patients are disgusted with any other treatment than curetting in this class of cases. Dilatation might have prevented vomiting in case I.

Displacements, lacerations, and all causative factors must be successfully met. These cases, like all others requiring surgical treatment, should be studied very closely, and when the operation is made it should be done thoroughly, but not violently.

If you will pardon the digression, I wish to say that in my humble opinion so-called "habitual abortion" is more frequently the result of chronic endometritis than any other cause. The cause of the endometritis may have been the first abortion, which was "spontaneous," accidental, or criminal. It is an exception to the rule that a woman has any children after she has had an abortion. As I may have the privilege of saying more on this subject at some future time, I shall drop it here. Now, if some professional brother is aided in relieving or curing his patient by any thoughts suggested in this short paper, it will have accomplished its purpose.
SPASTIC PARAPLEGIA—REPORT OF A CASE.
BY HENRY BEATTY WILSON, M. D., OMAHA, NEB.

In every kind of a transverse lesion of the spinal cord above the lumbar enlargement the paralysis of the legs is soon accompanied by excess of myotatic irritibility (increased knee-jerk, foot-clonus), and the muscle reflex action on which this depends increases to tonic spasms. This gives rise to a so-called spastic paraplegia. A condition similar to this often develops without any primary focal disease indicating a morbid change, confined entirely to the motor elements of the cord extending from the motor cortex through the pyramidal tracts and ending in the gray matter. Because of the gradual onset and limitations of the symptoms in these cases it has been assumed that the disease consists of a primary sclerosis of the pyramidal tracts, i. e., a degeneration of the upper fibers of this segment.—(Gowers.) This primary lateral sclerosis is characterized by weakness, rigidity of the muscles, exaggerated motor reflexes, and is unaccompanied by atrophy.

I desire to briefly report the following case:

Mr. F., aged 51, retired laborer, was first seen in August, 1895. The family history, so far as he knew, was good, with the exception of a brother who died in 1885, aged 53, of paralysis. The patient's health had been good up to about a year before seen, when he noticed some weakness of the legs after walking. Later, he observed that this increased from month to month, and at the time I was called he complained of a stiffness of the legs, with frequent spasms and rigidity of the muscles. He stated that as long as he kept his legs flexed he had no trouble, but if he straightened them out his spasms, or contractures, came on. He said that in
walking he felt as though he were springing (on springs), and his steps were jerky. Walking about the room his gait was noticed to be very peculiar. The ball of the foot and toes only being used, the latter dragging, the heel scarcely touching the floor, and the legs flexed and stiffened at the knee. On examination I found the muscles of the entire body well developed and without any wasting. Eye-sight without any abnormality, not even nystagmus, sometimes found in this disease, being present. Sensation for heat, pain, and cold was perfect over the whole body, in fact there was a total absence of any sensory symptoms. Asked as to his bladder and rectum, he stated that both were regular, with perhaps an increased tendency to urinate, and haste in doing so. Muscular sense good, mind active and clear. Ankle-clonus marked, knee-jerk quick, and markedly exaggerated. Skin reflexes of the legs pronounced; all the arm and trunk reflexes normal.

During the following nine months the patient was kept under close observation, and marked increase of the above symptoms noted without the development of any new ones showing posterior sclerosis. Some weeks previous to death the spasmodic condition of the legs became so painful that it was possible to straighten them out only with great discomfort to the patient because of the induced contractures. The only ease received was from resting them flexed on pillows, or bathing them with hot water and using massage.

The etiology of the patient's condition is unknown to me, as there could be learned no history of excesses, syphilis, or spinal injury. The case is worthy of notice because uncommon, and as showing a comparatively short duration, perhaps four years, for this malady, which usually extends over a much longer period. Acute symptoms coming on in a few weeks are negative of disease due to degeneration, though we may have secondary spastic conditions, caused by extension on from beyond a focal lesion of the posterior root-fibers. The only mistake that could well be made in diagnosing the dis-
ease unless we have the combined scleroses, would be in con-
founding it with cerebral hemiplegia, where the arm and leg
suffer only on one side, or with hysterical paraplegia. In the
first case close observation would show that there was a slight
myotatic irritability and weakness, demonstrating conclusively
that it was not cerebral hemiplegia of the above type. The
second disease would be excluded by the absence of a true
foot-clonus.
REPORT OF ABDOMINAL SECTIONS.

BY J. THEO. MILLER, M. D., HOLDREGE, NEB.

CASE 1.—Florence A., aged 5 years, residence eleven miles in the country, began to complain of pain on Sunday, April 28th, 1895. During the preceding week she attended school a mile and a half distant. On April 29th the father was in town for medicine, and upon his recital of her symptoms, I sent a remedy for indigestion.

April 30th was called to see her. She had a pulse of 132, temperature 102; intense, continuous pain, in right inguinal region, so severe that percussion and palpation could not be properly made. The abdominal muscles were so tense that induration could not be detected. Pain was worse at a point midway between umbilicus and anterior superior spine of ilium; tympanites present; diagnosis, appendicitis; treatment, Dover's and hot fomentations to control pain. Antipyretic was acetanalid. She slept better the following night and May 1st was more comfortable; pulse 120, temperature 100; treatment continued.

May 2d, did not rest well; pain returned; temperature 100, pulse 132; facial expression anxious. Condition worse; counsel was asked for and operation advised, provided counsel agreed that it was the right thing. I drove home, obtained my instruments and dressings, and asked Dr. W. D. Shields to see the case in consultation with me in the afternoon. Mr. W. A. Shreck, a medical student, who had spent two years in medical college, accompanied us. Counsel agreed that operation was necessary. Parents consented, and it was done immediately. This was on the fifth day of the illness. The anesthetic was given, the patient put upon the table, and the
abdomen cleansed and disinfected, and incision made, which revealed an abscess immediately under the peritoneum, from which issued a quantity of pus with an odor most offensive, nauseating, and unbearable. The cavity was thoroughly irrigated with carbolized water, and packed with iodoform gauze, and the wound closed with silk sutures, except the lower angle, which was left open for drainage. The appendix was not removed or searched for,—it was deemed safest not to break up intestinal adhesions in quest for it, and thus subject the patient to the risk of further infection of the abdominal cavity. When anesthesia was induced and the abdominal muscles relaxed, then an area of induration around and below McBurney's point was apparent, but not before, because of rigidity of the muscles as above stated.

Patient stood the operation well. Anesthesia was well borne and soon disappeared. The abdominal pain was gone and did not return. The following night was her best night's sleep since ill. She required no anodyne nor medicine of any kind till next morning, when she was given an enema of water and magnesium sulphate. She had vomited a number of times through the night, but the action of the enema modified the nausea, and it ceased altogether on the second day after the operation. She had vomited for some two or three days before the operation,—at times ejected matter containing a greenish liquid and probably some bile.

I stayed all night with this patient on the first and second nights after the operation. Her temperature was not over 100½ at any time after the operation, but it remained close to that point for a week, and gradually subsided. She was kept on milk diet throughout. I went to see her and dressed the wound daily till May 17th, then every second or third day till June 2d, when I dismissed her. The wound was healed, but she was kept in bed six weeks before being allowed to get on her feet, as a precaution against hernia. Her recovery took place without incident of special interest.
Case II.—On July 23d, 1895, I was called thirteen miles in the country to see C. B., a Swedish boy, aged 12, who was stricken with a severe pain in the bowels while cutting weeds with a scythe eleven days before. His parents thought he had overworked. He took his bed, but on the following Sabbath got up and went to church. On returning home he went to bed and remained there. On the day of my first visit his pain became so unbearable that he cried and screamed till he was heard all about the premises. A doctor was sent for, and on arriving at his bedside I found him having excruciating paroxysms of pain every few minutes. He was easy between paroxysms. His right abdominal muscles were rigid. He referred the pain to right inguinal region. Percussion gave dullness here over an area three or more inches in circumference. Palpation showed induration over same area; pulse 96, temperature 100° F.; he was thirsty, bowels constipated and somewhat tympanitic; diagnosis, recurrent appendicitis; six doses, 5 grains, Dover’s were left and ordered given every three hours till pain subsided unless he slept. Hot fomentations over abdomen were applied and changed often. I thought this a suppurative case requiring operation, so, on leaving, I told the father that I would return next morning, July 24th, with counsel, and that possibly an operation might be required.

Returning at 10 a. m. the next day the Dover’s had all been given, but he still had pain; pulse 96, temperature 100°½. His condition was such that Dr. Sundbury, as counsel, agreeing with me, I advised an operation, and it was accepted. Having taken along the required instruments and dressings we prepared the patient, and with the father and his fourteen-year-old daughter for assistants, proceeded to operate. After anesthesia the abdominal surface was scrubbed and disinfected, and a three-inch incision made over the indurated area parallel with border of the right rectus muscle. Hemorrhage was readily controlled. Intense peritonitis, parietal and vis-
ceral, was evident when the abdominal cavity was opened. The intestines were thoroughly adherent around the appendix, completely shutting it in. Separating the adherent intestines, in searching for the appendix, it finally came into view, in a state of advanced necrosis, and the sight of the small abscess, containing a quantity of thick, white pus, which welled up as the adhesions separated. This was wiped away with a sponge and appendix removed in pieces; the lumen at the head of cæcum was closed; the intestines were not adherent to the abdominal wall. The wound was packed with iodoform gauze, the abdomen closed, except drainage space, and the patient put to bed, having undergone the ordeal with no apparent shock.

During the operation in the cavity the incised peritoneum bled rather freely because of its intense inflammatory state, which was doubtless due to perforation of the appendix and escape of pus before the wall of adhesions around it was completed. There was gas and feces in the head of cæcum. These, with partial peristalsis, after the operation, were a source of some discomfort.

Anesthesia was readily induced by chloroform, well tolerated, and soon thrown off. On return to consciousness he complained of pain and was given hypodermically $\frac{1}{2}$ gr. of morphia, which relieved pain. Dover’s were ordered given if pain returned. Teaspoonful doses of a solution of magnesium sulphate ordered every two hours while awake till bowels moved.

July 25th, at 10 a.m., I found his pulse 96, temperature 100$\frac{2}{3}$. He had slept fairly well (better than the night before). Milk was taken at 7 p.m., but was thrown up before daylight. He had taken two Dover’s powders since ye-terday; had vomited four times, the first time fluid was greenish. He was thirsty, but was allowed warm water only. The bladder was emptied voluntarily, but no evacuation of the bowels having occurred, an enema of warm water and magnesium
sulphate was administered, and a fair movement followed; the dressing was not disturbed. Chicken broth was substituted for milk as diet.

July 26th, pulse 85, temperature 99; slept better; had vomited twice in twenty-four hours; bowels had moved five times; tympanites had disappeared; the dressing was changed; the gauze pulled out two or three inches, and one or two drams of dark bloody serum escaped; condition decidedly improved; says he feels better. Had taken two Dover's powders. Urination, four times during the night.

July 27th, pulse and temperature normal. Did not rest well last night. Urinated three times during the night.

July 28th, pulse 96, temperature 100½; he was restless and worried some. Removed all the gauze, irrigated the wound, packed it with new gauze. Bloody, foul smelling serum escaped. Wound somewhat reddened, stitch-hole abscesses appearing.

July 29th, pulse 90, temperature 100. Bowels moderately tympanitic; dressing changed; took two Dover's; thirsty.

July 30th, slept well; pulse 72, temperature 99½. Upon withdrawing gauze from wound, several drams of sero-purulent fluid escaped; some tympanites present; bladder irritable.

July 31st, temperature 99½, pulse 68; stitch-hole abscesses emptied, some stitches removed; tympanites subsiding.

August 1st, pulse 68, temperature 99; another stitch-hole abscess evacuated; appetite returning; general condition good.

The stitches were removed August 3d. On August 5th he began taking milk instead of broth. The bowels became regular. August 15th the gauze drain was left out. The bladder remained irritable for nearly two weeks after the date of operation. I saw this patient daily till August 12th, then every second day till August 25th, when he was dismissed, cured, but directed to remain in bed until six weeks had expired.
Nearly all the nursing of this patient fell upon his fourteen-year-old sister, who was without previous knowledge in caring for the sick, but she was strong, faithful, obedient, and unassuming; and in a most gratifying manner carried out my instructions to the letter. During the operation, as above stated, this girl and her father were our only help. In the beginning she was overcome, fainted, and fell upon the floor; soon the father swooned and sat upon the bed. They both shortly regained their composure and went on with their duties as intended.

The home of this patient is a miserable, little, old sod-house of three rooms, and unholy, musty odors greeted the olfactories upon entering. Sanitary conditions were not the best, but the patient got well.

Case III.—Mrs. J., American, aged 50, widow, dark complexion, medium size, moderately well nourished, consulted me April 4th, 1896. She gave the following history: Began menstruating at 11; passed menopause at 46; married at 16; has borne thirteen children, six are living, strong and healthy; was confined to bed six weeks after giving birth to each of last two children; was treated for womb disease several years ago with some benefit. Six months ago health began to decline, had nervous chills, difficult breathing, smothered feeling, occurring mostly at night; her sleep and rest was much broken, appetite good, bowels constipated. She had a seizure, probably hysterical, in which occurred a feeling of numbness and paralysis in left side of neck and throat, and she could not talk. Last February a similar attack occurred, and in the latter part of the month she came here from eastern Nebraska for treatment. She was treated for six weeks by another physician, who made a diagnosis of tumor of the womb, and advised going to some hospital for its removal, as it was growing perceptibly larger. Her daughter brought her to my office, and upon examination with two fingers in the vagina, and making counter-pressure over the abdomen
with the other hand, I found what appeared to be a solid tumor, extending from the uterus upward in the median line, more than half way from pubes to umbilicus. Pressure against the cervix moved the tumor upward with the uterus synchronously. Pressure against Douglas' pouch revealed tenderness and some pain, and gave the impression of a semi-solid substance, offering resistance. No tenderness appeared at any other point. Palpation and percussion over the abdomen gave no perceptible fluctuation. An operation for the removal of the tumor was advised, and the patient asked to return for a second examination, which she did April 9th, when she accepted an operation. The date was fixed for same, and she was put upon necessary preparation regimen, viz., baths, restricted diet, a tonic, intestinal antiseptic, and on the last two days the bowels were emptied by physic.

Complete preparation for asepsis having been made, the patient was put upon the table April 15th, 1896. Assistance was ably rendered by Drs. Knudson and Sundbury. Incision through the abdominal wall from pubes nearly to umbilicus revealed the tumor to be a moderately large and very tense cyst. Sweeping the fingers around it showed the origin of the pedicle to be in the right broad ligament in the region of the ovary. Only one very small adhesion was present, and that was on the outer side and posteriorly. The cyst was walled off from the intestines by gauze sponges and a trocar thrust into it and its fluid contents emptied. During this step the canula slipped from the cyst, and before it could be replaced some of the fluid escaped into the sponges and on the abdominal wound. The fluid was thick, dirty-grayish in color, rich in fat, which floated on top and soon hardened in flakes. The ovarian artery was ligated. The pedicle, which was nearly four inches broad, was clamped with compression forceps, tied off, divided, and the tumor lifted out and placed aside. There being no hemorrhage nor oozing, the abdominal wound was closed, dressed, and the pa-
tient put to bed in prime condition; complete union by first
intention followed, in abdominal wound, and the stitches were
removed on the thirteenth day. No stitch-hole abscesses
were present.

The patient suffered from nausea and vomiting for sixty
hours, but only slightly the last twenty-four. She had to be
catheterized for the first thirty-six hours because of inability
to empty the bladder. An attack of cystitis came on after
two or three days, which gave the patient all the pain and
discomfort she experienced after the nausea subsided. In two
weeks all pain had ceased, and did not return. She gave a
history of obscure bladder trouble prior to operation, and had
nearly a degree's elevation of temperature when put upon the
table. Her temperature was nearly 101 F. in the evening
following the operation; it was never more than 99\frac{1}{2} F.
thereafter. She did not have continuous normal temperature
until after cystitis subsided. I concluded that the temperature
elevation she had after the first day was due to vesical infe-
tion.

At this time (May 15) the patient is convalescent and is
able to walk about the house, and goes to the table for her
meals. On examination of the tumor after extirpation it was
found to contain a part of the broad ligament, the Fallopian
tube, the ovarian ligament, a large cyst, and fifteen or sixteen
small ones. The ovary had apparently undergone cystic de-
generation. Quite a number of small cysts contained a
transparent yellowish, serous fluid; the remainder contained
each a solid lump of yellow fat. In size these cysts ranged
from an almond to a small cherry. The large cyst held a
quart or more. Its inner surface at the bottom contained a
number of irregular depressions, as though formed by the
rupture of small cysts into it, and their walls in turn were
merged into its wall. At one point appeared an elevated
spot, large as a dime, upon which was visible a growth of
downy hair. It contained an irregular oval mass two inches
long by one inch broad by one inch thick, composed of hair fat, and sebaceous matter, thus revealing its character to be an ovarian dermoid. I present the tumor, the bunch of hair with the fat removed, and this quart jar of fluid for your inspection.

A dermoid cyst belongs to that class of tumors known as teratoma. All the embryonal layers may contribute cells to its tumor matrix, but usually it is derived only from the same layer as the skin—the epiblast; hence the source of its dermoid qualities.

Garrigues, in Diseases of Women, under dermoid cyst of the ovary, says: “Besides these attributes of the skin, many other tissues, or even simulacra of organs, have been found in the wall of dermoid cysts; bones (usually of the flat type), cartilage, striped and plain muscle fibers, gray brain matter, nerves going to the teeth, mucous membrane with papilla, a metacarpus with articulations, a trachea, a heart with a mitral valve, columnae, carnae, and chordæ tendinæ, and even an eye.”

Dermoid cysts rarely exceed in size the head of an adult. Those of the ovary may occur at any age; they have been found at birth and all the way up to ninety years. As many as 300 teeth have been found in a single cyst. The fluid contains cholestrin, urea, oxalic acid, leucin, tyrosin, and xanthin.
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