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PROCEEDINGS

OF THE

CONNECTICUT MEDICAL SOCIETY,

1902.

ONE HUNDRED AND TENTH

ANNUAL CONVENTION,

HELD AT

NEW HAVEN, MAY 28TH AND 29TH.

PUBLISHED BY THE SOCIETY.

JOHN A. GRANNIS, M.D.,
GOULD A. SHELTON, M.D.,
N. E. WORDIN, M.D.,
Publication Committee.

1902.

The Connecticut Medical Society does not hold itself responsible for the opinions contained in any article, unless such opinions are endorsed by special vote.

All communications intended for the Connecticut Medical Society must be addressed to N. E. Wordin, M.D., Bridgeport, Conn.

The next Annual Meeting of the Connecticut Medical Society will be held in Hartford, May 27th and 28th, 1903.

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1902—1903.

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S. B. ST. JOHN, Hartford.

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E. K. ROOT, P. W. STREET, F. K. HALLOCK.

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FRANK K. HALLOCK, M.D., Middlesex County.
C. B. NEWTON, M.D., Tolland County.

On Medical Examination.

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WALTER L. BARBER, M.D.,
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PROCEEDINGS

OF THE

CONNECTICUT MEDICAL SOCIETY,

ONE HUNDRED AND TENTH ANNUAL MEETING.

The President and Fellows of the Connecticut Medical Society met in the rooms of the Young Men's Republican Club, New Haven, on the afternoon of Wednesday, May twenty-eight, and were called to order promptly at 2 o'clock by the President. The following is the list of Fellows with their attendance:

FELLOWS, ex-officio.

President.

JOHN H. GRANNISS.

Vice President.

GOULD A. SHELTON.

Presidents of County Associations.

*NATHAN MAYER,
*FREDERICK B. TUTTLE,
*NEWTON P. SMITH,
NATHANIEL E. WORDIN,
*FRANK M. COOPS,
*JEROME S. BISSELL,
*FRANK E. POTTER,
ELI P. FLINT.

Treasurer.

W. W. KNIGHT.

Secretary.

N. E. WORDIN.

Assistant Secretary.

J. H. TOWNSEND.

Committee on Matters of Professional Interest in the State.

*N. R. HOTCHKISS, *E. K. ROOT,
E. P. FLINT.

*Absent.

FELLOWS ELECTED BY COUNTIES.

Hartford County

Everett J. McKnight, Robert E. Ensign,
John H. Rose, Theodore G. Wright,
Philip D. Bunce.

New Haven County.

Lewis Barnes, John J. Barnett,
E. W. Goodenough, †Elias B. Heady,
Stephen J. Maher.

New London County.

Julian LaPierre, *Abiel W. Nelson,
*George R. Harris, *William T. Browne,
C. E. Brayton.

Fairfield County.

Harry S. Miles, *Harry W. Fleck,
*William F. Gordon, Curtis H. Bill,
*James A. Meek.

Windham County.

Charles J. Fox, ‡Henry Hammond,
William H. Judson, *William W. Adams,
*Ashael E. Darling.

Litchfield County.

Edward H. Welch, George H. Knight,
*John W. Johnson, Elias Pratt,
*John M. North.

Middlesex County.

Henry S. Noble, *George M. Lawson,
Charles E. Stanley, *Roger C. Downey,
*Lewis Maitland.

Tolland County.

*Clarence E. Simonds, *T. J. O'Laughlin,
Frank L. Smith.

*Absent. †Alternate for H. H. Smith. ‡Alternate for S. B. Overlock.

The President then read his

ADDRESS TO THE FELLOWS.

Fellows of the Connecticut Medical Society.

Gentlemen :—

Literally nothing has occurred to mar the peaceful progress of the Connecticut Medical Society during the past year; consequently the duties of your President have been mostly of a perfunctory character.

In January a communication was received from the Secretary of the International Medical Congress, inviting this Society to send a delegate to its meeting to be held in Madrid, April 23-30, 1903. It would certainly seem that so courteous an invitation should be accepted and a delegate appointed.

This Society is requested to adopt a resolution favoring introduction into the curriculum of all medical colleges in the United States the practical teaching of Dietetics, Physico-Mechanical Therapeutics and Hydrotherapy. The great importance of the subject first mentioned would seem to justify the adoption of such a resolution, but as the time of the medical student is at present so fully occupied, it would seem that an extension of the length of time covered by the course of study would be necessary, in order to increase the number of branches taught.

I am also requested to bring before the Society a set of resolutions adopted by the Kansas City Academy of Medicine regarding indecent advertisements called "Guarantees," "Sure Relief," "Sure Preventive," etc., which I will not read as if the committee to which this address will probably be referred should think best the Preamble and Resolutions will be read and doubtless fully discussed.

In accordance with the new organization of the American Medical Association we are to elect one delegate for one year, and one for two years. Those of us who are readers of the "Journal of the American Medical Association" are doubtless familiar with the new Constitution and By-Laws for each of the States drawn up by the committee appointed by the President of the American Medical Association, Dr. John A. Wyeth.

As the Constitution of the larger Association was patterned after our own, I fail to see the necessity of any material change.

I believe it would be well to adopt the nomenclature which the committee recommends for the sake of uniformity among the States, viz., that the name of the State Society be changed to Connecticut Medical Association, the counties to retain the name Society. Also that the body we now denominate "The President and Fellows" be designated as "The House of Delegates."

Probably in the larger and more sparsely settled States and Territories a body denominated the Council would be very useful, but in our small State it would seem to the speaker to be superfluous. However this whole subject is a matter for the Society as a whole to consider and decide upon with deliberation. It is proposed that your committee appointed last year "To consider how to make our meetings of more scientific interest and to change the By-Laws according to their own ideas," will present some more concerted plan for the consideration of fewer subjects and more thorough preparation for each one than has heretofore obtained.

By the authority vested in the President, by a vote of our last meeting, I appointed Dr. Gustavus Eliot alternate delegate to the meeting of the committee of the American Medical Association on the National Legislation. Just here I would suggest that the Nominating Committee of the Society be empowered to nominate an alternate or that the delegate elected be empowered to

elect his substitute in case of his inability to attend the meeting of the National Committee.

I would also recommend that the President be permanently empowered to appoint such committees as may be needed from time to time and also to fill vacancies in committees which may arise during the year.

A few days ago by invitation of the President and Society of the "American Congress of Tuberculosis," your President and Secretary jointly selected the following named gentlemen to act as delegates from this Society to the meeting of the Association to be held in the city of New York, June 2, 3, 4. We selected:

Doctors C. D. Alton, F. T. Simpson, C. C. Beach, W. G. Murphy, G. J. Holmes, I. W. Irving, F. W. Wright, O. T. Osborne, W. G. Daggett, J. S. Ely, C. J. Foote, J. W. Seaver, F. N. Loomis, C. E. Munger, J. LaPierre, R. W. Kimball, G. L. Porter, F. B. Downs, Robert Lauder, D. C. Brown, E. P. Flint, F. C. Smith.

To-morrow the convention will listen to a paper on "Connecticut's Influence in the Development of the American Hospital for the Insane," by Dr. C. W. Paige, in which he will recount in more or less detail the long, persistent and pioneer services of Dr. Eli Todd in favor of this unfortunate class of patients.

It is suggested that some memorial be erected in or near the Capitol at Hartford to commemorate his name.

It would seem eminently proper that this Society take some official action to perpetuate the memory of so great and good a man.

And now I am constrained to thank you for the great and undeserved honor conferred upon me and to plead only inability as an excuse for any errors of omission or commission.

I now declare the One Hundred and Tenth Annual Meeting of the Connecticut Medical Society open for the transaction of business.

The Secretary called the roll and the regular Committees were announced.

On Credentials.

N. E. Wordin, J. H. Townsend.

On Unfinished Business.

Nathan Mayer, C. H. Bill,
S. B. Overlock.

On County Resolves.

N. P. Smith, H. S. Noble,
A. W. Nelson.

To Nominate Essayists on the Progress of Medicine and Surgery.

F. E. Potter, D. P. Bunce,
J. F. Barnett.

Nominating Committee.

E. J. McKnight, Lewis Barnes,
Julian LaPierre, H. S. Miles,
C. J. Fox, E. H. Welch,
H. S. Noble, C. E. Simonds.

Auditing.

F. H. Coops, J. S. Bissell.

Reception of Delegates and Guests.

W. H. Carmalt, H. L. Swain,
R. A. McDonnell, G. Eliot.

Reports of Committees were called for. There was no report from the Committee on Unfinished Business, Dr. Mayer, the chairman, considering that the matters referred to him would be embodied in the Report of the Committee to Revise the By-laws.

The Report of the Treasurer was made as follows:

TREASURER'S REPORT.

To the President and Fellows of the Connecticut Medical Society:

As Treasurer, I would respectfully present the following report of the finances of the Society for the year ended May 27, 1902:

RECEIPTS.

Cash received from taxes collected by County Clerks:		
Hartford County,	$287 78	
New Haven County	321 75	
Fairfield County,	182 93	
New London County,	104 00	
Middlesex County,	90 00	
Windham County,	49 25	
Litchfield County,	97 65	
Tolland County,	26 33	
Proceedings sold,	8 00	
Total,		$1,167 69

EXPENSES.

Deficit from old account,	$ 16 12
Proceedings, printing, binding, distribution, etc.,	639 60
Printing, stationery, etc.,	81 67
Postage, etc.,	72 86
Expenses, Delegate to meeting of Committee on National Legislation,	20 00
Expenses, Committee on Matters of Professional Interest,	30 56
Expenses, Committee on Epilepsy,	109 33
Cataloguing Library,	10 00

Salary, Secretary,	150 00	
Expenses, Secretary,	5 40	
Salary, Treasurer,	25 00	
Total expenses,		$1,160 79
Balance to new account,		6 90
		$1,167 69

ARREARS IN TAXES OF 1901.

Hartford County,	$ 20 00
New Haven County,	110 25
Fairfield County,	119 25
Litchfield County,	20 25
New London County,	24 75
Middlesex County,	Nothing
Windham County,	13 50
Tolland County,	Nothing
Total amount in arrears,	$308 00

By means of a reduction in the amount paid for the Proceedings the expenses of the Society have been kept within its income.

The deficit of $16.00 of last year has been paid, and we have $6.90 in the Treasury.

This is a short step in the right direction, but it will not do much toward paying for the Proceedings of this year. The County Clerks find it impracticable to collect the tax to any extent before Fall meetings, and consequently the Treasurer has no money to pay for the printing and binding when the bills come in, about the first of August.

During the year the Treasurer has been repeatedly dunned, one creditor putting his bill into the hands of a legal firm for collection. The Treasurer was not able to pay the whole of the bills for printing and binding until February, 1902.

The only way to provide funds in time to pay these bills when due that the Treasurer can see is to lay an extra tax so as to provide a surplus at the end of next year.

This year we have just paid expenses with a two dollar and twenty-five cent ($2.25) tax.

The Treasurer would renew his recommendation of last year that a tax of three dollars ($3.00) per member, payable June 1, 1902, be voted.

Respectfully presented,

W. W. Knight, M.D.,
Treasurer.

It was referred to the Auditing Committee.

A motion to lay a tax of three dollars per capita, in accordance with the suggestion of the Treasurer, was made and laid on the table.

Reports of Special Committees were called for. The Medicolegal was the first one in order. No report being presented, it was voted that the Committee be discontinued.

Dr. Rodman reported the result of the conference at Washington of

THE COMMITTEE ON NATIONAL LEGISLATION OF THE AMERICAN MEDICAL ASSOCIATION.

The third annual conference of the Committee on National Legislation was called to order by the chairman, Dr. H. L. E. Johnson at 9 A. M., April 10, 1902, at the Arlington Hotel in Washington. Twenty-four members were present. The most remote States represented were Michigan, Wisconsin and Minnesota in the West; South Carolina, Florida, Louisiana, Alabama and Arkansas in the South and Southwest, and New Hampshire in the North.

Connecticut was represented both by the delegate appointed at the annual meeting of his Society in 1901, an

appointment ratified by Dr. Wyeth in accordance with the new constitution of The American Medical Association, and also by the alternate selected by our President. The reports from the various sub-committees, the public documents pending and proposed, together with the discussions and actions taken thereupon were little less voluminous than the annual transactions of this Society. As all the above matters will be published from the original drafts and stenographer's notes in the Journal of the Association, I may be pardoned if I do but enumerate the more important subjects pertaining to National Legislation, speaking more fully concerning the reports upon uniform medical legislation and State organizations.

Concerning National Legislation, there were submitted and approved by the conference bills for an increase in the medical corps of the United States Navy (S. bill 4112), for equalizing the pay of officers of the line, medical corps, pay and chaplain corps of the Navy with officers of corresponding rank in the Army and Marine corps (H. R. bill 8194), a bill providing for a Navy hospital at Annapolis and one for increasing the Naval Hospital corps. In accordance with resolutions adopted by The American Medical Association in 1899, a bill has been submitted to Congress, honoring and retiring as Major-General, Dr. Sternberg, formerly President of the Association. This is a bill providing for the selection and retirement of medical officers in the Army, and is as follows:

Be it Enacted by the Senate and House of Representatives of the United States of America, in Congress Assembled:—

That the President of the United States is hereby authorized to select one from such medical officers of the Army as have served forty-one years or more, nine years of which shall have been as Surgeon-General, and, by and with the advice and consent of the Senate, appoint him a Major-General of the United States Army for the purpose of placing him on the retired list.

Dr. Sternberg is best known to us as a writer, author of a work on bacteriology and as President of The American Medical Association, he having been elected in 1897. His service in the Army covers the entire period of the Civil War, as well as that of the Spanish-American war. In view of his long and honorable career and public services, and of his having filled the highest position in the gift of The American Medical Association, it has seemed proper to ask every member of the affiliated societies to write to his own Senators and Representatives urging the passage of this bill.

The action of the conference of State Health officers at Washington, March 12th-13th last, and their recommendation to Congress on pending national health bills was considered and approved. To the Perkins-Hepburn bill, "a bill to increase the efficiency and change the name of the United States Marine Hospital Service," an important amendment was recommended by the conference. This bill (Senate 2162) was introduced by Mr. Perkins, December 19th, 1901, and was reported May 14th, 1902, by Mr. Spooner, amended as desired by the conference, and is now pending. By its provisions "The United States Marine Hospital Service shall hereafter be known and designated as the Public Health and Marine Hospital Service of the United States."

The scope of the service is greatly increased in lines of scientific research and laboratory work. The section incorporated at the request of the conference I quote in full from copy just printed and received yesterday.

Sec. 7. That when, in the opinion of the Surgeon-General of the Public Health and Marine-Hospital Service of the United States, the interests of the public health would be promoted by a conference of said service with State or Territorial Boards of Health, quarantine authorities, or State Health officers, the District of Columbia included, he may invite as many of said health

and quarantine authorities as he deems necessary or proper to send delegates, not more than one from each State or Territory and District of Columbia, to said conference: Provided, That an annual conference of the Health authorities of all the States and Territories and the District of Columbia shall be called, each of said States, Territories, and the District of Columbia to be entitled to one delegate: And provided further, That it shall be the duty of said Surgeon-General to call a conference upon the application of not less than five State or Territorial Boards of Health, quarantine authorities, or State Health Officers, each of said boards or quarantine authorities joining in such request to be represented by one delegate."

As the result of this legislation, we anticipate the practical establishment of a department of public health, this, however, by the extension of the existing service.

The ever recurring bill for the further prevention of cruelty to animals in the District of Columbia (S. B. 189), was considered and adverse action recommended, its restrictions being needless and a bar to medical progress.

The report of the Committee on Uniform Medical Legislation was adopted as follows after discussion and amendment:

"The Committee on Uniform Medical Legislation, on the basis of Uniform Medical Education, of the Conference of the Committee on National Legislation of the American Medical Association and affiliated Societies begs to report as follows:

1. The Committee recommends that each State Medical Society appoint a Committee on Uniform Medical Legislation, consisting of three members, and further,

2. That the American Medical Association appoint a Standing Committee on Uniform Medical Legislation of three members, one each from the South, one from the West and one from the North.

3. The Committee recommends that the State Medical Societies, acting through their Committees, do all in their power to change their respective medical laws so that they may conform to the best medical law in an adjoining State. This will lead to the formation of groups with equally good medical laws. In this way progress toward general uniformity in the United States can be more readily accomplished.

4. The Committee of the American Medical Association might be a central station for the exchange of opinions and for furnishing information, suggestions and advice.

5. The subject is of such great importance, for the welfare of the people, for the standing of the profession, and for the interest of each individual physician, that the Committee begs to be relieved and wishes that the whole matter be referred to the American Medical Association through the House of Delegates.

(Signed),

EMIL AMBERG,
JOHN B. ROBERTS."

In the original draft, signed by a majority of the committee, a National Examining and Licensing Board was advocated. As this appears to be unconstitutional and in conflict with the rights of the sovereign States, Dr. W. L. Rodman, of Philadelphia, spoke at length in favor of a voluntary National Board of Examiners to consist of the Surgeon-Generals of the Army, Navy and Marine-Hospital Service with equally representative civil practitioners representing the American Medical Association, the National Board of State Examiners, etc. Dr. Rodman argued that uniform examinations can be conducted in various States, the questions having been framed by the National Board and that the States will soon recognize certificates issued by a Board of such high character as they now do the commissions of medical officers

in the Army, Navy and Marine-Hospital Service. Dr. Rodman's address has been revised and published in the Journal of May 10th, together with a letter to the profession by the President, Dr. John A. Wyeth, and with editorial comment in extenso. The universal interest in the subject is evidenced by the wide-spread discussion in our medical journals. It has been suggested that Congress may ultimately authorize a single Board as above constituted to conduct alike examinations for the Army, Navy and Marine-Hospital Service.

Bearing on this subject and the action afterwards taken by the conference, the delegate from the Connecticut Society said:

"The question of the constitutionality of a National Board is a question of the authority of such a Board. The difficulty can be avoided by a trifling modification of the Medical Practice laws of the several States. A simple amendment and that of a negative character can probably be obtained with little opposition. Some two years ago I wrote to Surgeon-General Sternberg suggesting the exemption from State examinations of those who have successfully passed the medical examinations of the United States Army. I represented that as soon as a few States admitted such candidates for practice without further examination there would be those ambitious to qualify in this way. Dr. Sternberg replied that owing to the increase in the United States Army the Board was overworked. May it not, however, be possible to enlarge the Board and meet the expense from the fees charged from the examinations?

The Medical Practice Act of the different States generally contain a provision like this: 'This act shall not apply to commissioned officers of the United States Army, Navy, or Marine-Hospital Service.'

I believe there would be little opposition in any State to admitting without examination those who have met the requirements of the National Examining Boards.

I move that we recommend to our State Societies the introduction at our next State legislative sessions of an amendment to our Medical Practice Act, viz., as follows:

"The provisions of this act shall not apply to those who have successfully passed the examination of the United States Army, Navy or Marine-Hospital Service."

This was unanimously adopted by the conference.

Much time was devoted to reports and discussion upon State medical organization. All this will appear in full in the Journal, where can be found under date of May 3d, report of the special committee on uniform organization. It appears that many of the essential features of organization so long in vogue in Connecticut have been followed in reorganization in New York State, have been adopted by the American Medical Association and are to be engrafted upon other State societies. An extract from a statement from the committee on reorganizaion of the Minnesota State Society which was read at the conference may interest as showing what is being done elsewhere.

"To accomplish the plan of federating State and County societies it is recommended to amend the constitution and by-laws of the State society as follows:

1. Membership in the State societies in counties where there is a county society in affiliation is to be had only by joining the county society. In counties where there is no affiliated county society, membership may be had by application, as at present, the names of applicants to be laid over for one year before election.

2. All present and future members of the affiliated county societies become members of the State society.

3. County societies already in affiliation with the State society may upon request continue in affiliation under the revised constitution and by-laws. The society may take in new county societies by a two-thirds vote, the constitution and by-laws of the new society having

first been approved by a committee consisting of the President, Secretary and Treasurer of the State Society."

Under the new constitution of the American Medical Association, appointment of the State delegates devolves upon the President of the Association. It is the unanimous opinion of the legislative committee and the delegates at the recent conference that this is a mistake. No one cares to make the sacrifice of time in attendance upon the session unless sent by and backed by his own State. To one living where I do in Connecticut it means absence for at least three nights and the intervening days. We assembled at nine in the morning of the first day, remaining during the afternoon, interviewed members of Congress, convened at nine the next morning and adjourned in time for departing trains. From an assembly so small, no member having registered as representing his own State felt at liberty to absent himself for recreation or other purpose. Representation at the annual conference will not be secured unless delegates feel that they are honored by their States in their appointment. The sacrifice of time on the part of a delegate traveling two or three thousand miles is too great. Under the conditions hitherto existing men have gone because representing their States, but if the State society is not to be consulted in the appointment the delegates to the recent conference do not desire to go again, and a thankless task will be imposed upon the President of the American Medical Association. A proposition to repeal this provision of the new constitution will be offered at the Saratoga meeting.

From this outline of the work of the conference at its third annual meeting it is apparent that the subjects discussed, viz., improvement and enlargement of the public service, the rights of medical officers, organization of State and National societies and uniform medical legislation, are those of the greatest importance to our profes-

sion and that the reports and actions taken by the conference excite wide-spread discussion.

The report was accepted and the thanks of the Society were tendered to Dr. Rodman for his service. Dr. Rodman suggested that an effort be made in our own State exempting from examination officers of the Army, Navy and the Marine-Hospital Service, hoping that these may be combined or that the examinations be all united in one. This would make a list which could be held in reserve and would be available to draw from in case of war.

Dr. Hallock, from the Committee to Nominate Physician to the Retreat for the Insane, reported that no business had been transacted.

Dr. Segur then presented

THE REPORT OF THE COMMITTEE TO REVISE THE BY-LAWS.

To the President and Fellows of the Connecticut Medical Society:

GENTLEMEN:—

The committee appointed "to consider how to make the meetings of more scientific interest, and to change the By-laws according to their own ideas" would report:

In accordance with the freedom expressed in the resolution calling for our appointment, we would recommend,

That the Constitution and By-laws proposed by the committee of the American Medical Association for State societies in affiliation with it, and which may be found in the Journal of the American Medical Association of May 3, 1902, with such necessary changes as would make it acceptable to this Society, be adopted in place of the present Constitution and By-laws.

The desirability of a uniformity in the Constitution and By-laws of the various societies forming the American Medical Association is a very strong argument in favor of its adoption, and we would recommend this course for the earnest consideration of the members of our Society.

That the Society may be enabled to act upon this proposition at the next annual meeting, we would propose the following resolution:

Resolved, that the Committee of Legislation be directed to apply to the next General Assembly of the Legislature for such amendments in the Charter of the Connecticut Medical Society as will enable it to accept the Constitution and By-laws proposed by the American Medical Association.

Pending so radical a change, your committee would propose for your consideration the following amendments to the present By-laws. In these amendments are incorporated those proposed at the last meeting with respect to the appointment of committees by the President; the expense of the annual dinner; and the all-imporant topic of how to make our meetings of more scientific interest.

It is proposed that the annual fee shall cover the expense of the dinner.

The subject of representation is now epidemic and it behooves us to take a just and equable position respecting its treatment. We therefore propose for your consideration the representation of the Fellows from each County Association in the proportion of one for each twenty. This will give the smallest county 2 members, since its President is ex-officio a member and the representation would be as follows:

Hartford,	8	10	164
New Haven,	12	12	210
Fairfield,	8	5	130
New London,	4	2	46
Windham,	3	3	35
Litchfield,	4	3	51
Tolland,	2	2	17
Middlesex,	4	4	43
A total of	45	as at present.	
Revised figures	46		

The Business Committee, which at present has full control of the literary arrangements of the annual convention is changed to a Committee on Matters of Scientific Work and augmented by the addition of the President of each County Society.

It is proposed that members shall pay an initiation fee of five dollars, such fee to be placed in a fund which the Society may use for scientific or other purposes. The other changes proposed are such as are incident to carrying out the above propositions, and making provision for the removal of a member from one to another county and from the State. Although an entire revision of our By-laws would render them more in consonance with present custom, yet, unless some such change as that at first proposed by us should be favorably acted upon by the Society, we have endeavored to make them more definite and practical with as few changes as possible in our present form.

AMENDMENTS.

Amend Chap. II, Sec. 1 by substituting for—"Committee on Matters of Professional Interest in the State"—"Committee on Scientific Work."

Amend Chap. II, Sec. 2 by inserting after—"committees" in 4th line,—"appoint such committees as may be necessary, and to fill vacancies in existing committees when such occur."

Amend Chap. II, Sec. 5 by striking out,—"a public notice of the same in three daily papers printed in this state."

Amend Chap. II, Sec. 6 by striking out the entire section.

Amend Chap. II, Sec. 7 to become Section 6.

Amend Chap. II, Sec. 8 to become Section 7.

Amend Chap. II, Sec. 7 by inserting between—"Treasurer"—and—"Secretary"—"and"—; by striking out,—

"and chairman of the Committee on Matters of Professional Interest in the State."

Amend Chap. II, Sec. 9 to become Section 8.

Amend Chap. III, Sec. 2 by striking out,—"Committee on Matters of Professional Interest in the State."

Amend Chap. III, Sec. 5 by striking out the present section and inserting the following: "The Committee on Scientific Work shall consist of the President, the Vice-President and the Secretary of the State Society and the Presidents of the several County Associations. Besides receiving the dissertations and other papers and reports of cases which in course are referred to them to be read at the meetings of the Society, this committee shall procure by personal solicitation papers from persons qualified to discuss professional matters of fundamental importance and current interest, and shall seek in every way to furnish an attractive and profitable program of literary exercises for the annual convention. The papers thus secured shall have the place of honor on the program above those referred in course.

This committee shall appoint a sub-committee of three on publication, of which the Secretary shall be one and chairman.

The Committee on Scientific Work shall hold office for one year from the time of the annual election, and shall meet for organization before the close of the session."

Amend Chap. IV, Sec. 1 so that it shall read,—"At their annual meeting they shall elect by ballot, of their own number, in each county, one Fellow for every twenty and fraction of twenty of their membership, to have part &c."

Amend Chap. IV, Sec. 4 by substituting in the first liue—"month"—for—"year"—and inserting after "same" in third line,—"and pay an initiation fee of five dollars."

Amend Chap. IV, Sec. 9 by striking out the entire section and substituting the following: "It shall be the

duty of the several Clerks of the County Associations, in their respective counties, to collect and pay over to the Treasurer of the State Society all initiation fees and such taxes as shall from time to time be laid by the President and Fellows upon the members of the Connecticut Medical Society. A certified copy of the levy of the tax signed by the President and Secretary, shall be sent annually to the Clerk of each County Association. The Clerks shall be allowed a compensation of five per cent. on all taxes collected by them. Any additional sum that the County Association may direct, may be used by the Clerk to pay the expenses of the meetings of said Association."

Amend Chap. V by the addition of Sec. 6, "When a member of a County Association removes to another County, his name shall be transferred to the roll of members of the Association in the County of his new residence."

Amend Chap. V by the addition of Sec. 7, "When a member removes from the State of Connecticut permanently, he shall cease to be a member of the Connecticut Medical Society, and shall forfeit all right and title to any share in the privileges and property of the Society."

Amend Chap. VI by the insertion of the following: "The Committee on Legislation shall consist of one member from each County and the President, Vice-President and Secretary. Under the direction of the President and Fellows, it shall represent the Society in securing and enforcing legislation in the interest of the public health and of scientific medicine; it shall keep in touch with professional and public opinion; and shall endeavor to shape legislation so as to secure the best results for the whole people."

Amend Chap. 7, Sec. 3 by striking out the present section and inserting in its place:

"On the day of the annual convention a dinner shall be

provided, at the expense of the Society for those members notifying the Committee of Arrangements one week in advance. Delegates from other Societies shall be provided for under the direction of the Committee of Arrangements. An invitation to this dinner may be given to such eminent persons as the President of the Society, or Anniversary Chairman, shall think proper to notice in this manner. Members not giving notification shall pay the cost of their dinners."

Amend under Order of Exercises—"Report of the Committee on Business"—by substituting—"Report of the Committee on Scientific Work."

Amend the Order of Exercises by striking out the "Report of the Committee to Nominate Essayists on the Progress of Medicine and Surgery."

Respectfully submitted.

GIDEON C. SEGUR,
GEO. L. PORTER,
Committee.

SECTIONS AMENDED.

CHAPTER II.

SECTION 1. The officers of the Society shall consist of a President, Vice President, Treasurer, Secretary and Assistant Secretary, Committee on Scientific Work, and the Presidents of the County Associations, who shall be Vice-Presidents ex-officio.

SEC. 2. It shall be the duty of the President to preside at all meetings of the President and Fellows and at the Conventions of the Society, to preserve order, state and put questions, call for reports of committees, appoint such committees as may be necessary and to fill vacancies in existing committees when such occur, see that the by-laws are properly observed, and perform such other duties as may be appropriate to his office. At the Annual Meeting of the President and Fellows, the President shall present such matter for their consideration as

he may think requires attention. At the Annual Convention he shall deliver an address on some suitable subject.

SEC. 7. The necessary expenses of the Treasurer and Secretary shall be paid, and in addition thereto the Treasurer shall receive twenty-five dollars and the Secretary one hundred and fifty dollars per annum respectively for their services.

SEC. Each County Association shall choose a President, Clerk and such other officers as may be found necessary. At their annual meeting they shall elect by ballot, of their own number, in each county, one Fellow for every twenty and fraction of twenty of their membership, to have part in the superintendence and management of the society.

SEC. 4. All persons so elected shall, within one month after said election, subscribe to the by-laws of the Society or otherwise declare in writing their assent to the same, and pay an initiation fee of five dollars, or such election shall be void.

MINORITY REPORT.

I agree in general with the other members of the committee in the changes proposed in our By-laws, and I also agree with them in recommending the Constitution and By-laws proposed by the American Medical Association as a model, with such modifications as seem necessary and expedient.

I do not agree, however, with the other two members in their recommendation on the question of representation which is one Fellow for every twenty (20) membership. According to this plan the three larger counties have an absolute majority and two of the larger—Hartford and New Haven—combining with one of the smaller counties would hold a majority.

The proposed Constitution and By-laws of the American Medical Association suggests the ratio of one to one

hundred—but it also states in the same paragraph the reason for giving the higher proportionment, namely,—"to make it impossible for the larger Societies to get a controlling interest in the legislative body." The whole proposition then in a nut-shell, is how to re-arrange the proportionment so as to do full justice as far as possible to both the large and the small counties—and also to prevent the two or three larger counties from getting absolute control. This could be accomplished in one of two ways.

First—by fixing on some arbitrary representation according to our present plan only reducing the number—say:

Hartford,	4
New Haven,	4
Fairfield,	4
Litchfield,	3
Middlesex,	3
Windham,	3
New London,	3
Tolland,	2
Total,	26

Or second—by making a high ratio, say one Fellow to every one hundred and fifty (150) membership or fraction thereof which will give together with the Presidents ex-officio of the County Societies:

Hartford,	3
New Haven,	3
Fairfield,	2
Litchfield,	2
Middlesex,	2
Windham,	2
New London,	2
Tolland,	2
Total,	18

According to either of these plans the legislative body would be much smaller than formerly, which I believe is desirable since one-third of the Fellows annually elected do not usually attend the annual meeting. With a smaller representation and the smaller and larger counties more equally divided, the incentive would be for a fuller attendance and a more efficient body.

At the same time the custom of rotation of the Presidents should be changed, so that the larger counties would secure the presidency more frequently than at present, thus enabling Hartford, New Haven and Fairfield in turn, to have the presidency once in every two years; now they get it once in eight years.

I would also recommend if the Association decided to revise the Constitution and By-laws according to the plan proposed by the American Medical Association, that the Committee on Revision be enlarged to include the Presidents of the County Societies.

Respectfully submitted,

RUSH W. KIMBALL,
Member of the Committee.

A motion was made to lay the Report upon the table.

Dr. Eliot: I don't know what the Committee intends. I was present when the motion was made. It was not intended to do away with our Constitution and By-laws under which we have lived, but to make the meetings better.

Dr. Pratt: There are things in the Report which the Society must meet. The motion to lay on the table ought not to prevail. We must consider and take definite action.

The motion to lay on the table was withdrawn.

Dr. Pratt: According to our Constitution now no County can have more than five Fellows. Before we can do anything we must go to the Legislature. If the Report is laid on the table the whole matter will be stopped

and nothing can be done. These proposed changes in the By-laws should be referred to the Committee on Legislation for their action and copies of the Report should be had for reference.

Dr. Eliot: After the Report is tabled copies can be made and sent.

Dr. LaPierre said that he came in late. Does this refer to both reports or only the majority report?

Dr. Garlick moved that the majority report be received that it be referred to the Committee on Unfinished Business who will have the Report printed with their suggestions, one month before the annual meeting.

Dr. Pratt moved to amend to two months so as to give time to bring it before the County Societies.

Dr. LaPierre spoke in behalf of Dr. Kimball that his report was not just as he would have it. He wasn't conversant with our rules and regulations and didn't know that the Assistant Secretary and Committee on Matters of Professional Interest were entitled to vote. It was hardly fair to have his report as it is now go before the Committee with the majority.

Some years ago a similar thing disturbed our Society. He hoped this would lie on the table. If it is best to constitute a new Committee, do so.

Dr. Segur: Those topics have been presented which seem best in our Report. We would not be strenuous about any of them. We did the best we could with the instructions we received. The report must lie on the table until the next meeting. But some amendments were proposed at the last meeting and can be acted on now. One is regarding the dinner, one regarding the appointment of Committees by the President and giving him authority to fill vacancies. These can be acted on now. If it is desired any change can be made necessary to act upon the Charter. The Legislature will meet during the coming Winter. The Charter can be changed so as to allow the State Society to make its own rules

and that will allow us to make any change we desire.

The motion of Dr. Garlick was passed.

Dr. Mailhouse then read

THE REPORT OF THE CONNECTICUT COMMITTEE FOR THE STUDY OF EPILEPSY.

The Committee to which was referred the inquiry into the condition of the epileptics in this State and which at the last meeting of the Society was requested to continue its investigations, has complied with your order, and begs leave to present its report. Taking as a basis the figures compiled and facts deducted in its last report, the Committee considered it of paramount importance to learn what material there might be within the State which would not only be proper for a colony, but would also justify its establishment. Hence our circular limited itself to the asking of but three questions in general; namely, first, as to the number of epileptics; second, as to the number who might be considered by the reporter as proper subjects for a colony, and third, as to the capability of improvement in these. (The object of the last question, to learn whether it might pay the State from a practical standpoint to make an investment from that point of view). The reporters, being all physicians or officials of experience in institutions containing patients of that class, would be necessarily the individuals best fitted to judge of these questions. Furthermore, in order to render the statistics of the most practical value, the entire inquiry was limited to epileptics over six years of age not pronouncedly insane or idiotic; in other words, to individuals who are or might be rendered capable of manual labor of some kind.

There were one hundred and twenty-eight replies received to an aggregate of about sixteen hundred circulars sent out. The following is a summary of these replies:

SEX.

Males,	202
Females,	155
Total,	357

SOCIAL CONDITION.

Single,	262
Married,	68
Widowed,	23
Divorced,	3
Not stated,	1

WORKING ABILITY.

Partial (4 to 8 hours),	116
Full (10 hours),	72

MENTAL CONDITION.

Sane,	151
Feeble-minded,	205
Not stated,	1

FINANCIAL STATUS.

Good,	77
Indigent,	134
Pauper,	145
Not reported,	1 (child)
Proper subjects for a colony,	148
Susceptible of improvement,	120

These statistics differ from those of last year in the total for two reasons; first, because many physicians who last year sent in a report did not care to go over their records again on account of the labor involved, and secondly, because this inquiry was of more limited scope, the insane and pronouncedly idiotic, and also epileptics under six years of age, being eliminated. In other words, our object was to keep out of the discussion all who by reason of age or mental condition should not be placed in a colony. It appears to us that the statistics

reveal some very interesting facts. First, there are no less than three hundred and fifty-seven epileptics of this class in the State. Secondly, that of these, one hundred and forty-eight are considered by those best fitted to judge, proper subjects for a colony. Thirdly, that one hundred and twenty of the total number, if not of the one hundred and forty-eight, are capable of improvement. And furthermore, that one hundred and sixteen, or nearly thirty-three and one-third per cent., are capable of doing work, varying from one to two to six or eight hours, and that seventy-two, or about twenty per cent., are capable of working full time. As to their mental condition, a little over forty per cent. are perfectly sane, and somewhat less than sixty per cent. are feeble-minded, but not pronouncedly so. Of their financial status, seventy-seven, or about twenty per cent. can pay or be paid for by relatives and friends; one hundred and thirty-four, or nearly forty per cent., can pay more or less for their care and training; while the remainder are paupers and would require a total outlay.

Now as to the future of this movement, general throughout the country, for a working home for many of these unfortunates. (The word working is used advisedly, for it should be a place that works not only in the way of the improvement of the mental, moral, and physical welfare of the inmate, but also in that it is so managed that the individual becomes a factor in his own support and is made to do more or less toward earning his own living). There are those who think that the State should do nothing in this direction, as it has just set out on the establishment of a tuberculosis hospital. There are those who think differently, as evidenced by the following quotation from a prominent member of this Society: "I fully approve of some plan whereby such persons could be cared for at small expense and still be employed. Many of them are quite capable of work,

but their unfortunate condition prevents their securing employment, and they remain a charge upon their friends or the town."

The fourth annual report of the managers of the New Jersey State Village for Epileptics, for the year ending October 31, 1901, has just come out, and a review thereof might give food for reflection and material for comparison with our own State. The population of New Jersey is to that of Connecticut as two to one. The State of New Jersey has appropriated in 1899 and 1900 $38,765 for cottages and building expenses. This is in addition to the original plant. There are at present thirty patients, seventeen males and thirteen females. The plan upon which the village is founded is that of an "agricultural and industrial community living in plain inexpensive dwellings, providing workshops, a school for the young, a hall for entertainment, and a chapel for worship."

The keynote to the question of an Epileptic Colony is that a return in earnings should come from the inmates in return for the care bestowed upon them by the State.

When we reflect what the State of New Jersey has done and is doing for thirty epileptics, and what it is preparing to do for those who will apply in the futnre, surely it seems to us that the State of Connecticut which bears upon its shield a motto very appropriate in this connection, should make a start in providing a village or colony where a fair proportion of the one hundred and forty-eight already considered proper subjects, or the one hundred and twenty susceptible of improvement might be given an opportunity to do something for themselves, and not be left outcasts from society, and compelled in some cases to be unwilling burdens upon the community or their friends.

Max Mailhouse,
Frank K. Hallock,
Edwin A. Down.

The Report was accepted with thanks to the Committee for their work.

In the absence of Dr. Smith, Chairman of the Committee on County Resolves, Dr. Noble presented the Report of the Committee. This consisted of Resolutions from Windham and New Haven Counties with action taken by several Counties regarding expulsion, resignation and dropping of certain members.

CENTRAL VILLAGE, CONN., April 14, 1902.

DEAR SIR:

At the annual meeting of the Windham County Medical Association, held in Willimantic, April 10, 1902, the following resolution, introduced by Dr. C. J. LeClaire, of Danielson, was accepted and voted by this Society: Viz.—That the Connecticut State Medical Society be requested to use its best offices and influence toward the establishment in this State of a bacteriological laboratory, where physicians in this State may have bacteriological specimens, of such kinds as they may send, tested, analyzed, and reported upon speedily, at a minimum cost and expense. Voted, that the Clerk of this Society be instructed to send these resolutions to the State Society, with the request that the same may be acted upon in that body, at its next session.

Attest,

JAMES L. GARDNER,
Clerk.

NEW HAVEN, CONN.

WHEREAS, There have been many complaints that papers read before the New Haven County Medical Association are not published in the Proceedings of the Connecticut Medical Society, and,

WHEREAS, The Executive Committee are publishing a volume containing all the papers read at the semi-annual meeting, with other valuable historical matter; therefore,

RESOLVED, That the Connecticut Medical Society be

requested to allow the New Haven County Medical Association to retain in its treasury fifty cents from the annual tax paid by each of its members for 1902, to be used in defraying the expenses of this publication.

Resolved, That this Resolution be transmitted to the Connecticut Medical Society.

Attest,

Edward S. Moulton,
Clerk.

Regarding the New Haven County Resolutions, Dr. Eliot said that there had been some dissatisfaction in New Haven County because papers read before the County meetings and referred to the Committee on Publication had not been printed in the Proceedings. We have now issued a printed copy of the papers read at our semi-annual meeting, and it was thought that the money saved on the Procedings might be used in this way.

Dr. Pratt moved to adopt the request in the resolution and that the money so collected be applied to pay for the back taxes due from New Haven County. This was seconded and adopted.

The third portion of the Report was accepted and the names dealt with as suggested, viz.: That the resignations of Dr. A. W Evans of New Haven County and Dr. C. N. Haskell of Fairfield County, be accepted, that Dr. P. J. Metz of New Haven be expelled, that Dr. N. Nickerson be exempted from taxation with remission of dues for three years, that Doctors M. J. Sheahan, New Haven County, J. B. Crofton, G. D. Stanton and A. M. Purdy of New London County, be dropped for non-payment of dues, and that the name of Dr. C. I. Page be dropped from Litchfield County.

The Committee to nominate Reporters on the Progress of Medicine and Surgery, reported: For Medicine, Walter R. Steiner and Charles D. Phelps; For Surgery, E. E. Hall, E. P. Swasey.

From the Committee on Legislation, Dr. McKnight said that nothing had been done since the last meeting. He believed that in legislative matters we would accomplish most by securing small changes from time to time rather than by advocating a new statute. The bill for a tuberculosis hospital, started by this Society, was referred to the Committee on Appropriations. The hospital has been built and is well adapted for the purposes for which it was erected. The Osteopath bill passed almost as introduced. It was stated that a number of members of the Legislature were of that sect, and used their influence in its favor.

The Hartford City Medical Society had requested him to speak of the use of wood alcohol in flavors, perfumes and various other ways. A number of deaths had occurred from the use of wood alcohol. Some statute ought to be passed regulating the sale.

At the last meeting of the American Medical Association at St. Paul, Dr. McKnight had studied the methods of other Societies and got some good points. The Report was accepted.

Dr. Pratt: It is true that the osteopaths had influence at Hartford, but it is also true that members of this Society to whom the bill had been referred said oh! it's all right. Others said let it go through with some amendments. When we go before the Legislature and ask for something we should go as a unit or stay away. He had taken members before the Judiciary Committee. They had said go talk with your Doctor. To which the reply was, I have talked with him and he said it was all right and he had written to the Doctor and found that it was so. The Doctor hadn't seen the Bill. We ought to become interested in matters of Legislation. In New York State the Society employs a lawyer and keeps him there.

The Committee on Business made a report concerning the program.

The Committee on Honorary Members made the following report:

REPORT OF THE COMMITTEE ON HONORARY MEMBERSHIP AND DEGREES.

Mr. President and Fellows:—

Your Committee on Honorary Members and Degrees begs leave to present the name of Reynold Webb Wilcox, of New York City, for Honorary Membership in this Society.

Reynold Webb Wilcox is truly one of Connecticut's sons, having been born in Madison, Conn., on March 29, 1856, being a direct descendant of William Wilcoxson, the first settler of Stratford, Conn., 1639. His mother was a descendant from Richard Webb, of Stamford, Conn., 1655. He is a grandson of Dr. Reynold Webb, who was recommended by the Connecticut Medical Society to attend gratuitously the course of lectures at the Medical Institution (Yale) and graduated from Yale College in 1819, practiced medicine in Madison, and was a member of the Connecticut Medical Society. He is a nephew of Dr. Daniel Meigs Webb, who received the degree of A.B. from Yale in 1846, and those of M.A. and M.D. in 1849. Since this last date Dr. Webb has practiced medicine at Madison, and is a still an active member of your Society.

Dr. Wilcox received his early education in Connecticut, culminating in the degree of A.B. in 1878 from Yale. He has since received the degree of M.A. from Hobart College, 1881, of M.D. from Harvard, 1881, and LL.D. from Maryville in 1892.

Dr. Wilcox is Professor of Medicine and Therapeutics at the New York Post-graduate Medical School and Physician to its Hospital, Therapeutic Editor of the American Journal of Medical Sciences, American Editor of White's Materia Medica and Therapeutics (5th edition), Fellow of the American Academy of Medicine, Perma-

nent Member of the New York State Medical Society, and ex-President of the American Therapeutic Society. He is the author of about two hundred medical papers, as well as a member of the Revision Committee of the United States Pharmacopeia.

This honored son of the State is deserving of the recognition for distinguished merit which this Society confers when it elects to make any one an Honorary Member, and is hereby respectfully nominated by,

HENRY L. SWAIN,
SAMUEL B. ST. JOHN,
WILLIAM C. HAVEN,
Committee.

Dr. C. A. Tuttle rendered the

REPORT OF THE COMMITTEE ON MEDICAL EXAMINATIONS.

The Committee has examined during the past year sixty-one candidates for certificates in general practice, of which forty-six or 75.4% were found qualified. In number this is an increase of five over last year and of 6.7 over the average for the last three years. The percentage rejected, viz., 24.6%, is somewhat less than last year when it was 26.8%. There have also been examined six applicants for certificates in midwifery, of which four were found qualified. Of these one only used the English language, the others represented each a different country and language and presented herself with an interpreter who was usually himself understood with difficulty. While these women have their places in the communities in which they practice, we must in the future demand of them a better preparation for their work than has heretofore been thought necessary. With the opportunities now open to them in all countries for study and practice, there can be held little excuse for those women who have nothing save a few years of unintelligent practice without study to recommend them.

With the modification of the law secured at the last

session of our State Legislature, the Board has been able to take a definite position in many of the questions before open to several interpretations. We trust that at the next session our Committee on Legislation may be able to secure for us some discretionary power to deal with the increasing number of candidates who have passed other State Boards and who ask recognition at our hands. These candidates object strenuously to passing another difficult and prolonged examination upon the more strictly theoretical branches. While Connecticut is not yet ready to accept without reflection the examination held in all States, yet a right vested in this Board of discretionary acceptation of the work of other State's Boards would allow us to act in this matter with the more advanced States. Keeping abreast of the requirements for certificates in our more progressive States, the examinations this year have been somewhat more critical. With this in mind and noting the slight decreased percentage of rejections, it is fair to assume that the general plain of equipment of those who apply is higher than ever before. Our requirements, however, will never be high enough to keep out well-prepared and desirable applicants, but sufficiently high to cull from the five thousand annual graduates of the one hundred and fifty-six medical colleges of this country such only as give promise because of their ability and training of becoming a credit to themselves and the medical profession of our State.

A new set of instructions in conformity with the law as modified has been prepared and is now ready for distribution. These cover the rules both for general practice and for midwifery and also an extract of the law.

Dr. Fuller's second term expires with this year. His untiring energy for the good of the Committee and elevation of the practice of medicine in our State throughout many years has been a great factor in placing the standard where it now rests. During the last

term he has acted as President of the Board, and in that position by a steady hand and wise counsel has carried the Board through many perplexing difficulties.

The Board presents to you for consideration this its ninth annual report.

CHARLES ALLING TUTTLE,
Secretary.

Appended is a list of successful candidates during the past year, a copy of the new rules of examination and a set of questions used at the last meeting.

Granted certificates in general practice:

W. S. Lay, Yale, 1901.
P. W. Bill, P. & S., New York, 1901.
F. G. Sanford, West. Penn., 1901.
E. R. Kelsey, Md. Med. Col., 1901.
O. R. Witter, P. & S. New York, 1901.
F. E. Rocks, U. of Md., 1901.
L. F. LaPierre, Yale, 1901.
D. B. Wasson, P. & S., New York, 1901.
G. A. Laurence, P. & S., New York, 1895.
F. B. Demming, P. & S., New York, 1901.
F. A. Mulcahy, P. & S., New York, 1901.
J. I. Butler, Johns Hopkins, 1901.
F. V. Haynes, Yale, 1900.
R. Hazen, U. of P., 1901.
N. A. Burr, Yale, 1901.
R. S. Starr, P. & S., New York, 1901.
J. L. Sullivan, P. & S., Baltimore, 1901.
R. W. Brayton, Howard, 1900.
J. L. Way, P & S., Baltimore, 1901.
G. M. Hubbell, Yale, 1896.
H. S. Carter, P. & S., New York, 1895.
J. Stretch, U. of Richmond, 1901.
E. D. Smith, Yale, 1899.
D. R. MacLean, Baltimore Med. Col., 1901.
A. F. Roderick, Tuft's Med. Col., 1901.

A. D. French, Md. Med. Col., 1881.
D. L. Rundlett, Tuft's Med. Col., 1901.
W. J. Dowd, Baltimore Med. Col., 1901.
Joseph Robinson, Jr., P. & S., New York, 1898.
A. V. Stoughton, Ohio Med. Col., 1898.
A. A. Chase, Harvard Med. Col., 1901.
G. S. Higgins, Yale Med. Col., 1901.
F. W. Stevens, Yale Med. Col., 1901.
C. W. Huze, Yale Med. Col., 1900.
A. E. Wrensch, Md. Med. Col., 1901.
W. J. Hogan, Yale, 1898.
M. P. Burnham, Harvard, 1900.
E. A. Wells, Md. Med. Col., 1900.
R. M. Wolfe, Md. Med. Col., 1901.
E. P. O'Flaherty, Cornell, 1901.
W. D. Cronin, P. & S., New York, 1900.
W. W. Brachett, Jefferson Med. Col., 1896.
F. W. Werocbe, N. Y. University.
L. G. Cole, P. & S., New York, 1898.
E. L. Whitteman, Bell. Med. Col., 1894.
George Streit, Yale, 1901.
Granted certificates in midwifery:
Marcia Hant.
Katherine Obrenchaij.
J. Kovacs.
Mary J.Bolna.

RULES FOR EXAMINATION.

1. Examinations will be held on the second Tuesday of March, July and November, at the City Hall, New Haven, beginning at 9:30 A.M., and lasting two days, closing at 4:30 P.M. of the second day.

2. Examinations will be conducted in writing in the English language.

3. Examinations for general practice consist of ten questions in each of the following branches:

1. Anatomy. 2. Surgery. 3. Materia Medica, including therapeutics. 4. Practice, including pathology and diagnosis. 5. Obstetrics, including gynaecology. 6. Physiology. 7. Medical Chemistry and hygiene.

4. In order to be admitted to practice, the applicant must obtain a total average of 75 per cent., provided that in no branch shall the average percentage be less than 60, except in Practice, Obstetrics and Surgery, in which branches the minimum is placed at 65 per cent.

5. Examination fee $15.00, payable in advance on the first day of examination.

6. Candidates once rejected must pay full fee on another trial.

7. All candidates must be graduates of some reputable Medical College and must present their diplomas, (or a certificate from the Dean of the Medical College) for inspection, to the Secretary of the Committee at the opening of the session. Those having Bachelor's Degrees in Arts or Sciences will please so specify.

8. Candidates must make formal application (blank enclosed) to the Secretary at least five days before the date of the examination.

9. Questions used at some former examinations will be found in the yearly Proceedings of the Connecticut Medical Society—the Board is unable to supply copies.

EXTRACT OF LAWS OF 1897.

No person after the passage of this act, shall obtain a certificate of registration * * * * * until he has passed a satisfactory examination before one of the Examining Committees, etc., etc.

CONCERNING REGISTRATION.

(a) No person, be he a graduate of whatever medical college, or licensed by or in whatever State, can be admitted to practice in this State, before and until he has

passed an examination by one of the Committees in this State.

(b) Upon passing his or her examination and receiving duplicate copies of his certificates, he must file these duplicate certificates with the Secretary of the State Board of Health (Dr. C. A. Lindsley, 15 Elm street, New Haven), together with the duplicate statement subscribed and sworn to by him upon blanks furnished for the purpose, giving name, age, place of birth, and present residence, stating from what medical college he was graduated and the year—etc.

Upon the receipt of such statements, the State Board of Health shall issue, upon the receipt of two dollars, to the person filing the same, a certificate of registration.

Sec. 9. Upon the receipt of any duplicate statements as hereinbefore provided, the State Board of Health shall transmit one of said duplicate statements, together with a duplicate of the certificate of registration in each case, to the Town Clerk of the town wherein the person so filing said statement resides; and in case such person does not reside in the State of Connecticut, then the State Board of Health shall transmit said statement and certificate to the Town Clerk of the town in this State nearest to the place of residence of such person; and said Town Clerk shall record the same in books to be provided for that purpose by the State Board of Health, and shall then return the same to the person who filed the same with the Board of Health; and said Town Clerk shall receive for such recording a fee of twenty-five cents, to be paid by the State Board of Health out of the amount so paid to it as aforesaid.

RULES FOR CONDUCTING EXAMINATIONS.

First, Help of every kind must be removed from the reach and sight of the candidate. Any candidate detected trying to give or obtain aid shall be instantly dismissed from the room, and his or her paper for the entire work canceled.

Second, Questions must be given out and answers collected punctually at the time specified for that section.

Third, If the candidate withdraws himself or herself without permission, from the sight of the examiner, his or her examination shall be closed.

Fourth, All examinations shall be in writing. Pens, blotters, paper and ink will be supplied by the Secretary.

Fifth, The examination shall continue two days, the session of the first day being from nine-thirty to eleven, eleven to one, two to four, four to six, respectively; the sessions of the second day being the same, but closing at four-thirty instead of six o'clock.

EXAMINATIONS IN MIDWIFERY.

1. Examinations in Midwifery shall be held at the same time and place as for General Practice and under the same rules.

2. Applicants to practice Midwifery will be examined in Midwifery only and must obtain a marking of 75 per cent.

3. Examinations will be in writing, but may be taken in the language of the applicant. The applicant to furnish and pay an interpreter acceptable to the Board.

4. The examination fee will be $10.00 and is payable at the time of taking the examination.

It is unlawful to practice in this State while waiting for an examination.

CONNECTICUT STATE BOARD OF MEDICAL EXAMINERS.

ANATOMY.

Time allowed: 2 hours. March 11-12, 1902.

1. What bones make up the pelvis?

Give the gross anatomy of the pelvis.

2. Mention the muscles attached to the great trochanter of the femur.

3. Decribe the portal system.

4. What arteries, muscles and nerves would be severed in an amputation (cross-section) at the middle of the humerus? What anatomical structures severed in a cross section at middle of forearm?

5. What essential structures enter into joint formation? Illustrate, selecting joint.

Give names of the cranial nerves. State the origin, course, distribution and function of the sixth cranial nerve.

7. Give the relations of the right kidney.

8. Give the boundaries of the inguinal canal.

9. Describe the right ventricle of the heart.

10. What is comprehended in the term Lymphatic System? Name and describe the principal lymphatic duct. Name the ductless glands.

PHYSIOLOGY.

Time allowed: 1½ hours. March 11-12, 1902.

1. Describe epithelium. Mention varieties and the function of epithelium.

State one place where each variety may be found and tell the function of same in that locality.

2. Describe the nervous and muscular mechanism of the respiratory act.

3. Give the physiology of the human voice, mentioning the organs and forces concerned in its production.

4. What are normal heart sounds? How are the sounds produced?

5. Define somnambulism from a physiological point of view.

6. State the function of the third cranial nerve. What is the effect of its division?

7. What causes an increased flow of bile into the

duodenum? What pathological effects may be caused by the occlusion of the ductus communis choledochus?

8. State the origin, nature and destination of the glycogen of the liver.

9. What are the chemical and physiological elements of the Gastric juice and what is its function?

10. Name the special senses, and describe in detail one of them.

SURGERY.

Time allowed: 2 hours. March 11-12, 1902.

1. Describe the staphylococcus pyogenes aurens, where commonly found, resistance to dry and moist heat, cold solutions of bichloride of mercury 1 to 1,000, carbolic acid 1 to 30, and boric acid, saturated solution.

2. Etiology and pathology of Rachitis.

3. Give in tabular form the differential diagnosis of the osseous lesions of syphilis and rachitis.

4. Give in tabular form the differential diagnosis between labial chancre and epithelioma of the lip.

5. Give treatment of fracture of the olecranon with displacement.

6. If a 32 calibre revolver bullet fired directly from the front at ten feet entered the abdomen one inch above and one inch to the right of the navel, what organs would you expect to find punctured? How would you treat the patient?

7. Indications for intubation of the larynx and description of the operation.

8. How would you do thoracotomy for extensive empyema? (a) point of selection, (b) details of operation, (c) after treatment.

9. How is hemorrhage controlled in hip joint amputation?

10. Give the chief contra-indications for Ether anesthesia.

CHEMISTRY AND HYGIENE.

Time allowed: 1½ hours. March 11-12, 1902.

How would you detect sewerage contamination in a given specimen of water?

2. Give the chemical formulae for salt, sulphuric acid and chloral.

3. Describe the properties of paraldehyde and give its use in medicine.

4. Name the principal alcoholic beverages and state the amount of alcohol they contain.

5. How would you diagnose positively a case of mercury poisoning—how treat it?

6. From what sources may chronic lead poisoning arise?

7. Name and describe the important albumenoids.

8. How is ordinary street gas made and why does it cause death when inhaled?

9. Give Haine's test for detecting glucose in urine.

OBSTETRICS.

Time allowed: 2 hours. March 11-12, 1902.

1. Give the indications for, and the technique of Caesarean section.

2. How would you differentiate a large ovarian cyst from a pregnant uterus; from ascites?

3. Describe briefly pyosalpinx, its cause and treatment?

4. What is the etiology, the symptoms and treatment of extra-uterine pregnancy?

5. State your management of a case where the head and hand present.

6. Is the removal of the uterine appendages necessary or warrantable for the cure of insanity or epilepsy? Give reasons for your answer.

7. Detail your management in a case of placenta previa.

8. When is curetteage indicated? Give the method, also the dangers of the operation.

9. Give the etiology, symptoms and treatment of puerperal septicemia.

10. Describe briefly the operation for trachelorrhaphy.

MATERIA MEDICA AND THERAPEUTICS.

Time allowed: 2 hours. March 11-12, 1902.

1. Give the action and therapeutics of Adrenalin.

2. Compare the action of Podophyllum and Calomel.

3. Mention four (4) alkaloids and their antidotes.

4. Outline the treatment of acute Uremia.

5. Physiological action of Veratrum Viride.

6. Treatment of Bronchitis.

7. Mention four (4) drugs that produce an eruption and give the character of the eruption.

8. Indications for the use of a Saline Infusion.

10. Write a prescription in Latin, unabbreviated, containing four ingredients to be used in case of Asthma, giving the reasons for the use of each.

PRACTICE, PATHOLOGY AND DIAGNOSIS.

Time allowed: 2½ hours. March 11-12, 1902.

1. Etiology and diagnosis of acute Otitis Media.

2. Causes and pathology of Emphysema.

3. Clinical history of Pericarditis.

4. Differentiate an Epileptic seizure from Hysteria.

5. Give the symptoms of Scarlet Fever.

6. Differential diagnosis between acute Articular and Gonorrheal Rheumatism.

7. How does the pathology of Lobar Pneumonia differ from that of Broncho Pneumonia.

8. Give the life history and describe the plasmodium of Tertian Malaria.

9. Describe a case of Herpes Zoster.

10. Symptoms and diagnosis of Hepatic Colic.

MIDWIFERY.

Time allowed: March 11-12, 1902.

1. Name the presentations of the child which are normal and offer little obstruction to labor.

2. Name the presentations of the child which make delivery without mechanical assistance difficult or impossible.

3. How often and in what ways would you test the urine of the pregnant woman to find out if she had a kidney trouble liable to produce convulsions about the time of confinement?

4. How would you prepare the woman when labor pains begin?

5. What are the symptoms and signs of approaching labor?

6. How would you prepare your hands before putting a finger in the vagina?

7. Can you find out the presentation of a child without putting a finger into the vagina?

8. If so, how could you be sure whether the head or a shoulder were presenting?

9. After the child is delivered, what do you do for the mother?

10. If mother's perineum is considerably lacerated, what do you do for it and how soon do you do it?

11. How do you care for the new-born child?

12. Do you take the temperature of the mother every day or two for the first ten days after confinement? If everything is normal, what do you expect the temperature to be on the first, third and sixth days?

13. If the woman has a chill during the first ten days, what diseases may be threatened?

14. If the lochia smells badly and nearly stops with a chill, headache and fever, what would you do?

15. What foods and drinks would you allow the woman for the first three or four days after her confinement?

THE NOMINATING COMMITTEE

reported as follows:

President,

Gould A. Shelton, Hartford.

Vice President,

S. B. St. John, Hartford.

Assistant Secretary,

J. H. Townsend, New Haven.

Treasurer,

W. W. Knight, Hartford.

Committee on Matters of Professional Interest in the State,

E. K. Root, P. W. Street,

F. K. Hallock.

Committee to Nominate Physician to the Retreat for Insane,

A. R. Defendorf, Rienzi Robinson.

Committee on Honorary Members and Degrees,

G. L. Porter, T. M. Hills,

Gustavus Eliot.

Committee of Arrangements and Anniversary Chairman,

Oliver C. Smith, Chairman.

J. H. Rose, J. F. Dowling.

Committee on Medical Examinations,

H. S. Fuller.

Dissertator,

Elias Pratt.

Alternate Dissertator,

W. J. Tracey.

Delegate to Committee on National Legislation,

Max Mailhouse.

Members of House of Delegates, American Medical Association,

For two years—C. S. Rodman.
For one year—C. E. Brayton.

Delegates to Maine Medical Association,

C. A. Tuttle, H. L. Swain.

Delegates to New Hampshire Medical Society,

C. B. Graves, C. H. Bill.

Delegates to the Vermont State Medical Society,

Josiah Swett, P. W. Street.

Delegates to the Massachusetts Medical Society,

W. L. Barber, G. R. Harris.

Delegates to the Rhode Island Medical Society,

L. B. Almy, W. P. Browne.

Delegates to the New Jersey Medical Society,

F. W. Wright, J. W. Wright.

Delegates to the New York State Medical Association,

H. L. Hammond, F. C. Graves,
G. Eliot, G. C. Segur.

Delegates to the Medical Society of the State of Pennsylvania,

E. J. McKnight, E. P. Swasey.

The report was accepted and the Secretary cast one favorable ballot for the nominees, who were thus elected.

Miscellaneous Business being in order, Dr. Rodman said, Some verbal amendments were made to our Constitution a year ago which should be considered now. They were suggested by the Legislative Committee of the American Medical Association. They are Chapter

II, Sec. 1, to insert the words "Committee on National Legislation" after the word State.

Chapter II, Sec. 8, to insert in third line, after State, the words, "and Committee on National Legislation."

Chapter II, Sec. 9, to insert the words, "The Committee on National Legislation shall hold their respective offices until others be elected in their places."

Dr McKnight reported from the Committee to attend the Bicentennial of Yale University that he had the medal which he received at that time and which he intended to present to the Society.

The Auditing Committee reported that they had examined the Report of the Treasurer and found it correct. The Report of the Treasurer was thereupon accepted. A tax of three dollars per capita was laid for the year, Dr. Knight explaining that generally the annual meeting found us with a surplus of from three to four hundred dollars. Now we had only made up a deficiency. This tax of three dollars is to accumulate a surplus.

Dr. Townsend believes in keeping the tax as low as possible. Was Clerk of the New Haven County Association and found it difficult to collect the dues. If the tax is too high men will drop out. It ought to be kept down as low as possible.

Dr. Rodman thinks that three dollars is little enough in view of the empty treasury. It is only a little advance over last year's and that was not enough.

Dr. Ensign said Hartford County adds $1.25 to the State Society tax and that makes almost five dollars.

If we have a weighty tax, the men are likely to be dropped.

Dr. Townsend moved to amend the tax to $2.50.

Dr. —— thinks it too bad to go along with only six dollars in the treasury.

Dr. Segur: What is the prospect that the Treasurer will get the arrears?

Dr. Knight: Taxes in arrears are always collected to a certain extent. It is scarcely feasible to rely on arrears. These are about the same every year. The motion to make the tax three dollars was then passed.

The meeting of the President and Fellows adjourned.

N. E. Wordin,
Secretary.

THE ANNUAL CONVENTION.

WEDNESDAY, MAY 28, 1902.

The Annual Convention was called to order at 4:30, immediately after the meeting of the President and Fellows.

SECRETARY'S REPORT.

An unusual interest is felt this year in the American Medical Association because of the change in its By-laws regulating its governing body and because of its attempt to unify the profession of the country. Directly following the correspondence given in our last Report came the meeting at St. Paul at which the changes proposed were adopted. Dr. Simmons, the Secretary, well condenses them in the following letter sent to the President of this Society:

61 MARKET ST., CHICAGO, March 8, 1902.

Dr. John H. Grannis, Old Saybrook, Conn..

MY DEAR DOCTOR:

At the Atlantic City meeting of the American Medical Association, 1900, a committee on reorganization of the profession was appointed. This committee made its report at the meeting at St. Paul, and the report was adopted practically as recommended. The report consisted of two parts: One, a preliminary report which was practically an argument for, and explanatory of the regular report, and two, the report proper, which was the Constitution and By-laws revised to accord with the changes recommended.

I send you, under separate cover, the matter referred to, viz., a reprint of the preliminary report and a copy of the revised Constitution and By-laws as adopted at St. Paul.

I would call your attention to the last part of the preliminary report, commencing with "Too Many Miscellaneous Societies," on p. 29, as this part of the report deals directly with the State and County Societies.

After adopting the new Constitution and By-laws and the recommendations of the Committee on Reorganization, a resolution was passed by the Association instructing the Secretary to enter into correspondence with the officers of the State societies relative to the changes made and in regard to the relations of the State society to the American Medical Association under the new constitution. It is in obedience to the instructions contained in the resolution referred to that I now address you.

The changes cover three points: (1) The change in the Association itself. (2) The changed relationship of the State society to the American Medical Association. (3) The relationship of County and State societies.

1. The change in the Association itself: Under the old constitution the business of the Association was transacted by delegates appointed by State, district and local affiliated societies, in proportion of one delegate for each ten members, or major fraction thereof, of such societies. The number was unlimited and in quite recent years this has exceeded 1,500. The delegates met in general meeting each morning of the annual session, and this meeting was made up of both delegate and non-delegate members. Under the new Constitution and By-laws, only affiliated State societies have the right to send delegates, and these are entitled to one delegate to each 500 active members, or minor fraction of this number.

The delegate body will have a distinctive name, viz., the House of Delegates of the American Medical Association. It is limited to 150 in number. Besides the affiliated State societies each of the component scientific Sections will be entitled to send two delegates, and the Army, the Navy, and the Marine-Hospital Service will each be entitled to send one delegate.

2. The changed relationship of the State society to the American Medical Association: Heretofore, the State society bore the same relation to the A. M. A. as did the city, county and district societies. In the future only the State society will be represented. In other words, the State societies practically will create the legislative body of the American Medical Association and the House of Delegates will be a body in which are federated all the State societies. This important relationship must be appreciated by the State societies, for the future of the A. M. A. is dependent on their action when they select their representative to the House of Delegates. In the past the individual delegate was of small importance; in the future the opposite will be the case.

3. The relationship of the County to the State society: The American Medical Association having taken away from the County society its right to send delegates, the latter must obtain its representation through the State society. Hence, the necessity of a more direct relationship of the County society to the State society than has existed in the past in some of the States. You will find this matter thoroughly discussed in the reprint of the Preliminary Report of the Committee on Reorganization, commencing on p. 33. See, also, articles appearing in The Journal under the title "Organization of the Medical Profession," commencing with the issue for January 11.

The American Medical Association having started in the great work of organizing the profession, it now asks each State society to take up the matter, carrying out certain principles so that we may soon have our profession organized, with the central body, the A. M. A., ramifying into the State societies, and the State societies ramifying into their branches, the County or District societies, as the case may be.

If you will notice p. 5 of the Committee's report, you will find that certain recommendations are made to the State societies. Under "a" is a request that each State

appoint a committee on organization. The object intended was to request all the State societies to co-operate and organize on a common plan, so that there may be a uniformity.

Under "c" the State societies are asked to unitedly agree to federate themselves in the American Medical Association. In other words, the business body of the A. M. A., the House of Delegates, will be created by the State societies, i.e., the State societies will be federated in that. As a preliminary to this each State society is asked to divide its annual meeting into two distinct branches, legislative and scientific; that the legislative branch be as small as is compatible with representation from all County societies, and be composed of delegates elected by the County societies.

Under "d" the State societies are asked to so organize that hereafter membership in the County or District societies shall constitute membership in the State society, without further formality. As to further recommendations, see p. 5 and 6 of the report.

You, as President, are asked to bring this matter before your society at its next meeting and your co-operation is solicited, as well as that of the members of your State society, in the work before us.

The next meeting of the American Medical Association will be held at Saratoga, N. Y., on June 10-13, and at that time the House of Delegates will meet for the first time. Your State society will be entitled to send one delegate for each 500 active members, or minor fraction of this number. Delegates should be elected to serve for two years. If your State society is entitled to more than one delegate, one-half the number, or as near as possible, should be elected for one year and the rest for two years.

Delegates must have been members of the A. M. A. for two years preceding the date of the next annual meeting. In other words, they must have been members in June, 1900.

It is recommended that the State societies elect their delegates at the same time and in like manner as the officers are elected. I refer you to Chapter III, p. 9, of the By-laws, and especially to Sections 2, 4, 5, 6, and 7.

I would like to hear from you as to the possibility of more effective work in your State. Any further information I shall be glad to furnish, if in my power and you wish it.

Respectfully,

GEORGE H. SIMMONS,
Secretary, American Medical Association.

K.

It will be seen that the Association in its reorganization has adopted just the method of government which this Society has had ever since it began and which has been pronounced a model system. Letters from the Secretaries of various State societies have been received, requesting a copy of our Constitution and By-laws, to use as a pattern in changing their methods according to the request of the National Association.

I append the Articles of Incorporation, Constitution and By-laws of the American Medical Association, placing them at the latter part of the book where they can be referred to separately or taken out if need be for special use.

In connection with the celebration of the Yale Bicentennial and the address on medicine delivered at that time, arose the question of the charter of this Society. Your Secretary has interested himself in looking up the matter and finds much confusion in the records. Changes have been made from time to time, most of them having reference to the management of the Medical Institute of Yale College. The first or original charter was granted by the Governor in Council and Representatives of His Majesty's Colony of Connecticut in General Court assembled, New Haven, October 9, 1701. It is found on page 70, Proceedings for 1874.

The present charter was adopted at the Session of the Legislature, 1879, and can be found on page 183 of the Proceedings for that year.

Between these two were the enactments of 1810, to be found on page 70 of the Proceedings for 1874, that of 1825, Proceedings 1830, page 12, and 1834 on page 12 of the Proceedings of that year.

For the purpose of contrast I have had placed in the Appendix of this volume the first charter and the last. The relation between the Connecticut Medical Society and the Medical Institute of Yale College was severed by mutual consent in 1884.

Turning now to the changes in the Society and its present condition we find the number of the Society to be six hundred and ninety-five.

By counties the standing is as follows:

Hartford, 1901,		156	
New members,		7	
From other counties,		4	
		167	
Died,	3		
		3	
		164	a net gain of 8
New Haven,		202	
New members,		13	
		215	
Resigned,	1		
Expelled,	1		
Failed to qualify,	1		
Died,	2		
Removed,	1		
		6	
		209	a net gain of 7

New London,		49	
New members,		2	
		51	
Dropped,	5		
		5	
		46	loss 13
Fairfield,		124	
New members,		7	
Transferred from New London,		1	
		132	
Left State,	2		
		2	
		130	gain of 6
Windham,		36	
Removed,	1		
		1	
		35	a loss of 1
Litchfield,		56	
New members,		2	
		58	
Dropped,	1		
Removed,	5		
Died,	1		
		7	
		51	loss of 5
Middlesex,		44	
New members,		2	
		46	
Removed,	3		
		3	
		43	loss of 1

Tolland,		17
New members,		1
		18
Removed,	1	
		1
		17 no change

The most noticeable thing about these changes is the large number who have gone from the smaller towns to the more rapidly growing cities, and Hartford seems to have profited most by this change. The aggregate gain is small, only nine.

The new members with present residence, place and date of graduation, are as follows:

William Radley Miller, Albany, 1898, Southington.
E. Terry Smith, Yale, 1817, Hartford.
Edward Rutledge Lampson, P. & S., N. Y., '96, Hartford.
William Myron Weaver, Yale, '97, Hartford.
Patrick Joseph Ryan, Niagara, '98, Hartford.
Calvin Weidner, Univ. of Indianapolis, '93 Manchester.
Walter Ralph Steiner, Johns Hopkins, '98, Hartford.
Patrick James Dwyer, New York Univ., '97, Waterbury.
Julia E. Teele, Woman's Med., Coll., Phila., '88, New Haven.
Harry Little Welch, Yale, '97, New Haven.
Paul Norwood, Omaha Med. Coll., '87, Ansonia.
Paul B. Kennedy, Bellevue, '96, Derby.
Millard Fillmore Allen, Medico-Chi., Phila., '95, New Haven.
George Harvey Joslin, Univ. Vermont, '87, Mt. Carmel.
Otto Gustaf Ramsey, Univ. Virginia, '90, New Haven.
Harry Emory Ballard, Univ. Vermont, '93, Waterbury.
Nelson Asa Pomeroy, P. & S., N. Y., '96, Waterbury.
John James Carroll, Dartmouth, '97, Naugatuck.
Thomas George Sloan, P. & S., '99, New Haven.
Thomas John Lally, Albany, '99, Waterbury.

Emanuel Alexander Hinkle, Cornell, '99, New London.
Samuel Lathrop, P. & S., N. Y., 1900, Norwich.
Frank Llewellyn Smith, Albany, '83, Bridgeport.
Fritz Carleton Hyde, Ann Arbor, 1900, Greenwich.
David B. Wason, P. & S., N. Y., 1900, Bridgeport.
Thomas Francis Stanton, P. & S., Baltimore, '96, Bridgeport.
George Robert R. Hertzberg, Dartmouth, '99, Stamford.
Egbert Livingston Smith, Yale, '96, Hotchkissville.
William Thomas Owens, Univ. Vermont, '99, North Canaan.
Calista Vinton Luther, Woman's Coll. of Penna., '85, Saybrook.
Ernest Oliver Winship, Univ. Vt., 1900, Rockville.
Russel Hulburt, Yale, '98, Higganum.

Of these five are from Yale and five from the College of Physicians and Surgeons, N. Y., four from the University of Vermont, two each from Dartmouth, Albany Medical College and the Woman's College of Penna. Ten colleges have one each.

During the year we have lost by death one Honorary Member, Dr. Edwin Mott Moore of Rochester, N. Y.

DR. EDWIN MOTT MOORE.

Dr. Edwin Mott Moore died at his home in Rochester, March 3. He was eighty-nine years old. Dr. Moore was born in Rahway, N. J., in 1814, of French Huguenot and English parentage. His family moved to Rochester in 1830, and he was graduated from the Medical School of the University of Pennsylvania in 1838 and began the practice of medicine in that city. He was elected to the chair of surgery in the Medical College at Woodstock, Vt., in 1843. For more than twenty-five years he occupied a similar position in the Buffalo Medical College. Among the other offices he has held are those of President of the Medical Society of the State of New York and president of the State Board of Health. Dr. Moore was

instrumental in organizing the Rochester Public Health Association. To him is due, more than to any one man, the extensive park system of the city.

Dr. Moore had also devoted much time and attention to the University of Rochester, the president of whose board of trustees he had been for many years.

He is survived by his wife, Lucy Prescott Moore, and five sons—Dr. E. Mott Moore, Dr. Richard Mott Moore, Lindley Murray Moore and Samuel Prescott Moore, all of Rochester, and Frederick Pettes Moore of Pittsburg—and one daughter, Miss Mary Pettes Moore, of Rochester.

The name of Dr. Samuel Thomas Hubbard, New York City, is also to be crossed off from the list of Honorary members. No other record of him can be found.

Among the active members the oldest is Jeremiah Burwell of New Hartford. He had reached eighty-four. He graduated from the Berkshire Medical College in 1839. This college has long since gone out of existence. There are but four graduates of it left in our Society, all well-known men. Dr. Burwell was one of the thirteen who at our centennial had been a member for fifty years. But one remains. The other deaths of the year are W. M. Hudson, Hartford; S. R. Burnap, Windsor Locks; F. C. Tuttle of Naugatuck, who died after he had been elected President of the New Haven County Association; John T. Dooley of Manchester, and D. R. Hinckley of New Haven.

The Secretary would again make appeal for all manuscripts to be sent to him at once. Only thus can an early issuance of the Proceedings be assured.

N. E. Wordin,
Secretary.

Dr. Defendorf read the first paper, entitled The Use and Abuse of Bromides in the Treatment of Nervous Diseases. It met with some discussion. Dr. Down followed with Future Provision of the Insane and Care of

Female Misdemeanants. Dr. G. A. Shelton's paper on A Case of Traumatic Tetanus Successfully Treated by Tetanic Anitoxin closed the day's session.

THURSDAY, MAY 29.

The meeting was called to order by the President at 10 A.M.

Delegates to other Societies reported as follows:

Dr. Ring stated that he did not go to the meeting of the Maine State Medical Association. For report of Dr. Alton, Delegate to the New Hampshire Medical Association, see Appendix.

Dr. Rockwell did not go to the meeting of the Massachusetts Medical Society.

Dr. Allen, Delegate to the Rhode Island Medical Society, reported:

On June 6, 1901, I attended the annual meeting of the Rhode Island Medical Society as Delegate from the Connecticut State Medical Society.

The meeting was held in Masonic Hall, Providence. Together with other Delegates, those from the Connecticut Medical Society were presented and cordially welcomed.

Very interesting papers were read by Drs. E. D. Chesebro and S. A. Welch—the subjects being, "Etiology of Acute Peritonitis in Children, with Report of a Case," and "Transient Glycosuria."

The annual address by Dr. G. Alder Blumer on The Yesterday and To-day of Mental Medicine was followed by the annual dinner—thus completing a highly instructive and enjoyable occasion.

REPORT OF DELEGATES TO THE NEW YORK STATE MEDICAL ASSOCIATION, OCTOBER, 1901.

MERIDEN, CONN., May 7th, 1902.

Dr. Wyeth, President, in the chair. The President should certainly have been proud of the large attendance,

as every section of the State was well represented; and the Delegates from other States were correspondingly numerous. Your Delegates can well understand that such attractions as were presented, outside as well as inside the sessions, could not fail of receiving a full measure of appreciation.

The Surgical papers were many, and full of vital interest; but the Medical papers, although exceptionally good, were very few.

Dr. Deaver's paper on Appendiceal Fistulae was full of terse facts. It was his opinion that the chief cause of appendiceal fistula was from neglect of the first attack; and a physician who tried to cure appendicitis with drugs, not only failed in his endeavors, but jeopardized the life of his patient by unnecessary delay, and in fact paved the way for subsequent serious conditions—such as suppuration and fistulae. The case was out of the domain of the physician, was purely surgical; and the sooner the Medical practitioner realized this fact the better it would be for appendicitis patients. He cited an instance where a patient had been cured (?) five times by a physician yet the sixth attack of appendicitis assumed such serious aspect that he was turned over to a surgeon for operation.

The above paper was ably discussed. Dr. Wiggin, in his genial yet forceful manner, emphasized the fact that the administration of morphine in such cases was a "delusion and a snare," and indorsed the claim that a "No Trespass" sign should be hung on every appendicitis case—Physicians to govern themselves accordingly.

We desire to express our thanks to the Committee of Arrangements for the royal manner in which your Delegates were received and entertained.

Edward D. Hall.
Samuel D. Otis,
Delegates.

Dr. J. E. Loveland read his Report on the Progress of Medicine. This was followed by the Report on the Progress of Surgery by Dr. A. G. Cook.

Guests representing other Societies were now introduced.

Dr. Wiggin responded for the New York State Medical Association. It gives me pleasure to be again the bearer of greetings from my Society. Two years ago when I was here I told you that we were reorganizing our Society on the lines upon which yours had been maintained. We modified our representation according to the needs of the larger State. The result has been satisfactory. There has been an increase in membership from 600 to 1,500 and the income from $3,000 to $13,000 per year. It is possible to get men to pay dues if the administration is successfully carried out. We have also undertaken to publish a Directory of the physicians of New York and New Jersey, to which we have also added your own State. We decided to put in this the names of all practitioners licensed by law. We have changed the form of our annual transactions to a monthly periodical. This enables us to communicate more frequently with the professional men of the State. The question of medical advertising comes in here. We try to keep out those people who are not known to us, especially those whose prescriptions are sold under a trade-mark. A patented formula is different. That is on record in the patent office and can be seen. Those which are copyrighted cannot and it is possible for them to be changed every month. We do not know anything about it. As a member of the Committee of Arrangements of the American Medical Association, I extend a welcome to all and urge all to come. The meeting will be large, the papers many and of benefit to all. Every man joining the Association helps to organize the medical profession of the United States.

A letter was read from Dr. Parker Syms, of New York, in which he expressed his regret at not being able to be present at the meeting.

Dr. Osborne read his Dissertation, "The Pathological Relation of the White Blood Corpuscles," illustrating it with diagrams.

The few moments before twelve were occupied by Dr. Carmalt, whose paper was entitled, Remarks on Some Recent Invasions of Surgery Into the Domain of Internal Medicine.

At the hour of twelve the President read his address and immediately thereafter the meeting adjourned.

THURSDAY AFTERNOON.

The session began at 1:50, with the reading of a paper by Dr. Crothers, "The Dangers from Indiscriminate Use of Morphine."

After the reading of a paper by Dr. Page on Connecticut's Influence in the Development of the American Hospital for the Insane, Dr. Fuller said he had expected that Dr. Stearns or Dr. Russell would be here to say something upon the paper. Dr. Russell is the only member who remembers Dr. Todd. The State should place a memorial in recognition of the worth of Dr. Todd. He was born in New Hampshire, graduated at Yale and went to Hartford. At that time Dr. Woodward, in Wethersfield, assisted Dr. Todd. Dr Todd himself was physicially and mentally a superior man. He was a leader; he was an orator. His work was appreciated by the men of the State. He won the assistance of Dr. Thomas Minor, of Middletown, Doctors Tully, Knight and the elder Ives, of New Haven. In this way his enthusiasm kindled the enthusiasm of others. Subscriptions came in, amounting in all to $2,500 and in sums varying from twelve and a half cents to three hundred dollars. There were only three of the latter.

Dr. Todd began the departure from the old or depleting method which had gained favor under Dr. Rush. Dr. Bingham favored the stimulating method. The State Society, although it was small, gave six hundred dollars for the establishment of the Institution. There remains to all time the privilege of nominating the Superintendent to this Retreat. Some memorial should be erected to Dr. Todd. He was enthusiastic in his work of founding the Hartford Retreat. It was successful because of Dr. Todd. Dr. Todd was invited to take charge of different asylums, but remained with the one in Hartford. I think it best to bring the subject before the Legislature by a committee which should be appointed for the purpose. Dr. Todd had a great power of moving men. His eloquence was so great as to bring tears to the eyes of his hearers by his description of the sufferings of the insane. A committee from this Society should be appointed by the President to devise means and appear before the Legislature to bring about the establishing of some memorial to Dr. Todd.

One suggestion is a statue to be placed in a niche of the Capitol. Military men do such things. We would not belittle them, but we ought to do as much for our heroes of humanity.

Dr. Crothers in seconding the motion said: We are just beginning to learn about one who had such influence on the professional and the lay element of the State. In 1831 Dr. Todd appeared before the Medical Society and started an investigation into drunkenness and drunkards with the purpose of determining if the latter were insane.

Dr. Woodward had written on the subject in Massachusttes. There was an institution in that State. The records and reports of the Retreat and the papers upon the subject are in the State Library. They show much psychical knowledge upon the subject. If any man de-

serves recognition in our State Society and in our State, this is the man. He seconds the motion of Dr. Fuller.

Of how many shall the Committee consist?

Dr. Fuller. It should represent one for every County.

The President appointed the Committee as follows:

G. W. Russell, H. P. Stearns, C. W. Page, Francis Bacon, G. L. Porter, G. W. Burke, G. H. Knight, L. B. Almy, T. M. Hills.

Dr. E. K. Loveland then read his Report on the Progress of Medicine.

Dr. Skinner commented on it by saying that we cannot yet say a great deal about the treatment of sarcomas by the X-ray, but we do get diminution of discharge, less pain, a betterment of all the symptoms. This applies generally to superficial growths but we get good results if the growth is not more than two inches below the surface.

Dr. Bartlett read a paper on The Determination of the Species of Blood.

Dr. Carmalt gave a paper on Perirenal Perihepatic and Pleural Complications of Appendicitis.

Dr. Harris presented the record of another surgical case, A Case of Extensive Resection of the Intestine.

Dr. Street read a paper on, A Valuable Nerve Tonic of Recent Origin, or the Glycerophosphates particularly the Glycerophosphate of Sodium.

Dr. Randall read on the History, Etiology and Mode of Infection of Typhoid Fever. By request Dr. Moulton read on Congestion of the Prostate. The papers on the Program were referred to the Committee on Publication, and the meeting adjourned. The complete list is—

"The Use and Abuse of Bromides in the Treatment of Nervous Diseases"—A. R. Defendorf, Middletown.

Remarks on Some Recent Invasions of Surgery into

the Domain of Internal Medicine—W. H. Carmalt, New Haven.

"Prevention as applicable to the Feeble-Minded and Epileptics"—G. H. Knight, Lakeville.

"Questions of Current Interest"—a. "Future Provision for the Insane"—b. "Care of Female Misdemeanants"—E. A. Down, Hartford.

"A Case of Traumatic Tetanus successfully treated by Tetanic Antitoxin"—G. A. Shelton, Shelton.

"The Modern Treatment of Uremia in Pregnancy"—C. G. Ramsey, New Haven.

"The Country Well and its Relation to Typhoid Fever"—Herbert E. Smith, New Haven.

"Medical Inspection of the Public Schools"—C. P. Botsford, Hartford.

"Heart Lesions in their Relation to Life"—C. J. Foote, New Haven.

"Intestinal Catarrh"—William Porter, Hartford.

"Relative Number of Contracted Pelves in General Practice"—P. J. Cassidy, Norwich.

"Diagnostic Value of a Leucocyte Count"—A. M. Rowley, Hartford.

"The Determination of the Species of Blood"—C. J. Bartlett, New Haven.

"The Dangers from Indiscriminate Use of Morphine"—T. D. Crothers, Hartford.

"Connecticut's Influence in the Development of the American Hospital for the Insane"—Charles W. Page, Hartford.

"A Case of Extensive Resection of the Intestine"—G. R. Harris, Norwich.

"Melancholia; Periodical Depression and other Depressions"—J. M. Keniston, Middletown.

"Causes and Results of Sclerosis of the Coronary Arteries"—A. B. Coleburn, Middletown.

"Alcoholic Psychoses; Clinical Aspects and Differential Diagnoses"—C. E. Stanley, Middletown.

"Rational Therapeutics"—J. C Kendall, Norfolk.

"Posterolateral Sclerosis"—F. T. Simpson, Hartford.

"Empyema"—P. D. Bunce, Hartford.

"Acute Obstruction of Bowels with Treatment"—J. B. Boucher, Hartford.

"A Study of the Health Reports"—George Clary, New Britain.

"Acute Obstruction of the Bowel"—J. B. Boucher, Hartford.

"A Valuable Nerve Tonic of Recent Origin, or the Glycerophosphates particularly the Glycerophosphate of Sodium"—P. W. Street, Suffield.

"The Eyes of School Children"—H. S. Miles, Bridgeport.

"Therapeutic Indications in Gynecology"—T. A. Emmet, New York.

Typhoid Fever—"Its History, Etiology and Mode of Infection"—W. S. Randall, Shelton.

"Its Diagnosis and Pathology"—G. R. Hertzberg, Stamford.

"Its Treatment, Dietetic, Hygienic and Therapeutic"—Frank Terry Brooks, Greenwich.

"Classification of Gynecological cases as to whether Medical or Surgical"—H. F. Brownlee, Danbury.

"Inflammatory Rheumatism"—N. R. Hotchkiss, New Haven.

Dissertation. "The Pathological Relations of the White Blood Corpuscles"—O. T. Osborne, New Haven.

"The Attitude of the Profession toward certain Evils, notably Proprietary and Patent Medicines and Appliances"—Henry L. Swain, New Haven.

Tuberculosis of the Respiratory Organs: "The Early Diagnosis"—O. T. Osborne, New Haven.

"The Sanitation of the Tubercular Patient"—F. W. Wright, New Haven.

"The Home Treatment"—C. E. Munger, Waterbury.

"Some Newer Aspects of Heredity in Tuberculosis and the Sanatorium Treatment"—C. R. Baldwin, Saranac Lake, N. Y.

"Congestion of the Prostate"—E. S. Moulton, New Haven.

"Erythema Induratum Scrofulosorum"—E. D. Chipman, Waterbury.

"Symphyseotomy"—Nicola Mariani, New Haven.

Uterine Displacements—"The Causes and Results"—C. A. Tuttle, New Haven.

"The Surgical Treatment"—H. G. Anderson, Waterbury.

"The Non-Surgical Treatment"—E. P. Pitman, New Haven.

"Potts' Fracture"—L. C. Sanford, New Haven.

"Report of an Epidemic of Dysentery"—L. M. Gompertz, New Haven.

Surgery of the Gall-bladder with Presentation of Cases—M. M. Johnson, Hartford.

The origin of the New Haven County Medical Association—Gustavus Eliot, New Haven.

List of Members of the Medical Society of New Haven County with Biographical Notes—J. H. Townsend, New Haven.

The Banquet at the Tontine Hotel in the evening was fairly well attended and was a very pleasant affair. It was presided over by Dr. F. H. Wheeler, Anniversary Chairman. The toasts and speeeches were as follows:

Our City—Mayor J. P. Studley.

Our University—President A. T. Hadley.

Our Society—President J. H. Granniss.

The Teacher—Superintendent F. H. Beede.

The Minister—Rev. W J. Mutch.

The Doctor—G. A. Shelton, M.D.

Dr. Parker Syms, of New York, also being called upon made some impromptu remarks.

PRESIDENT'S ADDRESS.

PRESIDENT'S ADDRESS.

THE RELATION OF THE PHYSICIAN TO GROWING CHILDREN.

Realizing my inability to write interestingly on any special subject, and following a time-honored custom which has obtained in this Society that the President's Address should be on some general subject, I have chosen The Relation of the General Practitioner to Growing Children. When our duties as obstetricians have been performed, does our responsibility cease? I say emphatically, No. In fact, it is the writer's belief that our responsibility begins when we are informed of the fact of pregnancy and that we are expected to attend at the confinement. In the first place the family history of both father and mother should be carefully elicited (if not already known to the physician), searching thoroughly for any bad hereditary tendencies. If so be that we find evidence of gouty, rheumatic, tuberculous, syphilitic or neurotic diathesis, these should be guarded against to the best of our ability; the gouty and rheumatic by strict attention to the eliminative functions, especially the kidneys and liver, a simple diet and free ingestion of water; the tuberculous by an out-of-door life and as much of the most nourishing food as is consistent with the free elimination of effete products. The syphilitic should certainly be treated with mercury or iodine, or both, as in such cases we can accomplish more with drugs than usually falls to the lot of the medical man. The neurotic woman certainly has come to be a large factor in the civilization of to-day, and when she is about to assume the duties of motherhood should receive the most careful and intelligent attention of her physician; a cheerful (not maudlin)

sympathy for her in her aches and pains, an encouraging word on all proper occasions, an out-door life so far as possible, mental occupation and cheerful surroundings should obtain to the fullest limit of her financial and social status. In this connection it is perhaps proper to say that drugs should be eschewed almost entirely, especially the Nervines and Hypnotics. All this contributes essentially to the welfare of the expected offspring.

Soon after the immediate attention necessary for the mother, the child should be carefully looked over. The physician should see that the nurse thoroughly cleanses the eyes of the new-born, and if there be the least ground for suspicion of gonorrhea in the parents, a solution of nitrate of silver should be applied to the eye-lids. The anus should be observed and its patulousness determined. If a male, the penis must receive consideration, as so many of the reflex pathological conditions arise in young children from this source. While I am not an advocate of universal circumcision, I do firmly believe that within the first week or two of life the foreskin should be retracted fully and cleansed of all smegma, and the nurse instructed to regard the retraction of the foreskin and cleansing of the glans, a part of the daily routine of washing the baby.

According to my personal observation, if this schedule be carried out faithfully, but very few circumcisions will be necessary. Some recent writers have urged that adhesions between the clitoris and its prepuce should be broken up, but the writer confesses to having no experience in so doing.

The personal condition of the child having been attended to, the next question is, How shall it be fed? Here, again, we come in contact with a factor in the civilization of the day. We are informed by our elders that in our grandmothers' time a bottle-fed baby was a curiosity. It has certainly ceased to be one in these days.

But a few years ago, in an editorial in the Medical Record, there was a clause to this effect: Past generations have been laboring under the mistaken impression that the mammary gland of woman was designated by nature as the medium of nutrition for the infant, but later observations had shown the fallacy of this belief, and that now the female breast was merely ornamental. However, it is the writer's belief (though he may be optimistic) that a change for the better is dawning, for certainly among the wealthy and educated classes, healthful conditions and surroundings are very much more in vogue. Tennis, golf and other out-of-door sports are increasingly popular, so that at least during the Summer months the young ladies are unconsciously preparing themselves for motherhood better than formerly. Sunburned arms and faces are exhibited with pride and whatever of good obtains among the higher classes is apt to gradually filter down through the masses for the benefit of all concerned. Therefore, it is my belief that the near future generation will more commonly be fed as our grandmothers are said to have fed them. Our new-born infant is ready to receive its nourishment as soon as the mother is rested, and now follows that series of minor or major difficulties of the first week of nursing, such as delayed coming of the milk, retracted nipples, cracked nipples, etc., etc. Every effort of the physician, nurse and mother should be made to enable her to nurse the baby. By the end of the week, success or failure is determined. Not only statistics but the experience of any busy general practitioner teaches us that breast-fed infants are but rarely brought to our attention, while those artificially fed, especially during the Summer months, are a constant source of anxiety to the physician and parents by reason of the collection of symptoms of intestinal disturbance, which, if not checked, produces the clinical picture of that wretched condition which we

call Cholera Infantum. In such case, how many times many of us have wished for and tried to obtain a wet-nurse and usually failed. There is no substitute for mother's milk. Not infrequently if the mother can only partially nurse her infant the small amount which she can furnish will many times tide over the case till the baby's intestinal canal can be cleared of its irritating contents and if possible of the ptomaines, and its artificial food again resumed. Therefore, if we find that a mother can only furnish a part of the nourishment needed by her infant, we should urge her to continue partial nursing and if possible by careful attention to diet and hygiene increase the amount. But the fear of intestinal trouble is not the only reason for the most persistent efforts at breast feeding. We have said that there is no substitute equal to mother's milk, and the very fact that so many substitutes are advertised and used goes far to prove the statement. Who shall say that the enormous quantity of urine passed by the artificially fed infant does not lay the foundation for kidney insufficiency in after life?

I do not know of any authoritative literature on this subject, but it seems reasonable to suppose that organs so overworked during the first year of life might the more easily develop degenerative changes.

Again, the tissue-building qualities of the artificial foods are not equal to the natural food. It is a matter of daily observation that bottle-fed children show less resistance to the ravages of the children's diseases, and succumb much more readily to the ordinary ills and ails of life.

Perhaps enough has been said to make us "stop and think before we further go" in the matter of advising as consenting to the abandonment of breast feeding during the first few months of life. After the first year or two there succeeds a period of possibly six or eight years during which the physician sees but little of the aver-

age child save as called to care for its accidents and acute illnesses—though an occasional word of advice to the parents as to the regularity of diet, location and ventilation of sleeping apartments many times may not come amiss. Eating between meals should be interdicted. The nursery and sleeping rooms should, if possible, be those with a southern and western or southern and eastern exposure and up one flight. No child should spend much of its time, either night or day, in a room with only a northern exposure. Sunlight, so necessary to the growth of plants, is equally necessary to the growth and well-being of growing children. It is well during this earlier growing period, in fact till full growth is attained, that the physician should occasionally inspect the growing child carefully with an eye to the symmetry of his growth, noting specially:

First. The conformation of its chest. It not infrequently happens that we find a drooping of one shoulder or a rounding of both, which may easily be corrected by teaching the child to stand erect and to practice frequently extension of the arms laterally, also carrying the hands as far back as possible; encouraging the child to cause the backs of the hands to meet back of him at as nearly the level of the shoulders as may be. Again we find a narrow or contracted chest with abnormally frequent respirations, in which case the child should be taught to make forced inspirations at stated intervals to expand the lungs to their fullest capacity. If we find those deep depressions immediately above and below the clavicles indicating, as we used to say, the consumption tendency, special attention should be given to the expansion of the thin upper portion of the lungs. If necessary girdle snugly the lower part of the chest and upper abdomen and then practice full inspiration in order to fully expand the superior lobes of the lungs which we so well know to be the favorite habit of the tubercle bacillus.

Second. The locomotion of the growing child should be looked to. Some years ago in making physical examinations of the boys in a large school, I found quite a percentage of cases of difference of length of legs. Dressmakers frequently observe one hip higher than the other. Tailors also are aware of the fact that not infrequently a discrepancy exists in the length of legs. The above mentioned facts may well be borne in mind when treating a fracture of the femur.

Many of the milder cases of bow-legs and knock-knees may be materially benefited by drawing the attention of the parents to them and insisting on the frequent manual correction of the deformity. During the first few months of life at least the minor forms of club-foot may also be greatly benefited, if not entirely obviated by manual correction, or adhesive straps so applied as to bring the foot into proper position. Again, flat-foot, causing the child so much pain and distress that he or she is disinclined to walk long distances and is often accused of indolence, can be made perfectly comfortable by raising the arch of the shoe or inserting an arched insole made of either metal or hard rubber properly covered and fitted to the shoe.

Third. The spine, especially in these days of bicycle riding though the craze is somewhat subsiding. It is quite noticeable that many of our older boys and young men exhibit a stooping rather than an erect carriage, which we believe to be due in a great measure to the stooping or back bending posture adopted by fast riders. Bicycles are useful and have doubtless come to stay, but their excessive use should certainly be discouraged by the physician.

Lateral curvature of the spine may, in the writer's opinion, be brought about by the habit of so many children standing on one foot which is so easily corrected by reminding the child of the awkwardness of the position.

At this point, allow me to say, bringing in the first person again, that it is our personal belief that so much of military drill as is covered by the term "the setting up process" should be introduced into every school in the country, either public or private, for the purpose of teaching the boys at least how to stand and how to walk.

Children must play and should enjoy long periods every day of entire freedom from restraint, but the refinement of competitive athletics certainly has its dark as well as its bright side for the contemplation of the thoughtful physician. The broken fingers and injured joints of the base-ball and foot-ball field are by no means desirable adjuvants in the struggle for bread or the race for honors and emoluments in after life, and happy should be the boy who enters college, and, happier still, the young man who leaves it, sound in limb, heart, lungs, and head when he is graduated.

From the physiological standpoint more vigorous exercise, and less of the excessive, makes the best preparation for a long and useful life.

So far we have considered the child without regard to sex and somewhat the boy specifically. What shall be said about the other sex? Here we enter what should be the special domain of the intelligent mother. Up to the dawn of puberty but very little distinction is to be made between the sexes in or out of doors—but from this time on, their distinctive characteristics are developing, and the boy grows more and more masculine, and the girl becomes more and more feminine. In former ages, and among the older and more barbarous nations to-day, the women performed out-of-door manual labor, and were the carriers of burdens, but in the process of evolution and by reason of environment and custom all this has ceased, and in the past few generations the women have become house-plants and consequently deli-

cate, unable to bear burdens, and we might almost say unable to bear children.

The question now is, Should girls be reared quite so tenderly as has obtained during the last few generations? The answer is certainly not, if our country is to grow strong from its own birth-rate, not as heretofore from emigration. Growing girls and young ladies should be encouraged to indulge in out-of-door sports and gardening, croquet, tennis and golf in their respective order; croquet as the least fatiguing, then tennis and finally golf as requiring the greater strength of muscle and physical endurance.

It would seem almost superfluous to speak of the matter of clothing of growing children, but it certainly behooves us to advise flannel next the skin from the neck to the ankles—and to remonstrate against the fashion recently in vogue, of bare legs from the middle of the thigh to below the knee for little ones of from two to five years of age. Their clothing should be loose and of loosely woven fabric, so as not to interfere with the process of growth and freedom of movement. The question of tight lacing of corsets can only be spoken of, to be condemned.

Without stopping to fully discuss the vexed question of dentition, allow me to ask who of us has not been consulted by adults regarding very serious discomfort during the irruption of the wisdom teeth? And if this is true of the adult, is it not reasonable to suppose that teething of the young and sensitive infant may be, and often is, the cause of much fretfulness, fever, disturbance of digestion, and in fact the starting point of many of their ailments? I am fully aware that many of the best authorities of to-day ignore teething as a factor in the causation of the ills of children, but it is our belief that reflexly it is responsible at least for that increased severity of other troubles, and should receive the careful attention of the medical man. After the first denti-

tion is accomplished, ordinarily the dentist must assume for the most part the responsibility of the further care of the teeth, though the general practitioner may not forget that dental caries is frequently the cause reflexly of remote troubles.

With a few words in regard to bathing, we will bring this rather rambling little sermon to a close. "Cleanliness is next to Godliness," and growing children should be taught to make free use of water for the purposes of cleanliness. The chest sponge bath on rising followed by brisk rubbing doubtless does act as a preventive against taking cold.

Tub bathing for infants, and the tub or plunge bath for older children is beneficial, but the temperature of the water, and the length of time immersed should be carefully graduated to the reactionary power of the bather. The slightest tinge of cyanosis should be the signal for removal and immediate reëstablishment of the circulation by the vigorous rubbing with coarse towels. Subsequently the temperature of the water should be higher and the time shortened.

Those of us practicing near seashore resorts are frequently asked by anxious parents how long at a time and how frequently may our children bathe? No hard and fast rule can be maintained. People from the interior somehow seem to think that salt water bathing is the panacea for all ills, but personal observation has taught the writer that sea bathing is over-estimated, or rather overdone. I am accustomed to say that for the average child or adult the maximum of benefit is obtained by not more than one-half hour per week—five minutes every day or ten minutes on alternate days, and further if after thorough rubbing there remains a feeling of lassitude, an inclination to lie down or the desire for a stimulant, the time must be shortened to that point at which, after the bath, the bather exhibits a full reaction

and a desire to resume his play or occupation immediately. Should this condition not obtain after a one-minute bath, I do not believe there is any benefit to be gained by that person from sea-bathing. It is true that many children can afford to stay in the water longer than our set limits, but it is not unusual to observe children starting for home in the late Summer or early Autumn with rather hollow cheeks and apparently large eyes instead of the ruddy cheeks and generally robust appearance which they should have after their Summer's outing.

It was the writer's intention to speak of schools in their relation to the welfare of growing children, but as we are to listen to a paper on the "Medical Inspection of the Public Schools," also one on "The Eyes of School Children," I will desist.

And now disclaiming any expectation of instructing this audience, I beg pardon for the attempt to remind the general practitioner of some of the ways in which he may be of service to the rising generation, and close with the hope and expectation that not many decades hence, the majority of mothers will be able to nurse their progeny, and that the average boy instead of the exceptional one, will be able to pass the physical examination required for entrance to the military or naval academy.

DISSERTATION.

THE PATHOLOGICAL RELATIONS OF THE WHITE BLOOD CORPUSCLES.

THE PATHOLOGICAL RELATIONS OF THE WHITE BLOOD CORPUSCLES.

By O. T. Osborne, M.A., M.D.,

NEW HAVEN.

While it is impossible to live up to the title of this dissertation, it seems to me that this subject is of such intense interest to us all that it would be well to consider just how far we have progressed in understanding the white blood-corpuscle and its role in health and disease.

Under the microscope we find various types of white corpuscles, but physiologists are not yet ready to tell us just what the functions of these varying shaped corpuscles are. The simplest microscopical classification gives us first the lymphocytes, which are small corpuscles with a round vesicular nucleus, scanty cellular substance, and which are not capable of amoeboid movements. Second, the mononuclear leucocytes, which have large corpuscles with vesicular nuclei and abundant cytoplasm, and have a certain amount of amoeboid movement. The third class is the polymorphonuclear cells, which are large corpuscles with their nuclei divided into lobes, which are separated or connected by fine threads. These leucocytes have very active amoeboid movements. This is Howell's classification, and we are not yet ready for clinical purposes to subdivide the cells into the varying staining properties of the granules of the cytoplasm.

To trace the history of these white cells we find that they are formed in the mesoderm of the embryo as are also the lymphatic glands, which glands Ziegler says retain their embryonic character and produce throughout life the lymphocytes of the blood. It is a subject that

has not yet been settled by the physiologists as to whether this lymphocyte is or is not the embryo of the polynuclear leucocyte. These lymphocytes certainly arise from the leucoblastic cells in the lymphoid tissue, perhaps also some are formed in the spleenic pulp and in the red bone marrow.

[1]Moore thinks that these lymphocytes are simply the early stages of the polynuclear leucocytes, which seem to be the highest form of development. This lymphocyte is incapable of amoeboid movement as above stated, though H. Hirschfeld claims to have found some amoeboid movement in a case of a patient suffering from lymphatic leukemia.

The next stage is the large mononuclear cell which has some amoeboid movement. Then the nucleus grows irregular in shape, and later divides and we have the multinuclear leucocyte, capable of active amoeboid movements, which cells are capable of passing through the capillary walls into the surrounding tissue and wandering about, and hence are termed wandering cells.

[2]Warthin, in a recent article in the Journal of the Boston Society of Medical Science, describes his study of the lymph glands along the anterior border of the spine. He divides these into "spleno-lymph glands" and marrow-lymph glands," the former having some of the histological arrangement of the spleen and the latter composed of lymphoid cells not grouped as follicles. He says the spleno-lymph glands show some evidences that they form leucocytes, while the marrow-lymph glands show multinucleated cells and occasionally giant cells of the bone marrow type. He thinks that in grave diseases these glands may take on the work of the spleen and bone marrow.

Moore suggests that the leucocytes may be produced by diffuse adenoid tissue anywhere, especially in the tonsils, in Peyer's patches, and in the solitary follicles in

the intestine. Certain it is that too much lymphoid tissue, as the so-called adenoids in the nasopharynx, do produce something that is inimical to the health of the individual. If careful blood-counts and urinary examinations were made for the output of phosphorus and uric acid we might find some reason besides the simple obstruction for the debility of children with adenoids.

[3]Rubinstein believes that the bone marrow is the only part of the body that produces the leucocytes of the blood as distinct from the lymphocytes. He describes the gradual development in the bone marrow from the lymphoid cell to the full grown polynuclear leucocyte.

[4]Josue also believes that the bone marrow plays an important role in the production of white blood-corpuscles, especially in the infections. He also has demonstrated all varieties of leucocytes in the marrow, and his experiments show the power of the staphylococcus to start the activity of the bone marrow in producing fully developed leucocytes. He thinks that the micro-organisms act directly upon the marrow after reaching it through the blood.

Physiologically the leucocytes are increased in number after digestion, pregnancy, and hemorrhages, and pathologically in leukemia and suppurative diseases. They are diminished in old age and in starvation. Proportionately the young babe has more leucocytes than the adult, and there are always more leucocytes in the capillaries and veins of the abdominal organs than in the vessels of the skin or muscles. Incidentally it may be noted that the pus-cells are ordinarily dead leucocytes which have undergone fatty degeneration.

If the lymphocytes of the blood are not the young leucocytes, it is possible that they have something to do with the absorption of fats from the intestines, or possibly, as they multiply in the blood by karyokinesis, they also break up in the blood and may add something to the

plasma. Whether the leucocytes, i.e., the polynuclear or highest form of white corpuscles disintegrate in the blood or in the spleen, whenever such disintegration is in excess we have the uric acid output increased, as uric acid has been proved to originate principally from nuclein disintegration such as follows the breaking up of these cells, the metabolism being absolutely distinct from that type of proteid metabolism which results in urea as an end product.

With the uric acid increase phosphorus, a normal constituent of nuclein, is also increased in the urine. This increased output of phosphorus and uric acid or other allox-uric bodies (purin bases) is markedly shown in the spleno-medullary form of leukemia, but not in the lymphatic form. Theoretically, then, when there is a leucocytosis we would expect an increased elimination of uric acid and phosphorus.

Some of these leucocytes undoubtedly break up in the blood, others are probably destroyed in the spleen, and there are probably other parts of the body where they are destroyed.

Hannes[5] has recently shown that profuse sweating causes a marked increase in the number of leucocytes. In examining a large number of children with various conditions he noted that in all instances where there was a deficiency of white corpuscles there was marked rickets present.

Whatever may be the function of the lymphocytes, we know something pathologically or physiologically of the function of the polynuclear leucocytes, or the full-grown leucocytes. They have proved to be active agents in the absorption of waste and noxious substances. (Stassano).[6] The duties of these full-grown leucocytes is not only to break up and furnish some proteid material to the blood, but to protect the blood and system against pathogenic bacteria. If an infection of bacteria is not severe

enough, or intense enough, or malignant enough to cause the immediate death of the individual perhaps by breaking up the red blood-corpuscles and causing acute anemia, or if it is not intense enough to attack the tissues and cause a necrosis, the multi-nucleated white blood-corpuscles proliferate and become active phagocytes.

Whether it is the bacteria themselves or their toxins that stimulate the production of more leucocytes, is not known, but that these cells eat up and swallow pathogenic bacteria is now generally accepted, and that they furnish an antitoxic secretion, or furnish it by their disintegration in the blood, is probable.

Dr. [7]Mallory, of Boston, says that these leucocytes produced by bacterial irritation or toxin irritation are "phagocytic beyond all bounds of necessity and destroy great numbers of useful cells." This might possibly account for the condition in which leucocytosis is normally present and desired and normally curative, and yet the patient dies of exhaustion and anemia.

The term leucocytosis which is used now so frequently means an increased number of white blood-corpuscles which are not permanent as distinct from a permanent increase or leukemia. In this condition of so-called normal leucocytosis there is no diminution in the number of red corpuscles, and the increased number of leucocytes is probably limited to the multinuclear variety. Besides the normal physiological leucocytosis mentioned above, any infection embodying irritation and stimulation of the lymph glands and probably the bone marrow causes an increased number of polynuclear white corpuscles to appear in the blood stream, i.e., a pathological or better protective leucocytosis. We can cause this leucocytosis by giving substances which probably stimulate these glands and the bone marrow. This is true of any nuclein preparation as simple nuclein or testicular extract or thymus gland substance, and perhaps some of the

preparations of phosphorus, especially the glycerine compounds.

In simple localized inflammation in which the lymph glands are not involved we do not have leucocytosis until pus is formed. Hence in suspected concealed pus formations it becomes a matter of diagnostic importance to ascertain whether or not there is a leucocytosis which if present to the amount of 15,000 or more is almost a positive proof of pus. Other things being equal up to a certain limit the greater the amount of leucocytosis in bacterial diseases, the better the prognosis. However, in pneumonia for instance, the mere degree of leucocytosis does not indicate directly the severity of the disease though ordinarily a high degree of leucocytosis, fifteen thousand or more, is seen in both severe and mild cases, while a very slight leucocytosis is a bad prognostic sign in diseases that normally cause this condition.

[8]Becker, in his examination, says he considers the eosinophiles, or the leucocytes that stain with eosin, to be absent in all fatal cases of pneumonia, hence he considers their absence from the blood-examination as a bad sign.

[9]Heim says that the eosinophiles are absent in croupous pneumonia. He also says that these cells are present in meningitis, pleurisy, and tubercular pneumonia, hence the diagnosis can thus be made in a doubtful case. As to diphtheria, which is a disease with a large amount of leucocytosis, Heim says that these leucocytes increase rapidly even before the membrane appears and then they gradually decrease, unless complications exist. Antitoxin injections decrease this leucocytosis, though it rises again later. If the leucocytes do not decrease after antitoxin has been given, not enough serum has been used.

Besides these diseases just mentioned, that is diphtheria and pneumonia, we have leucocytosis normally in

those infections that have associated glandular swellings, as erysipelas, scarlet fever and septicemia. We find some leucocytosis in general infections, as rheumatic fever and occasionally in typhoid fever, but in acute and chronic tuberculosis leucocytosis does not occur unless there are some shut up pus formations. Cerebrospinal meningitis and even cancer also give leucocytosis, and this condition also occurs immediately after the bites of venomous snakes.

So much for what we may term normal and protective leucocytosis. If the white cells without apparent cause or reason rapidly multiply and continue to multiply, we have the pathological condition we term leukemia. The condition called leukemia may be defined as a permanent increase of the white blood-corpuscles with some diminution of the red cells, associated with an enlargement of the spleen, splenic leukemia, or an enlargement of the lymph glands, lymphatic leukemia, or both. Pathological changes are also found in the medulla of the bones, this most frequently with the splenic form, giving what is called the spleno-medullary leukemia. The lymphatic tissue in the various organs of the body may also be found increased.

Pathological findings have not as yet shown us the cause of this disease, and as we do not thoroughly understand the physiology of the white corpuscles we have gained no help from this source. Of the gross etiology we may say that leukemia is more common in males than in females, and occurs most frequently between the ages of twenty and fifty years. The alkalinity of the blood in this disease is diminished and the specific gravity is lowered, while the fibrin is increased. (Osler).[10]

The enlarged spleen seems to be a simple case of hypertrophy, a hyperplasia, and the same hyperplastic condition of the bone marrow is found. In the lymphatic form of the disease all of the lymphatic glands of the

body may be enlarged as the cervical, the axillary, the mediastinal, the mesenteric and the inguinal, as well as the glands which cannot be demonstrated during life. These glands perhaps rarely amalgamate and are almost always movable. The liver is often found enlarged, as are the tonsils.

Examination of the blood in these two forms of leukemia is decidedly distinctive. In the spleno-myologenous form there is always a progressive anemia or disintegration of the red blood-cells and the leucocytosis is of the large polynuclear cells, while in the lymphatic leukemia there is less marked anemia or red cell degeneration and an increased number of small white cells, the lymphocytes.

In pseudo-leukemia, the so-called Hodgkin's disease or lymphadenoma where we may have enlarged glands of the body not only of the cervical glands, but of other groups, these glands tending to amalgamate, examination of the blood may show no change from normal, or if there are changes they are slight.

Acute leukemia, in which the lymphatic glands are the parts involved, is a rare and fatal disease.

The symptomatology of chronic leukemia of either form is that of the enlargement of the parts affected, of the spleen or glands and perhaps liver, and the pressure which these enlarged organs may exert with the symptoms of debility due to anemia and a tendency to hemorrhages. There may or may not be increased temperature.

In 1845 [11] Virchow first described the condition of increased white corpuscles and gave it the name of leukemia, or white-blood. He described the two forms, the splenic and the lymphatic form, but not until 1869 was the disturbance in the bone marrow noted, and was then described by Neumann. From that time to this it has not been decided what is the cause of the disease leukemia. Lately when we are so much interested in the

study of infections this disease, which seems to be a continuous and constant stimulation of the glands or organs that form white corpuscles, it has been considered that this stimulation was infection.

In the spleno-myologenous leukemia we find a large number of myelocytes or the large mononuclear leucocytes as well as an increase in the polynuclear leucocytes. These mononuclear leucocytes or myelocytes are not often found in normal blood, though they may be during certain diseases, as diphtheria and pneumonia. These cells are found only in the bone marrow where some physiologists, as above stated, regard them as the progenitors of the polynuclear cells. The blood also contains nucleated red blood-cells in considerable number, not as many as are found in pernicious anemia.

Now as to the etiology of these blood changes outside of an infective germ which we have not yet found. A chronically enlarged spleen has been thought to be the etiological cause in some cases. We can have an enlarged spleen and anemia without evident glandular enlargement or bone marrow disturbance to which the name of splenic anemia has been given. The blood in this condition does not show the leukemic changes. We also have, mostly in young adults, the pseudo-leukemia or Hodgkin's disease, or lymphadenoma as above named with the primary enlargements almost invariably in the glands of the neck. The question has lately arisen as to whether or not these cases are not in their incipiency tubercular adenitis. A number of these cases have been known to finally develop a general tuberculosis or a pulmonary tuberculosis and before such appearance of tuberculosis have shown more or less increased temperature. Even cases of spleno-myelogenous leukemia often die, probably a mere coincidence, of tuberculosis.

Let me here relate a case of what was diagnosed as lymphadenoma and later developed a pulmonary tuberculosis which caused death.

An undeveloped, ill-nourished, and undersized girl aged fifteen, first came to my clinic in July, 1900. She had gastric indigestion, some slight cough, said she was dizzy, and had enlarged masses of glands in both sides of the neck and in the right axilla. The duration of the enlargement of these glands was stated as four months. The rest of the family were said to be healthy and with no tubercular taint, although later a young sister of the patient was found to have tuberculous glands.

The lungs were carefully examined and no localized trouble found. The tonsils were not enlarged, neither was the spleen, but the liver seemed to be larger than normal. Examination of the blood showed some anemia and 11,500 leucocytes, the increase being almost entirely of the polynuclear cells. There were very few eosinophiles present, and no nucleated red blood-corpuscles. Though tubercular adenitis was suggested, it seemed to be a case of Hodgkin's disease.

Under the treatment of iron and tonics she improved, but Fowler's solution, which was given for a considerable time, I believed did her harm and was soon stopped, it causing considerable diarrhea.

In March of 1901, she began to have an increase of temperature, with a rapid pulse, and soon lost weight. From this time she was not seen until November, 1901.

There was then marked tubercular infiltration of both lungs, and facial nerve paralysis of the left side, due to the pressure of the enlarged glands. The sputum showed large numbers of tubercle bacilli, and the blood gave 3,740,000 red corpuscles, 50% hemoglobin, and 10,333 white cells, a decrease of nearly 1,200 leucocytes as compared with the examination seventeen months before. The patient died in January, 1902.

This was, then, a case in which tuberculosis was undoubtedly at the bottom of the general appearance and manifestations of Hodgkin's disease.

As far as the temperature is concerned it has been repeatedly noted that an intermittent fever can occur in pseudo- leukemia. Also a moderate leucocytosis, as was present in this case, often occurs in psendo-leukemia.

[13] Sternberg and [14]Musser both believe that the adenitis of Hodgkin's disease is a tuberculous process, and the above case most certainly bears out that conclusion. On the other hand, many good authorities believe that this disease is allied to the malignant condition of lymphosarcoma, and that lymphadenoma or Hodgkin's disease is due to some infective cause, although the germ is not yet discovered. In a recent discussion in England on this subject it was considered that tuberculosis was an incident and not a cause of lymphadenoma, although many cases of reported Hodgkin's disease were really tubercular adenitis. The subject is therefore still open to proof.

[15]Wende, of Buffalo, has reported a case of lymphatic leukemia apparently developing out of Hodgkin's disease. He also says this case developed a peculiar bronzing of the skin. As this man was subjected to hypodermic injections of Fowler's solution for weeks and months, I am inclined to think this bronzing was due to the arsenic. At first the examination of the blood showed the number of white corpuscles to be subnormal, viz., only 4,000 to the cubic millimeter. *This arsenic treatment did what I believe it can do, and in five months the red blood-corpuscles had gone from normal, over 5,000,000 to the cubic millimeter, down to less than 2,000,000, and the whites had increased to 34,000, mostly lymphocytes. This man's blood gradually went from bad to worse as far as the red blood-corpuscles were concerned, and he finally died of an acute streptococcus infection. Before death not only the red corpuscles were reduced to less than 1,000,000, but the whites had reduced

*See also Herter's "Lectures on Chemical Pathology," p. 34.

to 600. The final destruction of the white cells from 45,000 down to 600 by the streptococcus infection is interesting, and the disappearance of the swollen glands stated in this case is somewhat similar to the results which Coley gets with streptococcus injections for sarcomata. During the last few days of this patient's life when the white corpuscles were disappearing there was a great increase of uric acid output.

[16]Rosenfeld has also reported a case in which the treatment of lymphatic leukemia with arsenic caused an evident decrease in the size of the lymph glands, but a marked increase in the number of circulating lymphocytes.

My primary object in taking up this subject for dissertation is that during this year I have had under observation a very interesting case of lymphatic leukemia. It has been of much more than ordinary interest on account of the tractability of the patient and the opportunity of making continuous and repeated careful blood examinations under varying treatment conjointly with the scientific examinations of the urine, and many times feces, made by Dr. Yandell Henderson, our Associate in Physiology, without whose help this case would not be complete. The blood examinations were carefully supervised by Professor Charles J. Bartlett, and I am greatly indebted to him for his skilled help in the case. I am also greatly indebted to Mr. G. H. Edwards and to Mr. V. A. Kowalewski, both of the Senior Class at the Yale Medical School, for their able assistance.

The patient to whom I refer is a man, sixty-four years of age, who was born in Scotland, and whose occupation is that of a stone-cutter. He was referred to my clinic on July 15th, 1901, and came for treatment on account of a gradually increasing swelling of the glands of the neck, the enlargement having been first noticed sixteen months before.

He had never before had any glandular swellings, and had never been sick except from pneumonia six years ago. There is no specific or tubercular history, and the family history is negative. His tongue was coated, he had a poor appetite, and complained of insomnia.

Examination showed most of the glands of the neck to be enlarged and amalgamated, giving the appearance of Hodgkin's disease. The axillary glands were enlarged and amalgamated into masses, as were also the inguinal glands. Physical examination showed that the mediastinal glands were enlarged, and a number of enlarged mesenteric glands could be distinctly palpated.

The spleen was enlarged, though not markedly so, and was harder than normal. The liver was enlarged and so were the tonsils. Examination of the blood showed there to be 4,968,000 erythrocytes, hemoglobin 65%, and white corpuscles 163,000. This increase in the white corpuscles was almost entirely of the lymphocytes, i.e., of the white cells which are formed in the lymphatic glands and are the youngest white corpuscles in the blood. There were no nucleated red cells.

He was first given general tonic treatment, but on August 15th was put upon Fowler's solution with gradually increasing doses.

From the time of my first observation until September 25th, I had not seen him, at which time his general condition was poor; he was losing strength and was very weak. Examination showed at this time that the spleen was reduced in size, the enlarged glands had softened, and there was less tendency to amalgamation. The skin of the abdomen showed marked browning, the pigmentations being similar to that seen in Addison's disease. Examination of the blood at this time showed the red corpuscles to have been reduced to 2,719,000, with hemoglobin 60%, while the white corpuscles had increased to 173,000, consisting almost entirely of lymphocytes. From

the arsenic, then, in this case we got pigmentation, destruction of red corpuscles, and diminishing of the size of all the enlarged glands, but in spite of this an increase of the white corpuscles. Therefore arsenic did him harm. The patient was then put upon the tincture of iron and Armour's Red Bone Marrow, and in three weeks the red corpuscles had increased to 3,272,000, and the white corpuscles had decreased to 134,690. By November under this treatment the red blood corpuscles had increased to 3,931,680, the whites had again increased to 193,200, with the hemoglobin at 53%, and very few eosinophiles were found. The man had grown strong, his appetite was good, and he was again able to do some work, while the glands were again enlarged and harder.

During this period the urine was carefully studied, the whole of the urine for twenty-four hours being saved, and it was found that in spite of this enormous number of white cells there was no increase in the uric acid and phosphorus output. This shows, as we know uric acid to be due to nuclear breakdown, that these white cells, though enormous in number, do not rapidly disintegrate.

On November 4th last, namely, directly after the above blood count, the Red Bone Marrow was stopped, though the iron was continued, and he was given five drops of Fowler's solution three times a day. In five days he was complaining of dizziness and breathlessness, so much so that the Fowler's solution was immediately stopped and he was again given bone marrow, namely, November 9th. The blood count at this time showed that the red corpuscles had dropped to 3,296,000, a loss of more than 600,000 corpuscles. The white corpuscles had increased to 203,900, and the hemoglobin was 55%. The white corpuscles were constant chiefly lymphocytes, (98%) there being very few polynuclear cells. This positively shows what arsenic will do and can do in these cases.

From this date, November 9th, until November 18th, the patient continued his Red Bone Marrow with continued increase in strength, though after this arsenic treatment for two weeks or more the glands showed considerable softening. He was later put upon bicarbonate of soda, one gram three times a day for about a week, with the result of causing an enormous increase of uric acid and phosphorus output in the urine. Under this alkali he became very weak, the glands grew softer, and the spleen reduced in size, but the liver remained decidedly enlarged. He now developed a bad cough, and there was a good deal of bronchitis with expectoration of a peculiar tenacious mucus and pus. This was examined and no tubercle bacilli found. Examination showed the lower and middle lobes of the right lung apparently somewhat consolidated, the expiratory murmur was somewhat prolonged, the voice transmission was exaggerated, and some creaks were heard. The condition was not pneumonic and not pleuritic, and repeated examinations showed no tubercle bacilli in the sputum. The question arose of some growth in the lungs, but the symptoms and signs were probably due to the breaking down of some of the enlarged broncial glands and their discharge into the bronchi. Of course this is an unproved surmise. He soon became so weak that he could hardly move, and all of this following the bicarbonate of soda treatment. The blood count directly after the bicarbonate of soda period showed the erythrocytes had been reduced to 2,840,000, the hemoglobin was 53%, and the white corpuscles had increased to 380,000 and were practically entirely lymphocytes. The alkaline treatment, then, caused a softening of the glands, an enormous output of phosphorus and uric acid and a break down of red blood-corpuscles, even more than did the arsenic.

About December 9th he was put upon the tincture of

iron in a citric acid solution and Red Bone Marrow, from which time he again greatly improved, had less cough, less expectoration, and the glands all became hard and larger, and his strength increased.

The blood count on January 7th showed that the erythrocytes had increased to 3,662,706, hemoglobin 60%, and the white cells had decreased to 256,666.

On February the 15th, the same treatment having been persisted in, the blood count showed the reds to have come up to 4,060,000, the hemoglobin was 63%, but the white corpuscles had increased to 380,000, and almost no polynuclear leucocytes found.

On February 24th, we stopped the bone marrow and gave him nuclic acid, 20 centigrams four times a day, on the theory that as this acid normally causes an increase of the polynuclear cells it should increase largely such cells in this case if the lymphocytes are their origin.

In four days, March 1st, the blood was examined and it was found to contain 4,400,000 red corpuscles, 63% hemoglobin, and 292,000 white cells, and as previously nearly all of the lymphocyte variety. Hence the polynuclear cells were not increased and we have strong evidence that the leucocytes do not come from lymphocytes, but from the bone marrow. The latter being diseased in this case nucleic acid did not cause its normal leucocytosis. We then doubled the dose of nucleic acid for four more days, and the blood count a few days later showed the reds to have reduced to 3,112,000, hemoglobin 55%, and the whites still reducing to 238,000. The man was again very weak, the glands were softer, he was coughing, and had developed a very bad edema of the legs. This showed that the specific gravity or constitution of the blood plasma had changed for the worse. Repeated examinations of the urine had never showed albumin. He was again put upon the bone marrow and given some digitalis, and the iron, which he had never ceased to

take since early fall, continued. In ten days the edema had disappeared and the general condition improved.

On the evening of April the 14th, the patient had a very severe chill with which there were convulsive movements followed by a number of hours of a half comatose condition. The next day, April 15th, malarial parasites were found in the blood and the white corpuscles had reduced to 68,000. The red blood count at this time which in the interim since the last examination must have increased in number were now 3,616,000, with the hemoglobin 55%. On the next day, April 16th, although quinine had been commenced in large doses, malarial parasites were again found, but the whites had increased to 170,000. That evening he had another chill, not quite as severe as the previous one. On the next day, April 17th, the white blood count had dropped to 120,000, not as great a reduction as previously. On the 18th the whites had increased to 135,000. There was no chill on that night, and on the 19th day they had increased to 170,000 and there were no malarial plasmodia in the blood. Quinine was continued through this period and so was the red bone marrow. On April the 23rd the white corpuscles had increased to 236,000, nearly as much as before the malarial period. Malaria had reduced the red corpuscles to 2,800,000, and the hemoglobin to 40%, the lowest it had ever been.

This reduction of white corpuscles by an acute infection has been noticed by other observers, but so far as I know has never been noted in malarial infection. Synchronously with this reduction of white cells all of the external glands greatly reduced in size so that the typical Hodgkin's appearance of his neck in four or five days almost disappeared. The mesenteric glands could no longer be palpated, but the spleen remained as before. The glands, however, after this week began to again increase in size and hardness.

As to the treatment of leukemia, it is useless to map out the proper treatment for something the cause of which is so intangible. In its acute forms it undoubtedly is a microbic disease. If it is such in the chronic forms, it must be a pretty slow going microbe. Leukemia is not a case of pathologic disintegration, it is perhaps normal functions carried to excess. Wherein the trouble lies, what secretion is perverted, what abnormal chemical condition is perhaps present, and how to antagonize it is an unsolved problem. A chronically enlarged spleen with a history of severe malarial poisoning, whether the white blood-corpuscles are increased or not seems to call for quinine, though the dose would probably not be large, and it would certainly be indicated if there was coincident anemia.

As the enlarged spleen under any of these conditions seems to vary in size from time to time, we can perhaps aid this rhythmical diminution and cause it perhaps to diminish permanently by the spleenic cold douche, or by the use of electricity in the region of the spleen. The spleen has been removed in chronic enlargement and in malaria and patients have recovered, but in cases in which the spleen has been removed in leukemia the patients have all died.

If enlarged glands of the neck occur, whether they amalgamate or not, whether it is a tubercular adenitis or adenomata which may lead to Hodgkin's disease, and whether the origin of Hodgkin's disease is tubercle or not, these enlarged glands on the one hand surely harboring tubercle bacilli and on the other giving a tendency to true Hodgkin's disease with subsequently, perhaps, tuberculosis, all of which causes me to emphatically say that enlarged glands of the neck that persist should be removed by the surgeon.

From a toxic standpoint we know that too much tonsillar tissue, too much adenoid tissue in the naso-

pharynx is not only not conducive to the health of the individual, from the obstruction alone, but allows especially under the excitation of cold or dust-germs, a something to get into the blood which can produce an acute toxemia, and the little patient has fever for a day or two and is more or less sick. Also, if these little febrile turns recur he sooner or later becomes flabby if not cachectic. Such lymphoid tissue I believe should be removed.

In leukemia either of the spleno-medullary or of the lymphatic variety of course our first care is of the general nutrition and hygiene of the patient, allowing only such physical exercise as the condition of the heart and respiration warrants. As to any medicinal treatment, it must be remembered that with or without treatment there are periods of remittance in this disease when patients may become suddenly better and remain better for considerable periods. Theoretically, every medication such as nuclein, thymus, thyroid extract, and possibly phosphorus, would not be indicated as tending to cause normally a leucocytosis. Alkaline treatment, causing increased metamorphosis and break up of nuclear elements, would seem to be contra-indicated. Iron is always indicated, perhaps best in an acid preparation. Red bone marrow would seem theoretically and practically to be the proper treatment. Certain it is that sooner or later these patients with leukemia have an anemia added to it. Arsenic I believe would be utterly unjustifiable unless while it was being given the blood count was carefully made. If it caused any such condition as it did in my case it certainly is vicious treatment. Such ordinary tonics and laxatives as the case might require, or possibly cardiac tonics, should of course be used.

At least ten years ago I advised against so-called dietetic treatment for diabetes mellitus only in so far as

to establish the diagnosis. This at that time was almost heresy. I now state that I believe the apparent advantage of arsenic in leukemia and pseudo-leukemia has been in the evident and palpable diminution of the size of the glands, but in the meantime the patient went down hill. I believe arsenic should not be used in this condition.

Physiologically with the above cited case we have the following conclusions:

1st. The lymphocytes are probably not the origin of the polynuclear leucocytes, else with so many lymphocytes we ought to have an increase of the more mature cells.

2nd. Normally, without medication to cause it, in lymphatic leukemia, as has been observed by others as well as ourselves, the uric acid and phosphorus output is not increased, hence these cells do not break down more rapidly than in normal individuals with only eight thousand or so leucocytes. This means that a normal person with from five to eight thousand leucocytes has no more nuclear break-down than these patients with nearly four hundred thousand leucocytes.

3rd. Arsenic, alkalies and nucleic acid reduced the size of the glands and spleen in this case but caused destruction of red corpuscles.

4th. Nucleic acid alone seemed to positively reduce the number of the white cells.

5th. The red cells and the general condition always and consistently improved under Armour's red bone marrow. Hence it is justifiable to assume that in this case, if not in all cases of lymphatic leukemia, the bone marrow is diseased.

6th. The malarial infection reduced the number of the white cells and the size of the glands more than any treatment instituted.

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REPORT

OF THE

COMMITTEE ON MATTERS

OF

PROFESSIONAL INTEREST

IN THE STATE.

ACUTE RHEUMATISM.

REPORT OF THE COMMITTEE

ON MATTERS OF PROFESSIONAL INTEREST IN THE STATE.

The Committee on Matters of Professional Interest in the State beg leave to submit the following report:

Acute rheumatism presents itself as a subject of especial interest for consideration by reason of the great diversity of opinion now held as to its origin, its nature, and its mode of transmission. In selecting rheumatism as a topic for discussion, this Committee were mindful of the province of the Committee on Matters of Professional Interest, which, in their judgment should confine itself to collaborating the opinions of members throughout the State regarding rheumatism. The Committee have, therefore, left out of their consideration the standard authorities on rheumatism, endeavoring only to obtain the consensus and opinions of members, their personal opinions based upon their own experience. The committee were gratified by the promptness with which replies to their circular were sent in, at the same time regretting that they were not more numerous, that more of the members did not respond. However, the reason of the number of replies being somewhat limited is clearly indicated by the answers to our first question, namely, "Do you find acute inflammatory rheumatism to be a frequent or an infrequent disease?" One-half of the responses pronounced acute inflammatory rheumatism to be an infrequent disease, nearly one-fourth considered it fairly frequent, and the remainder only considered it frequent.

Therefore, considering that those members who have not responded have seen very little of this disease, we

cannot but infer that it is a comparatively rare disease in this State. With this premise, and assuming as before stated that the mission of the Committee is to ascertain and present the status of the professional opinion in Connecticut in relation to the disease, it becomes evident that the amount of material to be secured must necessarily be limited. Therefore, our report will be brief, and we trust not tedious.

Second,—Very few have found sub-acute rheumatism, (acute arteritis of one or more joints without fever), giving rise to heart lesions, and a still more limited number think chorea is allied to rheumatism, or causes heart lesions. Nearly one-third of our members believe acute rheumatism to be an infectious disease while only three out of that number have seen one case contracted from another.

On the question of heredity there obtains nearly the same diversity in the reports, seventy-two having observed the hereditary tendency, and only thirteen not having observed it, while of those having seen more than one case in the same family, eighteen have seen two cases, twenty-one three cases, three have seen four cases, and one member reports six, the last in a noteworthy example, the patients being a mother and five out of ten children.

The divisions of answers to the next question may be a surprise to many, as nearly all of our members place endo-carditis as a complication instead of a part of the disease, and more than one-half have never heard valvular murmur in the heart due to acute rheumatism entirely disappear.

Nearly all found the disease a frequent recurrence while about two-thirds of our members found symptoms of intestinal indigestion as a premonitory symptom.

One-half of our members believe in cerebral rheumatism, and the other half do not, more than twenty giving the symptoms as those of a well-marked meningitis.

One-third only have seen cases of rheumatism of the bowels, twenty describing these cases and considering them peritonitis.

A majority of our members cannot prevent cardiac inflammations.

Answers to the next question, "How frequently have you seen the so-called rheumatic nodules?" were conspicuous by their absence. One only has seen them in three cases, one in two cases, and two in one case each, while nineteen have never observed them. This is the more surprising since the presence of the nodules in this disease has been so conclusively demonstrated.

Heiman, in a paper in the Archives of Pediatrics, January, 1901, upon the pathogenesis of acute rheumatism in children says, "We have as a frequent accompaniment of rheumatism in children a formation of tendinous nodules," and Professor Jacobi, discussing this paper, declares that purpura and sub-cutaneous nodules are characteristic of this disease in children.

Of the various skin eruptions complicating rheumatism, fourteen have seen eczema, twelve urticaria, seventeen erythema, one erythema nodosum, nine purpura, and four herpes.

TREATMENT.

In the use of the salicylates, nearly all prefer the sodium combination; sixty-seven give them until pain subsides, thirty-nine until fever subsides, and a lesser number until both fever and pain disappear. A majority of all our members think the salicylates do not weaken the heart, and a large majority think alcoholic stimulants do harm in rheumatism.

Referring to local applications to joints, twenty-one use cold, forty-eight hot, thirty-eight dry, thirty-two moist, and comparatively few use other local applications.

Much the larger number are of the opinion that fixa-

tion is useful for painful joints, and an equally large number do not use ice or blisters over the heart in complicating endocarditis. A large number of our members use coal tar antipyretics, or cold applications for high temperature, while an equally large number use no such means. Nearly all administer saline carthartics when indicated.

It has been interesting in observing and comparing the answers to the circular to observe the effect that Haig's Theory of uric acid being the cause of rheumatism has had upon many of our members, many avowing themselves as firm believers in the uric acid theory of Haig, and have seen most remarkable results from the use of the eliminative plan of treatment, namely, hot baths, large amounts of pure water, and the use of a vegetable diet. There is little difference of opinion among our members that during an attack of acute articular rheumatism a light farinaceous or milk diet is most suitable. In answer to question 29 whether meat tends to cause recurrence, there is much diversity of opinion.

The Reporter for Hartford County has furnished an interesting case which is included as a part of our Report.

Respectfully submitted,

N. R. Hotchkiss,
E. K. Root,
E. P. Flint,
Committee.

COUNTY REPORT.

SOME FORMS OF UTERINE MOLES.

By John B. Griggs, M.D.

The early authors, notably Smellie, have devoted considerable attention to the rather rare form of abnormal conditions of pregnancy called false conceptions, molahydatids. It is true that within later years these conditions have been considered under the head of pathological pregnancy, and the idea of false conception has been relegated to occurrences of the utmost rarity; indeed, while Smellie directly describes false conception, the later authors have entirely expunged the term from the obstetrical nosology. In Vol. 2, page 81, under the heading, "Collection 8," of Smellie's works, we find a description of a case said by him to be false conception, which I quote at length because of his interesting description:

"Being called to a gentlewoman in the year 1722, I was told by the women about her that she had miscarried of a false conception of the third month, and the same misfortune had happened several times before this accident. The midwife pretended that these conceptions proceeded from a foulness of the uterus, and had prescribed from time to time decoctions of sabine artimesia and other herbs, to be taken by the mouth and injected in the vagina. This being the first case of the kind which I had seen, I carefully examined the substance, which was bigger than a goose egg, and found it no other than a coagulum of blood, of which she had lost a large quantity, formed around the secundines by the pressure of the vagina, where it had lain for many days. I plainly discovered the cavity which had contained the embryo,

and assured them that it was a real conception, though the embryo had been forced through the membranes and lost. Since that time I have been concerned in a great number of cases of the same kind. Sometimes I have found the embryo partly dissolved, and sometimes perfect—commonly of the size and figure of a small bean, when the miscarriage happened in the ninth or tenth week of pregnancy. But when no embryo was found, it was also termed false conception by the good women. When the membranes broke before the secundines were discharged, I have known the embryo to pass off and be absorbed with the coagula of blood, and be lost among the cloths; and at other times, when the membranes were not broke, I have found it dissolved in the waters."

In order that we may come to a clear understanding of the condition which gives rise to what is called by the earlier doctors and midwives false conception, let us take a brief glance at the early development of the ovum and membranes. As soon as the ovum is discharged into the fimbria, in some situation at the present time in doubt, either here or in the cavity of the uterus, having become impregnated, it is arrested, and becomes attached, usually to the upper and posterior portion of the cavity. The yolk undergoes fission, then the deciduae begin to form. That portion of the mucous membrane which forms the attachment is called the decidua serotina, and this is the site of the future placenta. The mucous membrane is now extended around the ovum, to enclose it in a cavity, which extension of the mucous membrane forms the decidua reflex, while the membrane lining the cavity of the uterus is called the decidua vera. These membranes are formed at the expense of changes going on in the uterine mucosa, which becomes intensely vascular and is thrown into convolutions. In this cavity formed by the decidua reflexa are to found the umbilical vesicles, plastodermic chorion, the amnion with its fluid, and the pedicle of the alantois. The

villi which cover the chorion become imbedded ultimately in the soft tissues of the deciduae, and derive, by absorption, nutriment from the circulatory system of the mother. The uterine mucous membrane, in which the villi lie imbedded, contributes thus to its share of the make up of the complete placenta, one composed of the villus tufts of the ovum, called the placenta fetalis, the other derived from the tissues of the seratina, the placenta uterina, both portions of which placental tissues become very intimate in their connection in the fourth or fifth months of pregnancy. In a large majority of the cases, as the result of blight in the development of any portion of the above-mentioned anatomical elements of the ovum, the development of the uterine mucosa at the sight of attachment, nature sets about either to repair the damage done, or to expel the products of conception, which has now ceased to develop, and in consequence becomes a foreign body in the uterine cavity, constituting in its effects the clinical history of abortion. One of the earliest manifestations of this condition is hemorrhage, which is usually extremely profuse. If blight occurs at a time when the muscular fibres of the uterus are beginning to be or are actually well developed, contractions of the uterine body occur, and the ovum is shortly expelled.

This is the history of the ordinary abortion. The empty uterus then retracts, the hemorrhage ceases, and convalescence is soon established. If the extravasation of blood upon the uterine surface of the vera is great, and the vera is weakened by the pressure of blood upon it, the vera may rupture, and the blood becomes effused between the vera and the reflexa enclosing what is left of the ovum in the center of the extravasated blood. Should the extravasation now become coagulated, a tumor will be formed, varying in size according to the amount of blood extravasated, the outer surface of the tumor being formed by the dissected reflexa and large

coagulum, inside of which will be found a cavity, bounded by the vera, containing the liquor amnion, in which swims the embryo, more or less developed according to the stage of pregnancy in which the accident occurred. If the mass is expelled at a stage before coagulation of the extravasated blood has occurred we have then a mass composed of liquid blood called molar sanguinia. If the blood has been coagulated, and, as sometimes occurs, more or less discolored, we have then a tumor which is more or less hard and elastic, or fleshy in consistency,—whence the name molar carnosa, or fleshy mole. These moles, according to Lusk, seldom exceed an orange in size, and are usually expelled between the third and fifth months. This term mole, which to me seems preferable to the term false conception, is of extreme antiquity. A complete account of early literature was written by Lamzweerde in 1686. Fothergill, of Manchester, tells us that the author above mentioned gravely discusses the possibility of the conception of moles after intercourse with the devil or with one of the lower animals. According to Fothergill, the extravasated blood forming moles of this character may have led to quite marked enlargement of the uterus, which enlargement may have slowly decreased in size for some time, imprisoning the dead ovum, which may be expelled in a shrunken, distorted condition after weeks or even months. In such cases hemorrhage may have played no part in the destruction of the ovum, which, after its death, loses bulk, by absorption of its fluid elements. This loss is not replaced by the effusion of blood into the uterine cavity, but the uterus itself lessens in size since it follows the decrease of the shrinking ovum. It is to ova of this character that the term "blighted" is applied.

Thus it becomes clear that the fleshy mole, the fibrous mole, and the blighted ovum are all simply the uterine contents as observed in the different varieties of missed

abortion, their difference in structure depending mainly upon the amount of blood effused into the cavity of the pregnant uterus and the length of time during which the ovum is retained in utero after its death.

Apart from the retention and alteration of complete ova, incomplete abortion may be followed by the formation in the uterus of a mass or a mole composed of layers of blood-clots surrounding the more or less detached portion of the placenta. Such a mass, if pediculated, is known as placental polypus, and may so closely resemble a true polypus that its true nature cannot be discovered without microscopical examination.

A clear understanding of cases of this nature is, in my opinion, of the utmost importance to the practitioner, as the following case will show:

Mrs. X., aged twenty-nine years, weight 133 pounds, height five feet two inches, physical health good; she has never given birth to a living child, but was very anxious to; married three years. She became pregnant about two years after her marriage. Six weeks after her pregnancy commenced she suffered the most intense nausea and vomiting, which was, in a measure, controlled by rectal injections of bromide and chloral and by hypodermic injections of morphine, (after trying the gastric sedatives). She was unable to retain food or medicine in the stomach. After a week she was sent to the Hartford Hospital, where she stayed for eleven days, when she returned to her home much improved. About a month after her return she had a most severe uterine hemorrhage. Being absent at the time, a colleague was called, who described the case to me, which he designated as a case of blighted ovum. After her vagina was packed to prevent further hemorrhage, she was delivered of a mass which was described as being about the size of a lamb's kidney, hard, and about the color of the normal liver, with closely adherent mem-

branes entirely covering it. Her convalescence was the same as an ordinary abortion, after which she was perfectly well for about one year, when she became pregnant the second time. Five weeks after the beginning of this second pregnancy she began to suffer nausea and vomiting, but not so severely as the first time. She took the utmost care of herself, because of her desire to have a child. At the beginning of the third month of her pregnancy she had a slight hemorrhage, followed in two days by the most profuse hemorrhage imaginable, when she discharged a mass of what seemed to be normal placental tissue, about as large as the palm of the hand. In the center of this mass was a hemispherical depression that would have admitted almost half a golf ball. I examined all the discharged blood and clots most thoroughly, but could find no trace of either fetus or membranes. Nothing more was discharged but blood, which discharge gradually decreased, and an uncomplicated convalescence supervened.

MEDICAL PAPERS.

REPORT ON PROGRESS OF MEDICINE.

J. E. Loveland, M.D.,

MIDDLETOWN.

To know what is "Progress in Medicine" one must live years after the progress is made. A better title to this paper would be "A Few Brief Allusions to Some Recent Investigations."

The year has certainly been an eventful one, and will probably mark a distinct step in the advance of medical science.

ALCOHOL AS A DRUG.

Perhaps there is no more typical sign of progress in medicine than the present attitude of many clinicians and pharmacologists toward alcohol as a drug, aside from its dietetics. Alcohol has always been regarded as a sheet anchor in many serious conditions and its position as a valuable medicinal agent seemed firmly established. But to-day we see alcohol taken down from its sacred niche and subjected to much close scrutiny and questioning by many of the best medical minds.

At a meeting of the Suffolk (Mass.) District Medical Society in December last four papers were read by prominent members, on alcohol. Two of the readers seriously questioned the reliability of alcohol as a heart stimulant and were inclined to regard it as a depressant. One cited such an authority as Kraeplin to the effect that alcohol in moderate amounts depresses all brain centers except certain motor centers which are stimulated for a time, but with a sum total of depression.

The other reader denied to alcohol its immunizing

power in septic conditions and showed that animals succumbed more readily to such diseases as Rabies and Diphtheria when alcohol was exhibited.

At a meeting of the Massachusetts Medical Society to be held in a few weeks, among others the following papers on alcohol will be presented. I give the names of the readers and their subjects. Cushny, of Ann Arbor, considers "The Therapeutic Use of Alcohol as Determined by Our Knowledge of the Pharmacology of the Drug." Meltzner, of New York, "The Use of Alcohol in the Treatment of Acute Infectious Diseases, especially in Typhoid Pneumonia." (An explanation of the results obtained by its use in the light of our pharmacological knowledge of the drug). Evidence of the Antitoxic action, if any. Prof. Graham Lusk, "The Use of Alcohol as a Bracer, etc."

Another title on the program was "The Medical Movement in Germany Against Alcohol," but the intended reader of this paper will not be able to present it.

Discussions like the above together with sporadic articles seen now and then in the journals show the attitude of the medical mind toward alcohol the drug. What the final verdict will be, does not enter into our discussion. The fact to which we call attention is that progressing medicine is not only concerned with new therapeutic measures, but the long tried and much used old reliables must come up for re-examination.

YELLOW FEVER AND MALARIA.

Especially noteworthy is the definite establishment of the relationship of yellow fever and malaria to mosquitos. Major Gorgas, Health Officer of Havana, formerly a believer in the fomites theory, announces himself as converted to the theory of the Stegomyia mosquito. The Mosquito Commission of New Orleans report that the results of their investigations have borne out the theory that the Stegomyia fasciata is a means of infecting with

the Bacillus icteroides of Sanarelli, although they have failed to locate this bacillus within the tissues of the mosquito. They further state that it is not disproven that the mosquito might carry the infection mechanically.

Additional proof of the correctness of these theories regarding infection is the result obtained when the mosquito theory is put into practical operation. For instance, in Havana, where the old form of precautionary measures such as rigid quarantine of yellow fever patients and disinfection of clothing and fabrics has been laid aside and in place of this the mosquito and larvae are exterminated as far as possible or screened from patients,—under this regime, we note that in January, 1902, there were no deaths in Havana from Yellow Fever, which is seven better than in January, 1901, and enormously better than the worst year, 1897, when 1,385 deaths were reported. Since 1889 there had been an average death-rate from the fever of 410.50, from April 1st to December 1st; last year, there were only five deaths in the same time. The general sanitary measures adopted since the American occupation had little effect in the years 1899 and 1900, but as soon as the mosquito was attacked, Yellow Fever suddenly ceased.

Although Finlay in 1881 suggested the Stegomyia mosquito as a causative agent in Yellow Fever and has for twenty years urged this theory upon the profession in many articles and pamphlets, yet the suggestion has been ignored with the loss of eight thousand lives in this small part of the world alone, and the financial expense cannot be estimated.

It is said that the discovery made is only excelled by that of Jenner and that in years to come it will stand in the same class as that great boon to mankind.

In regard to the disinfecting of ships, it has been shown by Rosenau of the Marine Hospital Service, that

sulphur dioxide is far more effective as a culicide than formaldehyde gas; sulphur dioxide is also found efficient in killing ship rats and fortunately the rats in their search for air come to die near the hatches of the ships. So that it would seem that in this one agent, sulphur, has been found a means of disinfecting ships for Plague, Yellow Fever, and Malaria.

TUBERCULOSIS.

Since Koch's address in London last July, much has been written on Tuberculosis. Koch claimed, first, that the bacillus which produces bovine tuberculosis is different from that which causes human tuberculosis; and second, that the disease is very rarely transmitted from animal to man, and that therefore the damage to mankind from the use of milk and flesh from tuberculous animals is extremely slight.

The attitude which the scientific press has adopted in the discussion of the last few months has been briefly summarized by Prof. Conn, of Wesleyan University, as follows:

1. "The first claim of Prof. Koch, namely, that there is a difference between the bacilli producing the disease in animals and those producing it in man, is generally admitted to be substantiated. The difference in the two organisms is shown in several respects, the most important being that the bacillus of tuberculosis in man does not so readily produce tuberculosis in cattle, and is, therefore, with cattle, apparently less virulent than the bacillus of bovine tuberculosis.

It is not yet settled whether this difference is anything more than a slight difference in variety, which the same species of bacillus assumes when growing in two different localities; but the majority of writers appear to believe that the differences between the two bacilli are not very great and not sufficient to warrant a conclusion that they are different species. The more common view is

that they are the same organism, slightly modified by the growth in different localities.

2. The second claim, namely, that tuberculosis cannot be transmitted from cattle to men, is emphatically denied. A number of instances have been brought to light in the last few months, where the evidence of direct transmission from animal to man is so strong as to be hardly questionable. Most bacteriologists at the present time are positive in their assertion that the disease is communicable from animals to man.

3. The suggestions advanced by Prof. Koch, and the evidence that has been brought out both previous and subsequent to the recent discussion have, however, rendered it quite evident that the flesh and milk of tuberculous animals are not to be looked upon as common sources of human tuberculosis. There are quite strong reasons for believing that, as far as adults are concerned, the disease in man is rarely derived from cattle. There is more reason for believing that young children, feeding chiefly upon cows' milk, are frequently infected with tuberculosis from this source. It is certainly a fact that there is considerable tuberculosis among young children, and it is generally assumed that the milk of tuberculous cattle is a large source of such infection. The evidence for this claim is not very decisive, however, and although it appears to receive the approbation of the majority of bacteriologists, it is not admitted by all that there is, even among young children, any considerable amount of this disease attributable to milk.

Sternberg's Disease: Evidence seems to be accumulating to classify Pseudoleukemia as a tuberculer lymphoma. Joseph Sailer presents in the Philadelphia Medical Journal for April 5th and 12th, a study of four cases and a thorough review of the subject, and he suggests that in view of the extraordinary symptoms of Sternberg's disease it may be due to the bovine variety of

tubercle bacillus or at least to some atypical variety of tubercle bacillus.

Professor Courmont found no supporters at the London Congress for his agglutination reaction in the serum of tuberculous subjects; he was still enthusiastic as to its value.

The subject of sanatoria for tuberculosis met with unanimity of opinion and Dr. Bowditch, of Boston, was especially endorsed as to his view of the satisfactory results obtained from sanatoria even in undesirable climates such as near London.

ETIOLOGY OF CANCER.

The annual report of the Cancer Commission of the Harvard Medical School came out in February. Investigations under that Commission for the last two years have been wholly negative, or in other words have thrown increasing doubt upon the parasitic origin of the disease, as urged by certain foreign investigators, and upon the pathological significance of so-called cell inclusions. A long series of carefully conducted experiments establish a positive disbelief in the minds of these investigators.

Also at a meeting of the Liverpool Medical Institution there was a lively disagreement as to the cause of cancer. H. G. Plimmer, whose name is associated with the bodies found in cancer cells, claimed that these bodies were always present in cancer and not in other diseases and that they were probably highly organized structures and could be cultivated outside the body. The disputants believed the cell inclusions to be unessential unclear modifications. Plimmer and his followers say you have not disproved our proposition. The skeptics, on the other hand, say that Plimmer has never proved his point that these bodies have anything to do with cancer. Here the matter rests for want of enlightenment as to the present state of contradiction.

Both sides agree, however, that the possibilities of the microscope have been exhausted and that further work must go along other experimental lines.

This much can be said with satisfaction, that a large amount of preliminary work has been done that never need be repeated.

W. F. Whitney, of Boston, in an exhaustive paper concludes that the increase in cancer as shown by mortality returns is apparent rather than real, due to more accurate diagnosis and registration.

In concluding this subject, we must note the step that England is just taking toward organized cancer research. A scheme for such research was adopted in March by the Royal College of Physicians in London and approved later by the Royal College of Surgeons of England. The plan is to equip laboratories exclusively for the study of cancer; to encourage such work in the British domain outside England; to assist hospitals in such work; and to provide means for systematized investigations in other directions in regard to the causes, prevention, and treatment of cancer. The funds for this work seem to be forthcoming.

An important item of the scheme is a provision for the establishment of a system of intercommunication between workers in the different countries of the world. It rarely happens that any one subject excites such world-wide interest and the British Medical Journal suggests that all work that is of positive value should at once become the common property of all workers in order that no unnecessary work be done.

SMALL-POX.

Dr. Durgin, chairman of the Boston Board of Health, calls attention to the fact that Small Pox is too frequently occurring among those who are supposed to be sufficiently vaccinated. This fact helps the anti-vaccination prejudice. Durgin believes that all susceptibility to

Small Pox should be exhausted by repeatedly vaccinating until no effect is produced. He would thus treat every individual in infancy, again at ten or twelve years of age and later in life on exposure.

The question has arisen as to the protective power of human compared with bovine lymph. In the Republic of Mexico almost nothing but human lymph has been used for ninety-seven years. They never re-vaccinate, neither do they have Small Pox among the vaccinated. A committee was appointed by the American Public Health Association to investigate this subject.

Some interesting experiments have been tried (in Washington?) of injecting blood serum from the vaccinated calf into Small Pox patients with the apparent result of aborting or shortening the disease.

In France in times of epidemics, a calf is driven about from house to house and in this way many who fear the ordinary vaccination, are induced to be vaccinated with lymph direct from the calf which they actually see.

TYPHOID FEVER.

The occurrence of rigors in the course of typhoid fever is attracting more attention than ever before. This is interesting in view of the fact that it is now definitely recognized that a combination of infection with Eberth's bacillus and the plasmodium of malaria is quite rare. James Stewart, of Montreal, gives a resume of six hundred and twenty cases in which 10% had repeated chills and rigors during the first week.

Other interesting items of his report were (1) a positive Widal reaction in all but eight of three hundred and seventy cases and (2) a sudden onset in 7% of his cases.

Kurth makes a most interesting report of five cases clinically resembling typhoid fever except that they gave a negative Widal test. However, from these cases a bacillus was obtained differing microscopically and culturally from the typhoid bacillus. This bacillus gave marked clumping with serum taken from the same pa-

tients but did not react with typhoidal serum. Growth on gelatin and on other media differed from that of the bacillus coli communis and others of the group, but resembled that of the bacillus typhosus.

The Widal reaction in children has been said to occur only late in the disease and this claim is still held and still disputed.

It is now clearly recognized that typhoid bacilli are frequently present in the urine and in pure culture and that they may remain in the urine for months and years.

During the past year many reports on vaccination, so called, for typhoid have been given. In several reports the morbidity and mortality are given as markedly decreased.

CEREBRO-SPINAL MENINGITIS.

The question of infection through the respiratory passage is discussed by Busquet. The nasal mucus from patients ill with epidemic cerebro-spinal meningitis was placed in the noses of guinea-pigs. All of the animals became infected and the meningococcus was cultivated from the spinal fluid. The nasal mucus of these animals was placed in the nose of other animals of the same species with the same results. Similar results were obtained with spinal fluid from infected human subjects.

Buchanan suggests dust as a vehicle for the germ of cerebro-spinal fever. It was found that those working in dusty atmospheres furnished a very large proportion of cases. It was also noticed that the dry months furnished practically all of the cases.

Authorities consulted:

Boston Med. and Surg. Journal.
Progressive Medicine.
Phila. Medical Journal.
Jour. of the Amer. Med. Asso.
American Medicine.
Am. Jour. of the Med. Sciences.
Med. Review of Reviews.

Dr. C. A. Lindsley has been much interested in the two papers. Thinks they cover such ground as it was intended the Committee on Matters of Professional Interest in the State should do and not one subject as has been customary with the latter.

Koch is misrepresented as often as any man. He said that the tubercle bacillus was the same in man and cattle. The question of communicability arose. There seemed to be a difference. It was marked and soon observed. There is doubt that the diseases of cattle can be communicated to human kind. But it should be qualified. It is not common. The question is still in dispute, and Koch so states. If the disease is communicated from animal to man it would appear first in those who use milk most, and in the intestine, not the lunges. Milk is the most universal food and the disease ought to appear in the intestines more often than it does. For the last three years has had a standing question before the Health Officers of the State—How often have you seen the disease communicated by milk? but it has not been answered. Such a thing is possible but it is not common.

Vaccination is also another interesting question. It is unfortunate that Dr. Durgin should have said what he did about the results of vaccination, declaring it to be uncertain. There is no doubt that some persons who have been vaccinated have had small-pox. But what was supposed to be vaccination was really only aseptic inflammation which would explain the constitutional manifestations. It is never true that a pure vaccination devoid of bacilli can take place. The bacteria accompanying the virus may be more powerful than the true vaccine matter. When the doctor vaccinates a patient he rarely looks after it to see if it takes, as he should. So that these patients may not have been vaccinated. There may be a lack of suceptibility to the virus. Some

persons have to be vaccinated three or four times before it takes, and these are reported as taking.

Dr. Skinner—Justice has not been done to the X-ray treatment. It does not produce its effect by burning. He has treated forty-three cases in the last five months. Of these eight have been cured and discharged, and of these some were inoperable. By the time of the next meeting we will realize that the X-ray treatment has come to stay.

THE PROGRESS OF MEDICINE.

E. K. Loveland, M.D.,

WATERTOWN.

In making a report on "The Progress of Medicine" during the past year, a person might, at first thought, say, as he tried to recall from his memory, that there had nothing particularly interesting or vital taken place, —but let this same person take the medical work of the year past, and sift it through even very hurriedly, and he will immediately be struck with awe as he begins to see and realize the progress that has developed as it comes before the mind of a thoughtful reader. The progress that presents itself in this one branch, viz.:— medicine, which is that branch with which every practitioner has to do in his every-day life more than any other, is, I belive, the greatest,—and the more a person looks into the subject the more perplexed he grows, to know where to begin, what subject to start with, and what is of the greatest importance. In trying to show something of the progress of medicine during the past year, I will take up a few of the subjects, which seem to particularly interest us as practitioners here in Connecticut, and the most important of them, just at present, is, I believe, Firstly, the subject of Small Pox and Vaccination.

Secondly, we will consider the spread of Disease by Pests and Pets, which is so prominent before us just now, and lastly, we will consider how one disease will, oftentimes eliminate another; a few notable cases of which have presented themselves during the past year.

SMALL-POX AND VACCINATION.

The inoculation of Small Pox, according to Dr. Douglass, took its rise, probably, in the seventeenth century, from the Circassians, who practiced inoculation for the

purpose of preserving the beauty of their women, whom they sold, for the more beautiful the females were, the larger price they would bring. They were inoculated when they were mere babies, probably because the disfigurement would be much less than when inoculated in later life when their beauty might be marred by an attack of Variola, had they not previously had the disease. This inoculation with Small Pox continued in favor, more or less, until the time of Jenner, who on May sixteenth, 1796, vaccinated James Phillips in England with bovine virus, and his method is carried out at this day, having been in constant use, particularly in this State during the past six months.

Small Pox was formerly considered a Winter disease, epidemic only during the colder months of the year, and entirely dying out at the approach of warm weather,—even before the weather was very hot, but during the past two or three years, and very particularly during the epidemic this year, we find Small Pox extending into hot weather, and many cases breaking out and developing in the heat of the Summer. This may be from various reasons and a very possible one is, perhaps, that we may have imported it from Spain through Cuba, during the Spanish-American War. Thus, the disease coming from a hot climate would naturally take on, more or less, the features of a Summer disease. Again, before the Spanish-American War, we had but few cases of Small Pox in the United States. Since that time, when the soldiers have returned to their homes in various parts of the country, we find it breaking out in every part of the Union. And not only do we trace it to Cuba as a disease of Summer and of a hot climate, but we naturally must look still farther back to Spain to see what her laws are for protection, and in doing so we find that while Small Pox is extremely prevalent in many parts of the world, it is especially so in those places in which the laws regarding vaccination and re-vaccination are not

stringent and are not strictly enforced. Germany provides a splendid object lesson on this subject. There, as in no other country, vaccination and re-vaccination at stated periods, are efficiently carried out,—the consequence being that Small Pox has been almost completely vanquished.

Spain has no enviable reputation as regards her health laws, and we, Americans, in the past, have been inclined to associate with the Spaniards, slip-shod and careless methods of preventing disease, and only until this year have we become awakened to the fact of being obliged to enforce vaccination and re-vaccination by way of self-protection. Small Pox, which ought to have been extinct by this time has been more in evidence this year than usual in New York, as well as in many other parts of the United States, and I may say, particularly so in this State, especially at Waterbury,—as we can, perhaps, best see by Dr. Lindsley's April bulletin, in which he says, "The conspicuous exception from protection by vaccination was in Waterbury, where the disease appeared in a block of tenements occupied mostly by French-Canadians,—even there it would have been controlled if prompt notification of its presence had been given. Its spread in Waterbury is alleged to have been due to the pernicious influence of an anti-vaccination society existing there, whose members have been charged with encouraging the concealment of the disease and with bold assertions, publicly made, that the disease among them was not Small Pox. By request of the Mayor and the health authorities of Waterbury, two members of the State Board of Health personally visited and inspected the patients in the hospital, and in private houses, and in every case found only typical cases of Small Pox. Some cases are in some epidemics very obscure and such cases are apt to be overlooked and not diagnosed as Small Pox, owing to their mild form, until it is too late, and therefore the disease is spread and many others have

taken it in a more severe form. In many such cases not even the protection of vaccination is permitted until it was too late."

The development in vaccination lymph has, in recent years, made wonderful progress. Whereas, from the time of Jenner to almost the present day, physicians used humanized lymph, which might be laden with many kinds of bacteria and germs; now we can use the glycerite lymph, hermetically sealed in capillary tubes, and guaranteed by reputable manufacturers to be free from all secondary infection, as proven by them through bacteriological, microscopical and physiological tests.

This glycerite lymph, besides being free from secondary infection, has the advantage of being slower in its action, the papule not appearing until from eight to ten days after inoculation, instead of from two to five days as in the case of humanized lymph, therefore, being slower, is much milder in its action.

Secondly,—

THE SPREAD OF DISEASE BY PESTS AND PETS.

Although we have always been conscious of the rapid spread of disease by contact and by conveyance through a third person or substance, yet it has not been until very recently that we have come to the full appreciation of the fact that one of the greatest avenues for the spread of disease is through the media of many of our common and troublesome insects and pests,—the mosquito and fly being largely responsible for many of the fatal epidemics of disease which carry off hundreds and thousands of the human race every year. And not only are mosquitos and flies responsible, but we find many other insects, which, although so small as to be visible only through a microscope, yet are carriers of a still smaller organism or germ, which is the destroyer of mankind. Mosquitos are not only confined to the land. We have instances where ships, hundreds of miles from shore,

have been visited by great swarms of these insects. Disease may be carried in this way from one country to another. In the New York Medical Record of December 28, 1901, there is an account of a full-grown larva of a mosquito of the variety credited with conveying yellow fever, which came through the tap into the wash-basin of a mail steamer, probably from the tanks below, and as the ship had supplied herself with water from the Congo River four weeks before, the probability is that the mosquito eggs were in the river water, and were transferred with it to the ship's tanks. This fact is quite suggestive in relation to the mosquito theory of malaria, yellow fever, etc.

Much experimental work has been done during the past year in many parts of the world. We can deduce the following facts from an article, written by Dr. L. O. Howard, the Government's entomological authority at Washington. The first important step toward producing the astonishing results which have been reached, was the determination by the Bureau of Animal Industry of the United States Department of Agriculture, of the fact that the germ of Texas fever in cattle is conveyed from diseased to healthy cows by the cattle tick. It is interesting to note that this discovery was made in America, and by Americans, because much of the subsequent work, and in fact, most of the work with mosquitos and malaria, has been carried on by investigators of other nationalities, and in many different parts of the world. Practical measures are being employed on the New Jersey coast, and in various other parts of the United States, to get rid of mosquitos by recourse to drainage, the filling in of stagnant pools, the more complete use of mosquito netting, and the use of petroleum to destroy the mosquito larvae on ponds and pools.

In the West Indies, in Italy, on the coasts of Africa and elsewhere, the war of offence and defence against mosquitos is going on.

Yellow Fever, also, is belived to be carried by mosquitos. As a result of the study of yellow fever in Havana by Dr. W .C Gorgas during the past year, we learn that he belives this insect to be the only carrier of the disease, and that it is not carried by clothing and other fabrics, as formerly supposed. Since the precaution has been taken to destroy mosquitos, not a single case of Yellow Fever has originated in the city of Havana for a period of three months, and incidentally, malarial fevers have been greatly reduced. The conveyance of disease by flies is too well known to dwell upon in this article, but I may say briefly, that the statement of Dr. C. Campbell, that flies play a far more important part in the spread of disease than is generally believed, is approved. He thinks that diphtheria is often spread in this manner, and reports the case of a child who was infected with the eggs and larvae of the common house fly. Further, it is known that animals and birds spread disease, although we fail as yet to have positive proof in all cases.

There has been a very intimate connection between the occurrence of the Bubonic Plague and rats: A very good proof of this is the fact that plague-infected rats are always present in those localities in which the malady has attacked the human race, thus accounting for the wide spread of the disease in countries far distant from the original outbreak. In the case of tuberculous diseased cattle, we find a probable source of spreading infection. Parrots have been suspected of communicating to the human race a certain disease. The epidemic of Diphtheria which has prevailed during the past Winter at Knowlton, Canada, has been traced to cats. Suspicion that cats might be the cause of the spread of the diease in this place led to an investigation, and it was found that the animals were suffering from sore throats. By systematically and thoroughly destroying all of the cats in this section the epidemic of diphtheria quickly

subsided. This disease must have been spread far in other directions, for foxes, which are especially fond of cat's flesh, were found dead in large numbers about Knowlton, caused, doubtless, from their having fed on the sick cats, after which, they crawled to the woods to die in solitude. Cats have also been accused of being the carriers of Scarlet Fever, and distributing it among the human race.

Fowls also have been given the credit of distributing diphtheria and other infectious diseases to mankind. The disease known as "roup" in fowls has a close connection with diphtheria.

According to the "Sanitary Record," Health Officer, Dr. Herbert Jones, who has investigated many outbreaks of diphtheria in the different localities, found in many instances immediately preceding the outbreak, a very fatal epidemic among fowls.

Thirdly,—

THE ELIMINATION OF DISEASE THROUGH THE AGENCY OF ANOTHER DISEASE.

We introduce Varioloid to destroy Variola,—this is shown when after exposure to Variola and while the disease is in the incubation period, we inoculate with Vaccination and produce Varioloid. This was also, the principle on which Dr. Coley worked in destroying Cancer in the human system by introducing Erysipelas in cancer subjects through the agent, Erysipeline. It has been shown during the past year that malaria inhibits the development of cancer. In this connection we find a very interesting article in the Current Literature of May, 1892, a few extracts from which I quote.

"There is no disease whose cure is watched for with more anxiety than cancer. It is a peculiarly malignant disease, and, unfortunately, is increasing in its ravages. In Germany, fatal cases of it have doubled in the past ten years over the ten previous. Meanwhile, various

supposed cures, by the use of X-rays, or by Violet rays, or by Violets themselves, are reported, but that seems to be the end of it. Lately, a rather novel cure has been announced which is backed up by the corroborative statement of Dr. Van Leyden, of Berlin, which is as follows:

"'It is a possible way of curing cancer which springs, strangely enough, from one of the most recent discoveries, with regard to the propagation of malaria on the one hand and one of the earliest recorded observations by physicians as regards malaria on the other. Hippocrates handed down to posterity the inexplicable bit of observation that persons with the 'falling sickness' who contracted the quartan fever which we have every reason to believe was malaria, became cured of the more violent disease.' Similar observations were made in the middle ages and duly recorded without the reasons for this singular fact being understood. Thus one disease drives out the other."

With regard to cancer, modern observers have noticed that it does not attack people who live in malarious regions. It is said to be almost unknown in China. Putting this fact together with the observations of the old Greek physicians and those of observers in the later middle ages, Dr. Loeffler asked the question whether the malarious germ would not conquer the germ of cancer. The reasoning seems all the more plausible because the dwindling of malarious cases seems to be proceeding hand in hand with the increase of cancer. If the reasoning is correct, cancer ought to be cured by malaria, in one way or another; for instance, by injecting the blood of a person suffering from malaria into the veins of a cancerous patient. Here the recent study of the propagation of malaria by the sting of mosquitos which have been sucking the blood of malarious persons, comes opportunely to hand. According to Dr. Van Leyden's statements in the German papers, the experiments in this direction promise good results. He thinks that we

have in the malaria germ a means to counteract that of cancer, while Dr. Koch's experiments have shown that by examining the blood of a patient in whom malaria has been developed, we can tell when to cure the malaria by the judicious use of quinine. We are, therefore, no longer in the position of trying to cure one disease by inoculating the sufferer with another, over which we have no control. Whatever successes have been attained, in curing cancer of the surface by the use of X-rays, it cannot be asserted that by that means, cures have been made of deep-lying cancers. In the treatment by malaria germs, however, we have a weapon that goes to the seat of the trouble. Whatever it may be, Dr. Van Leyden thinks that cancer is rarely, if ever, hereditary, but he does think that it can be communicated from person to person. It will be a great triumph for science if this hopeful view of the treatment of cancer proves true.

In closing, I do not wish to overlook the vast progress made in the past year in the treatment and handling of tuberculous patients; this being perhaps one of the most important of the past year's history of the progress in medicine, but trust this great work may continue from which benefit must necessarily accrue.

A CASE OF TRAUMATIC TETANUS SUCCESSFULLY TREATED BY ANTI-TETANIC SERUM.

Gould A. Shelton, M.D.,

SHELTON.

When, in the helpless track of a cyclonic force, some safe opposing shelter, unmovably strong, offers itself, one can but mark that spot, and by some unmistakable sign record for others the value of another avenue of escape.

I will briefly speak to-day of this opposing refuge, which is offered to us, struggling as we sometimes are with the unyielding terror that confronts us in cases of traumatic tetanus,—a refuge securely taken under the kindly protective force of the tetanic antitoxin serum.

In this we have nothing freshly new, and yet as a specific remedy for traumatic tetanus there seems to be some doubt as to its trustful efficacy, hence all cases with curative results can but be of some refreshing interest to us all.

It is not my purpose to attempt any discussion of this peculiar bacillus or to follow the wanderings of the toxine among the nerve cells as they marshal their forces for their villainous attack, but to simply tell of the happy outcome of a typical case of traumatic tetanus, under the treatment of the anti-tetanic serum.

On September 19th, William J. ——, aged fourteen years, when at play in a neighboring house, fell down a cellar stairway to the earth flooring, receiving by contact with a glass beer bottle, an incised wound on the palmar end of the third finger of the right hand. The kind neighbor washed the finger, and having wrapped it with

materal at hand, the boy continued his play for the remainder of the day, and at evening received the usual remedies of home treatment again.

On the ninth day following the injury, when returning from a drive to New Haven, the boy complained of stiffness in his back, with an increasing rigidity of the jaws. The wound so slight had passed from the thought of the family, in fact, had completely healed, and his accident with them, did not enter in a causative way into this new trouble. Through carelessness in the delivery of the message calling me to the case, I did not see the patient until the third day following the early sysmptoms of the disease.

The tetanic convulsions with increasing severity had for three days held the boy in their rigid embrace, before any agency had come to his rescue. The serum was not at hand, and could not be obtained at home nor in any of the near surrounding cities, so two days more passed by before it was available. At last it came, and this only hope, and that too in weakened confidence, was given the leadership.

Each day of the disease brought increased convulsions, both in the frequency and severity, until they averaged one every five minutes, and even oftener, upon the slightest cause.

During the period preceding the serum treatment, no time was lost in the prompt and persistent use of the sodium and potassium bromides, together with chloral hydrat, to obtain sleep. While the chloral induced short periods of rest, there was such a disturbance of the heart, that it became unsafe to continue it in order to obtain even temporary relief.

Up to the commencement of the serum treatment, no progress toward recovery had been made, while on the contrary, every symptom with increasing severity threatened an unfavorable ending.

Through the fortunate loss of one tooth liquid food in

sufficient quantity to support the patient was administered, thus maintaining a very satisfactory amount of strength.

At nine P.M., October 5th, I administered hypodermatically 10 c. c. of Park Davis & Co.'s preparation of the anti-tetanic serum. The shock disturbed him to such a degree that chloroform to a partial anesthesia was resorted to, at each injection thereafter, with more pleasing results.

On the following day, October 6th, three treatments were given, at 10:30 A.M., 5 and 11 P.M. A favorable change on the second day of the serum treatment was clearly marked, through the longer intervals between the convulsions, with lessened severity, and more quiet sleep.

On October 7th, two treatments were given, at 10:30 A.M. and 11 P.M., respectively. At this stage, the evidence of positive relief was most marked, and on October 8th, the fourth day of serum treatment, the improvement having continued uninterruptedly, the concluding hypodermic dose was given at 11 P.M.

The muscular rigidity gradually diminished, noticeably so, in localities. First the masseter muscles were found to yield, then the right arm, followed by a relief of contractions in the right leg, the back, the abdomen, and the left leg, respectively.

From this time on, each day presented encouraging symptoms. Restful sleep lent its aid, the appetite returned, tonics and mild nervines gave their restorative assistance, and my note of October 17th, records the patient, as eating and sleeping well, with no symptoms of tetanus remaining, beyond a little stiffness of the muscles of the left hip. The patient was under the care of an intelligent and well-trained nurse, whose observations were reliable, and every symptom was carefully noted. Immediately previous to the anti-toxin treat-

ment, the temperature was 101, pulse 110 and respiration 34. It can but be observed in estimating the value of antitoxin serum in this case, that although five days had passed, with constantly increasing symptoms, before the serum treatment was employed, the improvement began early and continued uninterruptedly to the end of his convalescence.

My observation can but be in harmony with the experience of many others, in which the necessity of early treatment is clearly proven; that bold administration of doses should be given, and repeated as frequently as the symptoms demand, and continued until the convulsions yield in force and frequency. It is evident that in suspected cases an examination of the soil in the locality where the traumatism occurred should be made, and if the bacillus of tetanus be found the preventive treatment should be faithfully entered upon.

In the favorable outcome of this case, the greatest satisfaction was experienced, in that seven fatal cases of traumatic tetanus treated by me, previous to the days of serum treatment, did not present any greater severity during their course, than this one with its happy ending.

All remedies do not cure disease, in fact, every remedy sometimes fails, yet we can but have, I think, a sufficient confidence in repeated trials of this treatment, trusting that through this agency a greater hope is promised.

The time is not yet come when so efficient a remedy as the anti-tetanic serum should be relegated to the dusty shelf of discarded agents, but given a thorough trial at an early day, better even into the days of prophylactic treatment.

SYMPTOMS AND TREATMENT OF CHRONIC INTESTINAL CATARRH.

Wm. Porter, Jr., M.D.,

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May I ask your attention to the symptoms and treatment of chronic intestinal catarrh, for the three following reasons?

First: The great frequency of the disease.

Second: The very serious effect it may have on the general health of the patient.

Third: Because it seems to me it is frequently present, and not recognized.

While from an exact pathological point of view, we may have a duodenitis, a jejunitis, an ileitis, a colitis and a proctitis, practically these distinctions cannot be made, and we must be satisfied to diagnose catarrh of the small and of the large intestine, or of both.

Very briefly, chronic intestinal enteritis may result from an attack of acute catarrh, (from which the recovery was only partial), or it may follow the use of indigestible food; from frequent colds or chills caused by exposure; from the excessive use of purgatives, probably from constipation. I believe, too, that it frequently follows attacks of grippe.

Chronic catarrh may also be secondary to other diseases, as the various abdominal tumors, etc., or probably to such diseases as markedly affect the circulation.

It would be very interesting to consider carefully the various pathological changes found in this disease, but as this is impossible in the time allowed for each paper, I will only mention in the fewest possible words, a few points which are of practical importance.

The histological changes involve chiefly the mucosa, but may also include the sub-mucosa and muscular layers. Many cases may be for some time a simple catarrh, the more permanent changes coming on gradually.

Thus we may have hypertrophy of connective tissues, as a result of which, the size of the bowel may be markedly constricted possibly for some distance; various inflammatory processes result in cystic and other degenerative changes, frequently in superficial follicular ulcers.

Very important, too, are the atrophic changes, with destruction of glands, the muscular tissue being often involved. This is found in children.

While these various conditions may extend over considerable lengths of the bowel, they may be very limited, thus explaining the localized troubles so often found in examining patients.

With these pathological changes just hinted at, we have also our prognosis, viz., while we may have functional cures, we do not and cannot have anatomical cures. For what treatment can bring back atrophied glands, or remove hypertrophied connective tissue, or restore a mucosa that has undergone cystic or other inflammatory change? And how obvious it is, that wherever these changes are extensive, and the physiological functions of the part of the bowel involved, have ceased, the health must be correspondingly depreciated.

Of what immense importance all this is in the case of children, who must live their lives with an intestinal tract more or less impaired anatomically, and in all of its functions.

Coming now to the symptoms of this disease, I would remind you that we are to consider it as involving either the small or the large intestine, or both; but as some symptoms are common to both conditions, we will consider those first.

These certainly vary very much in different cases, both

as regards their number and intensity; but two things are nearly always to be found. First, abdominal tenderness, either quite general, or localized, and second, disturbance of defecation. With this, in typical cases, are various feelings of discomfort, rumblings, dragging pains, fullness, so that the clothing is uncomfortable. And all these sensations are usually increased by standing, getting chilled, over-fatigue, and errors of diet.

The bowels are either persistently loose, or there is alternately constipation and diarrhea. Frequently a movement occurs after each meal, or even after taking fluids.

In mild cases, the symptoms may be only a localized tenderness, with more or less painful sensations, the areas so involved, being limited most frequently to the umbilical region, or some portion of the large intestine; most frequently, I think, in the splenic flexure, and descending colon, sometimes in the caecum. In these cases, the disturbance of the bowel action may be slight.

Between these two extremes, we may have all degrees of trouble. In some cases one symptom predominates, and in the next case, everything seems different. But the diagnosis is usually to be settled by two means. Careful palpation of the abdomen and examination of the feces.

I fully believe that careful palpation of the abdomen should be a part of our routine examination of every new patient, for certainly, very unexpected conditions are often found, of which the patient may be quite unaware, and that would be entirely overlooked if we depended simply on questioning. I am constantly surprised at the number of patients who tell me they have been treated, perhaps for a long time, but have never been carefully examined.

In these cases of catarrh, palpation shows us usually, general or localized tenderness, and more or less distension by gas. Sometimes fecal accumulations are found,

even in the diarrheal cases, and of course, the condition of all the abdominal organs is to be carefully noted.

The examination of the feces is obviously of the greatest importance, and I am afraid that this, also, is only too often left undone—the physician taking the word of the patient as to the character of the passages.

The presence of mucus in the stools, is of course, the most frequent symptom of bowel catarrh, but the amount varies greatly, according to the part of the bowel most involved, and it is not to be found in every movement. It may even be absent for some days at a time, in the mild cases. Also, as Nothnagel has shown, in the atrophic form of the disease, it may be entirely absent, even in the serious cases.

Blood is sometimes found, but not often; pus perhaps more frequently. Particles of undigested food are almost constantly present, and bile pigment.

Much more might be said on the examination of the feces, and its importance in diagnosis, than is possible at this time, and I will simply condense in a few words, the few points that seem most applicable.

Mucus is found in the stools, macroscopically, in four forms, as is so well stated by Boas. First, as pure, thick, glistening mucus, unmixed with the feces. This is characteristic of catarrh of the sigmoid or rectum.

Second, in the form of membranes, a condition which seems to depend on some nervous affection.

Third, as a tenacious, gummy, sticky, brownish yellow mucus, intimately mixed with thin, pasty feces. This seems to be the most common and important form, several such stools occurring daily, accompanied by gas, griping pains, and often by a sense of weakness and depression. These stools, while usually yellowish, may be clay-colored, greenish or almost black. The odor may be especially offensive, though usually not so, when the movements are frequent. Undigested food particles are

usually to be seen in these stools. If these are only from the vegetables and fruit eaten, they are not significant, but if remnants of meat are found, a serious disturbance of digestion is always present, usually involving the stomach as well as the intestine.

Fourth, mucus is found in small shreds, seen only on very careful examination.

Boas suggests a test lavage of the intestines, for the purpose of diagnosis. It is really a high enema of plain water, given after the movement of the bowels. Mucus in all forms, including the membraneous, is thus washed out in comparatively clean water, permitting of easy examination.

I have found this a most useful procedure in several obscure cases.

It must not be forgotten that mucus and undigested food particles may be passed in what may be called a nervous diarrhea, no especial catarrh being present; but careful consideration of all the symptoms and conditions of the patient, will usually make the diagnosis clear, except, perhaps, in the atrophic form.

May I suggest once more, that careful examination of the stools, will help in the diagnosis of many obscure cases, and well repay the trouble and annoyance.

The general condition of the patient suffers markedly when the intestinal catarrh is at all extensive. Usually there is considerable loss in weight, more or less suffering, or at least discomfort, and a general depression, both mental and physical, of which the patient complains greatly. I strongly believe that many so-called neurasthenics are really sufferers from the discomforts, poor nutrition and auto-intoxication of a chronic enteritis, especially where this involves the small bowel.

For children this is also a very important disease, the malnutrition resulting from it, interfering with growth, and increasing the possibility of other diseased conditions. Intermittent fever is a frequent symptom with

children, the cause of such a fever being unexplained, until examination of the stools shows the catarrhal conditions. Restlessness, especially at night, irregular and morbid appetite, more or less distension of the abdomen, alternately a constipation or diarrhea, are the constant results of this chronic catarrh. And so important is all this in the life of the child, that I have come to consider it a really serious condition, especially in view of the difficulty, if not the impossibility of a complete cure.

As already stated, the diagnosis is limited to distinction between catarrh of the small and large bowel, and I mention a few of the distinguishing points.

In catarrh of the small bowel, there is almost certainly a pressure sensitiveness in the immediate region of the umbilicus. The stools are, with few exceptions, fluid or semi-fluid, containing shreds, bile pigment and undigested food particles, especially meat fibres. Normally bile pigments are found in the contents of the small but not of the large intestine. When, therefore, the stools show undecomposed bile pigment, there is to be inferred an increased peristalsis of the small intestine, and almost certainly a catarrh. Yellow pigmented bits of mucus in the stools are characteristic of catarrh of the small bowel.

In the occasional cases, where with the small bowel involved, constipation exists, an examination of the stools will still show the bile pigment just mentioned, and in addition, a test lavage, (as already described), of the large bowel, should be made. If the water washes out quantities of membraneous or viscid mucus, there is certainly catarrh of the large bowel, whatever the state of the smaller one. If the lavage brings no mucus, and the stools are constipated, the diagnosis is extremely difficult. A well-marked catarrh of the large bowel is very evident.

There is tenderness on pressure, usually in localized areas, especially in the descending colon, and sigmoid

flexure, occasionally in the caecum. The stools, if the rectum and sigmoid are involved, show pure mucus, perhaps in quite large masses, easily seen by the naked eye, or if constipation exists, the solid masses are covered with mucus. If diarrhea is present, the mucus and fecal matter are mixed but not so thoroughly as when the small bowel is involved, and there may be occasional passages simply of mucus.

In the early stages, cancer of the rectum causes increased secretion, and often involuntary, of a thin mucus.

Atrophy of the muscular layer, as well as of the mucous membrane, with disturbed enervation, are the cause of the alternate constipation and diarrhea, so characteristic of this condition.

In certain cases, where a catarrhal diarrhea has existed perhaps for years, a change may take place, and a constipated condition follow.

Inasmuch as the pathological change in the bowel which caused the catarrh, still exists, the change can only be explained as coming through the nervous system. Just how, is not well understood. Also the so-called membraneous enteritis, the passages of mucus being in the form of membraneous pieces, sometimes of quite large size, is recognized by most German and English writers, as a peculiar secretory neurosis, although it is admitted by the majority, I think, that it cannot be classed with hysteria. The exact cause is not as yet determined.

In considering the treatment of chronic enteritis, several points should be kept clearly in mind.

First, the pathology, with its inflammations, its degenerations or its atrophies, all permanent conditions, and if extensive, interfering seriously with the functions of secretion, motion and absorption.

Second, the importance of the disease in its effect on the general health.

Third, the relation of the nervous system to the action

of the intestines, in some cases increasing the diarrhea, and in some, the constipation.

Fourth, the marked tendency to relapses.

Fifth, that these organs cannot be put entirely at rest, but must instead, be constantly irritated by the presence of food products.

Sixth, that the condition is shown by both diarrhea and constipation, (opposite states), the first due to increased fluidity of the intestinal contents; the latter due to atrophies of the mucosa and muscular layers, wih disturbance of enervation.

Seventh, consider the general condition of the patient. He is losing flesh and strength. He is suffering more or less pain and discomfort, is almost invariably depressed mentally as well as physically, and suffers from autointoxication. If a child, he has colics and is perpetually fretful, and has irregular fever—a very important symptom—and usually sleeps poorly.

Eighth, these patients are all markedly susceptible to attacks of grippe and colds, being easily chilled. They are all anemic. If the duodenum is involved, they have catarrhal jaundice, if no worse condition, and are perpetually bilious.

If this pathological and clinical picture is correct, the treatment is evidently not a simple matter. No pill before meals, with some change or other of diet, will cure the case. The whole system must be considered, and even hygienic and therapeutic means will be needed.

To a certain extent, prevention is possible. Every acute enteritis in adult or child, must be really cured, because many of them lead to the chronic condition. Chill, from whatever cause, must be avoided by warm clothes and dry feet. Dietetic errors, and overstrain of the nervous system must be carefully considered.

In attempting to write a definite treatment, one real-

izes that every case is individual, and must be treated by itself, and that only general principles can be stated.

A few things are clear to me. Even in the mild cases the patient must be impressed with the importance of the conditions, and the fact that his own sense and good judgment must be used, if he is to improve.

In severe cases, I am sure of another thing, viz., that the patient must go to bed, if necessary, for several weeks. This rest in bed prevents exposure to wet and cold, dietetic errors, mental and physical exertion, and gives the physician a great advantage in the carrying out of his treatment. Further loss of flesh and strength are probably prevented.

Also massage, electricity and certain hydro-therapeutic measures can be used to the greatest advantage. Massage is important in stimulating the circulation and general nutrition of the patient. Electricity has its place also, for I still believe that general faradization improves nutrition and circulation.

Hydropathic measures can be used in many cases, and may be very helpful. For example, the use of a cold pack over the abdomen at night, and for a few hours during the day, for the bed patients, seems to lessen discomfort and to help somehow, in regulating peristalsis. I once thought this could only be done for the constipated cases, but find that even the diarrhea is often improved. Baths are less easily applied, but the ice-bag placed over tender places here and there, is for some a great relief.

Enemas, hot or cold, large or small, are most applicable to catarrh of the large bowel, but they seem to do more than simply cleanse the bowel, and are quite as useful in the diarrheal as the constipated cases.

The drinking of water, especially some of the spring waters, may be made useful for some cases, especially perhaps those tending to constipation, though I cannot say that permanent improvement is likely to result, es-

pecially in the severe cases. The Rockbridge and other alum waters, have some reputation as curative, but the effect is at least doubtful.

I believe that in some cases, carefully selected physical exercises, particularly of the abdominal muscles, are most useful. Undoubtedly such exercises rather increase peristalsis, but the circulation is improved and the action of the liver is also improved. More bile is secreted and discharged, and the whole process of digestion is helped. These exercises must be carefully selected by the physician, and cannot be well described here in detail, but those used must exercise strongly the abdominal muscles, increasing intra-abdominal pressure; in fact, fairly squeezing the bowel against the spinal column. An intelligent patient at once realizes what is wanted and helps in the selection of suitable movements.

This is, I believe, a most important therapeutic measure, and if carefully done, and persisted in, may be made very useful.

The avoidance or relief of nerve strain is most essential, for as already suggested, the nervous system affects largely the question of diarrhea and constipation.

The question of diet is most important and most difficult, and it is essentially individual. Theoretically, this or that is good, but the question always is, does it work, does it help the patient?

We must keep well in mind the pathological conditions present, the stage of the disease in which the patient is, whether he is in bed or at work, whether he is running down, or has sufficient digestion to keep his flesh and strength.

No two can be fed alike. If catarrh of the small intestine is present, we must remember that the bile, pancreatic and intestinal secretions are probably diminished in amount, and thinned by the mucous secretion. There is diarrhea, and frequently hyperacidity of the stomach.

If the disease is confined to the large intestine, both

stomach and small bowel may or may not be doing their work very well. There is usually an alternating diarrhea and constipation, for which, certainly, the same diet is not applicable.

If we are dealing with the atrophic form of the disease, and the process is extensive, it will be a very difficult matter to keep up the nutrition of the patient. In most cases, the excessive amount of intestinal gas, is a most uncomfortable symptom, and the diet must be made such as to help in preventing this.

Many patients, I believe, are under-fed, and many more are soon so sickened of their limited diet, that they eat too little. No sooner do you get your patient well established on a diet of rare beef and dry bread, than you find he is a uric acid subject and cannot stand such a strongly nitrogenous diet. If you turn to milk, you soon find his gas increased, and the stools filled with milk curds, which are surely increasing the diarrhea.

I have carefully studied a good many diet lists, and have never yet succeeded in fitting one to a patient. Unsatisfactory then as it may seem, I would like to leave the diet question in this way. Study carefully each patient, his strength, his weight, his blood condition, his stools, and work out the best diet possible for each case, without any reference to theories or what you may have done for another, always making the diet as liberal as possible. If the patient continues to run down in weight and strength, either he is under-fed or he is in a very serious condition.

If constipation is present, the diet question is much easier, for sufficiently laxative foods can easily be added to regulate the action of the bowels.

Many physicians have a diet list, from which they strike out the foods not considered desirable for the patient. This, perhaps, is a good plan, but such rulings are entirely arbitrary, and should always be subject to the experience of the patient. I have seen a good many

seriously reduced by too long a use of a limited diet, one that was scientifically correct, but practically insufficient.

The medical treatment of chronic enteritis is not very satisfactory. With the long list of so-called intestinal antiseptics, you are familiar. In my experience, the best one is Salicylate of Bismuth in five to ten grain doses, several times a day. Naphthaline may be useful. Subnitrate of Bismuth in twenty or thirty grain doses lessens diarrhea. Nitrate of Silver is sometimes helpful. What seems useful in one case, appears useless in the next.

If the catarrh involves the large bowel, irrigations may be used. A large catheter or rectal tube is passed high up in the bowel, and large quantities of water are used, first for cleansing purposes. When this is passed, a solution of tannic acid (one dram to the pint) may be used, to be retained as long as possible, or corresponding solutions of Zinc Sulphate, Boric Acid, or Salicylic Acid. If the disease has reached the point of ulceration, solutions of Nitrate of Silver are most effective, or two or three drams of Bismuth to the pint of water, used as an enema.

In short, then, the best treatment is hygienic and dietetic, with the careful use of such drugs as may control the diarrhea or constipation, or improve the digestion.

Finally, may I recapitulate the points that seem to me most important?

First, the prevalence of the disease, and the serious effect on the general health.

Second, the important anatomical changes found in the bowel, and the incurability of them.

Third, the importance of attention to all acute attacks, in the hope of avoiding the chronic state—this especially in children.

Fourth, the treatment; hygienic, dietetic and medi-

cinal, all based on a careful study of each individual case. The form and stage of the disease present the condition and digestive capacity of the rest of the organs of digestion.

Fifth, the marked effect of the nervous system, in increasing either the diarrhea or constipation. The depression of mind and weakness of body found at least in the severe and long continued cases.

Sixth, the presence of the disease as a complication of other diseases, and the important part it may then play, in the general health and nutrition of the patient.

A VALUABLE NERVE TONIC OF RECENT ORIGIN;

OR,

THE GLYCERO-PHOSPHATES;

PARTICULARLY,

THE GLYCERO-PHOSPHATE OF SODIUM.

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SUFFIELD.

In 1894 Dr. Albert Robin presented to the Academy of Medicine of Paris a report upon the results of his employment of the glycero-phosphates of Calcium, Potassium, and Sodium, which he had been using in his practice, at that time, for six years. Noted as an observer, his conclusion that these are valuable agents in the treatment of nervous debility from various causes, attracted wide attention. Soon afterward, both in France and America, other physicians of prominence began to utilize the information he at that time imparted, and later, with striking unanimity, they corroborated his results.

An investigation of the subject reveals an absolute lack of information at the usual sources; and the information as yet obtainable is found only in contributions to medical periodicals.

Known to exist, and regarded as likely to possess important therapeutic value, the glycero-phosphates were not put to therapeutic uses for many years because of the inability to produce them upon an industrial scale.

Derivation. They are products of the action of glycero-phosphoric acid upon various bases.

Glycero-phosphoric, or glycerino-phosphoric, or phos-

pho-glycerinic acid (H 2 P 4 C 3 H 5 (O H) 2+aq) is said to be a yellowish, oily, odorless liquid, soluble in water or alcohol, and obtained from glycerine and phosphoric acid. It is also a product formed in the human body during digestion.

The Glycero-phosphate of Calcium, at first most extensively employed, is a white crystalline powder, soluble in twenty parts cold water, sparingly soluble in hot water or alcohol. Dose ten to twenty grains given either in capsule, powder, syrup, or watery solution.

The Glycero-phosphates of Iron, Lithium, and Magnesium, as sold, are fine white powders, soluble in water. They are given in doses of three to twenty grains t. i. d.

The Glycero-phosphate of Quinia, also a white powder, is bitter in taste, and sparingly soluble in water but more soluble in alcohol. It contains 68% Quinine. Dose three to six grains.

The Glycero phosphates of Sodium, and of Potassium, are each very hygroscopic, and are sold only in a 75% solution in water. In this form they are saline in taste, jelly-like in appearance, and affected in their consistency by changes in temperature. Dose, ten to thirty grains t. i. d. in syrup, or watery solution, when taken by the mouth; and five to ten grains when given hypodermatically.

The glycero-phosphate of sodium is the salt which has latterly received the most attention. It is used in this country, according to the statement of the manufacturers, twice as extensively as the calcium salt, which is next in importance.

Physiological Action. The glycero-phosphates supply phosphorus to the tissues in an easily assimilable form, an organic phosphorus. And, since phosphorus is a constituent of those cells which comprise the brain and nerve substance, their utility as a nerve food or tonic is naturally suggested.

Lecithin, the phosphorus bearing substance found in all the cells, and especially the nerve cells, is itself the glycero-phosphate of Neurin.

The action of mineral phosphorus is thought to be exerted by it causing molecular irritation. This results in temporary stimulation, but ends toward waste, and impoverishment, rather than increased nutrition, of the cells.

The hypo-phosphites, so often prescribed in debilitated nervous conditions, are said by Hare to have no advantage over phosphorous, except in case of administration; and Ringer states that their mode of action resembles that of phosphorus.

The comparative value of a remedy which simply and directly promotes the nutrition of the cells is obvious.

Taken by the mouth the glycero-phosphate of sodium is perfectly tolerated by even the most delicate stomach. It has no immediate effect that is noticeable; but when its administration has been sufficiently prolonged, the appetite improves, assimilation and absorption are promoted, the liver is stimulated, the flow of bile is increased, nitrogenous exchange is hastened, and phosphatic waste restrained.

Acting upon the nervous system existing reflex nervous phenomena usually diminish and finally disappear; sleep, if disturbed, becomes more quiet and restful; and insomnia often disappears without other aid. Large doses (thirty to sixty grains), however, may cause wakefulness.

The various organs and tissues of the body all show improved functional activity. The eyes grow brighter and clearer, and the complexion more healthy. Thin and nervous subjects gain in flesh, and flabby flesh becomes more firm.

It is noticeable that there is no reaction after the withdrawal of the drug, either after short or prolonged administration. The patient continues much as before,

retaining the improvement made. And the progress of improvement is resumed, upon a return to its use.

These effects are also largely true of the action of the calcium and potassium salts.

THERAPEUTIC USES. As I remarked before, there is great unanimity in the verdict of those who have given the glycero-phosphates an extended trial, as to their effect, and therapeutic value. In the employment of sodium glycero-phosphate, hypodermically, and by the mouth, in twenty-five successive cases, I distinctly observed the following facts which, upon research, I found substantiated the statements made generally by contributors upon the subject.

The glycero-phosphates are indicated, and most useful, in all cases of nervous impairment due to over-work, or excesses of any kind. Also in asthenic nervous maladies, mental depression, and whenever it is desired to increase the nutrition of the nerve cells, and stimulate their activity.

In neurasthenic conditions characterized by vertigo, occipital headache, unsteadiness of gait, or inability for physical or mental effort, great improvement attends their use. In the premature advance of age, and in senility attended by general debility the benefits from their protracted use are striking. They greatly relieve Hysteria, and also the many morbid feelings of nervous patients. Their value is considerable—in chronic neuralgia, in sciatica (by hypodermatic injection along the nerve), and in convalescence from la-grippe, and acute infectious diseases. In diabetes, Magnin, of Paris, asserts that he has personally seen, repeatedly, the sugar markedly diminished by them. And they are said to be useful in Addison's disease.

CONTRAINDICATIONS. Their use is contraindicated in albuminuria; in diseases characterized by an organic oxidation in excess, as acute gout, or acute rheumatism;

and especially in nervous states characterized by acute excitability.

Incompatibles. The glycero-phosphates are liable to undergo decomposition when brought into contact with lead salts, phosphates, or carbonates.

Administration. The effect of the glycero-phosphates is most quickly secured, and most pronounced when administered by hypodermatic injection. The solution usually employed consistes of

Glycero-phosphate of Quinine	1 gr.
Sodium chloride	½ gr.
Distilled water	1 dram.

M.

Sig. 15 to 30 minims injected once daily, (with antiseptic precautions).

As watery solutions are a good culture medium, they should be kept sterile, or freshly prepared, when for hypodermatic use.

The best site for the injections is the back. The injection is apt to be followed by stinging pain of moderate severity, persisting for several minutes; also soreness, and redness lasting several days.

I regard the incidental discomfort of the hypodermatic method so objectionable, in many cases, as to render the use of it but seldom desirable, or to be employed but for a short time at the onset of the treatment, as in a case where it is necessary to secure an immediate response. Sufficient doses given by the month are equally satisfactory.

The Glycero-phosphate of Sodium is taken agreeably in either the syrup of orange or the compound syrup of sarsaparilla, ten to thirty grains to the dram. It should be administered three times daily, either before or after meals.

The following also is an effective formula:

R.	Glycero-phosphate of Sodium	$7\frac{1}{2}$ gr.
	Glcero-phosphate of Quinine	1 gr.
	Glycero-phosphate of Iron	2 gr.
	Glycerine	1 dram.
	Citric acid q.s. (to complete solubility).	

M.

Sig. Taken in water, before each meal.

To secure the best results, and to restore the nerve and brain cells to normal condition, it is usually necessary to administer the glycero-phosphates for from three to six months, and sometimes longer. Occasional interruptions of several weeks in the course of very prolonged administration, are beneficial. In such cases, too, the giving of strychnia, and appropriate hygiene, are desirable auxiliary measures of treatment, while excesses of any kind, and tea, coffee, tobacco, and alcoholics, are to be avoided.

It is also well to vary the vehicle, that the patient may not tire from the monotony of the treatment.

THE HISTORY, ETIOLOGY AND MODE OF INFECTION OF TYPHOID FEVER.

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SHELTON.

In the short space of time allotted to me for the presentation of this paper on the History, Etiology and Mode of Infection of Typhoid Fever, it is my privilege and pleasure to present for your consideration such data as I trust will be found of practical value to us as practitioners.

There appears to have been no definite understanding of this disease previous to the seventeenth century when Spigelius observed the malady, and in a number of post-mortem examinations found what were undoubtedly typhoid lesions in the intestinal tract. Among others who gained a knowledge of the disease we find recorded the names of Sydenham, Hoffman, Willis and Bartholin.

In the following century we find Morgani, Huxam, Gilchrist and others writing in a manner indicating some knowledge of this disease. Up to this time, however, success had not crowned the efforts of these pioneers in isolating the disease from its associate—typhus fever—and not until the year 1837 did we obtain a sharp line of distinction between the two diseases through the valuable researches of Pennock and Gerhard of Philadelphia. This dreaded disease which has existed for so many ages and still exists by virtue of its germ—the bacillus typhosus—holds within its relentless grasp thousands of cases yearly, the fatality of which runs from seven to fifteen per cent. Wilson states that Delafield collected 1,305 cases of typhoid fever in the New York hospitals in five years with a mortality in 1879 of 21% and in 1880 of 30%. In 18,612 cases in the British and Continental

hospitals the statistics of Murchison show 18.62 per cent. of deaths. These statistics, authentic as they are, make one stop and ponder and ask himself if in all the realm of medicine and sanitary science there will not some day be a means of forever exterminating this germ from our midst.

A word as to the clinical history: Typhoid fever is an acute infectious disease, self-limited whose chief characteristic is an inflammation and ulceration of Peyer's patches and the solitary glands of the large and small intestine.

Enteric fever has been largely used as a term designating this disease and properly so inasmuch as the lesions are found in such a large proportion of the cases along the intestinal tract, yet it is recorded that autopsies have shown in some cases that the intestines were nearly or quite in a normal condition and that the lesions were found in other parts of the body. Different varieties of this disease occur, among which should be mentioned the abortive, severe, hemorrhagic, renal, ambulatory and pneumonic types.

The period of incubation varies from four days to three weeks, although the usual time is from two to three weeks.

The patient complains of feeling weary, loss of appetite with general malaise, some headache and symptoms simulating and at first not infrequently mistaken for a malarial cachexia.

The onset is apt to be gradual and frequently a patient will keep about for several days before consulting his physician when the above symptoms become apparent. Inquiry shows one or more chills to have occurred. The temperature is often found on first visit to be from 101.5° to 103°, tongue coated, diarrhea may be present or absent and epistaxis to a mild degree in a certain proportion of cases.

Let us direct our attention for a few moments to some

of the more common complications, those which may, for a time at least, obscure our diagnosis. Headache is apt to be of a severe type and is usually present, leading one to think of meningitis. Pain may be severe in the back of the neck with some tenderness, also making the differential diagnosis from cerebrospinal meningitis somewhat obscure.

Delirium is sometimes an early symptom, but it has not been my experience to find much delirium during the first two weeks.

In case of pneumonic complication the onset may be similar to that of pneumonia, in which case the typhoid symptoms may not show themselves until after one week, when the fever, instead of terminating by crisis, continues on and the typhoid phase of the case shows itself.

Symptoms of an acute nephritis may be the first to hold our attention. Again bronchitis, especially in the very young, is a stumbling block to an early diagnosis, but continued high temperature and increasing typhoid symptoms soon clear up the doubt.

The duration of the disease varies largely in proportion to complications, but usually runs its course in a typical case in from four to six weeks.

Toward the end of the first week or the first of the second week, a few rose-colored spots may show themselves, mostly over the abdomen, although the eruption is not constant in all cases but when present is considered a valuable diagnostic sign.

The tongue gradually becomes more thickly coated and dry, there is a considerable thirst and loss of appetite, although fluid diet is usually taken with avidity.

Diarrhea is, perhaps, in the majority of cases present, although constipation may exist.

The temperature rises a fraction of a degree each day with moving recessions. During the second and third weeks the foregoing symptoms become more severe and the general strength of the patient becomes reduced; the

face is flushed and nervous symptoms present themselves. The abdomen becomes tympanitic, delirium and great restlessness appear.

Diarrhea now becomes a more prominent symptom, and even hemorrhages take place. The pulse is inclined to be more feeble and the temperature somewhat higher. Considerable emaciation and weakness make their appearance together with subsultus tendinum and a condition of wakefulness known as coma vigil. All these symptoms present a picture with which we are only too familiar and force the attendant to express grave fears for the recovery of his patient.

During the fourth week or even earlier the temperature may fall to normal, the above mentioned symptoms become less severe and convalescence set up or the disease may continue from two to four weeks longer, if the patient's powers of resistance are equal to the strain imposed upon him.

I recently saw a case of typhoid fever in consultation with Dr. Loomis, of Derby, where the fever had been running continuously for twelve weeks, with no apparent sign of abatement. Throughout all this time there had been no delirium, and when I saw her, her mind was very clear, yet she was greatly emaciated and anemic. Multiple abscesses of the scalp were visible, with good drainage, yet these did not seem sufficient to account for the high temperature. Our diagnosis was that of a deep-seated abscess not clearly defined. The doctor has since informed me that the temperature has subsided and convalescence is established. I mention this very interesting case in this connection to show that we sometimes get a post-complication in this disease which accounts for the prolonged high temperature rather than the specific glandular inflammation itself.

Etiology:—Typhoid fever is caused by the introduction into the system not immune to the disease of the specific germ known as the bacillus typhosus. How

truly thankful should we be that the nineteenth century placed in our hands the key to this typhoid situation and discovered the microscopic organism which is the root of so much evil. To Eberth is due the credit of discovery and isolation of this bacillus, which consists of a short, thick, straight or moderately curved, rod-like body, whose ends are rounded. It is found especially in the intestinal and mesenteric glands as well as in the spleen and other organs of the body and also in the blood. According to Sajou's latest work age seems to exert an important predisposing influence, typhoid being rarely found under the age of two years and not often after fifty. According to Northrop in the Archives of Pediatrics for January, 1896, an analysis of 254 cases of typhoid fever in childhood showed, up to five years of age, one per cent., five to ten years of age, twenty-seven per cent., and ten to fifteen years of age, seventy-two per cent.

Morse, in an article in the Boston Medical and Surgical Journal for February, 1896, states that Vogel in 1,017 cases found 412 between five and ten years of age and 393 between ten and fifteen.

This disease prevails principally in the temperate zone, although all climates are subject to it.

With us the fall and late summer months appear to be prolific periods for the disease, although winter and spring record many victims. It is rather apt to occur after a dry, hot summer with low water level, although this does not always or necessarily follow. The late Dr. William Pepper, whom we all learned to admire not only for his intrinsic worth as a physician but as a writer of rare ability, states in an elaborate article on Typhoid that "according to Murchison out of 5,988 cases seen in the London Fever Hospital during twenty-three years, 2,461 occurred in autumn, 1,490 in summer, 1,278 in winter, and 759 in spring." Also "according to Osler over 50 per cent. of the 1,889 cases in the Montreal Gen-

eral Hospital and of the 1,381 cases in the Toronto General Hospital were admitted in the autumn months."

The next question with which we have to deal is the mode of infection. I have already given an outline of the disease and its etiology and now naturally follows the description of the methods by which this extremely active bacillus effects an entrance into the human system.

There are several ways which I shall name in order of their frequency as follows:

1st—Through drinking water.

2d—Through milk supply.

3d—Through sick-room contamination.

4th—Through ice.

The most common of all these sources of infection is the first—that of drinking water,—an article so universally used that the chances for the transmission of disease-germs are very great.

Given then a privy-vault, into which dejecta of a typhoid fever patient have been thrown, a well or reservoir or water-shed of the same, in close proximity, so situated as to receive the drainage or overflow from said privy-vault and a sufficiently severe rain-storm to cause an outflow or overflow of said vault, and we have all the conditions present for producing an epidemic of typhoid fever, the enormity of which is almost unlimited.

Thus, to illustrate, I will cite the recent outbreak of typhoid in the city of New Haven, report of which has just been published in the annual report of the State Board of Health of Connecticut for 1901, data of which I am able to present through the courtesy of Dr. C. A. Lindsley, the Secretary. This epidemic occurred in the months of April, May and June, 1901, and consisted of 497 cases. During the early part of April, Dr. F. W. Wright, Health Officer of New Haven, found evidences of an epidemic of typhoid in a certain district of the city,

and upon inquiry was led to investigate the illness occurring in a certain family which resided along the watershed of Lake Dawson, one of the large reservoirs used in supplying the city with drinking water. Here he found undoubted histories of typhoid fever. Further investigation showed careless disposition of non-disinfected feces of these patients, not only in the privy-vault, but even on the surface of the ground as well.

The city is supplied by several reservoirs, the distributing pipes of which are more or less intimately connected, but by a series of tests and analyses it was quite clearly shown that the water supply used in the infected district was taken from the Dawson reservoir, or in other words about 90% of these cases resided in the district supplied by the Dawson Lake water.

In an epidemic which occurred in Plymouth, Pa., in 1885, over one thousand cases of typhoid developed and nearly one hundred deaths occurred. In this case a single patient infected this mountain stream miles away, and was the cause of this great loss of human life.

Numerous other instances of this kind could be cited if time permitted.

Regarding the second method, viz., through milk supply, I have only to recall the recent epidemic in the city of Stamford to bring to your minds a vivid illustration of the manner in which milk may become infected and produce wholesale disaster among its consumers.

Again, a somewhat peculiar outbreak of the disease occurred in New Milford a few years ago. This is interesting because of the manner in which the infection was transmitted.

A farm hand from an adjoining town who was convalescing from typhoid fever, came to visit his brother in New Milford, who was employed on one of the best milk producing farms in the town. While thus visiting, he offered his services in the capacity of milking a portion of the herd of cows.

Within a short space of time several cases of typhoid fever began to develop and an investigation was ordered. This resulted in atiributing the outbreak to the convalescent visitor, whose hands had not been properly sterilized before milking.

The third method, or sick-room contamination, is brought about by the handling of soiled or infected vessels or linen and afterward lack of proper cleanliness or disinfection on the part of the nurse or attendants.

Regarding the fourth and last means mentioned of spreading typhoid infection, viz., through the medium of ice, it may be said that this is, perhaps, the most uncommon way. Although it is well to bear in mind that any given lake, water-shed or stream, subject to typhoid infection, would prove equally as dangerous in proportion to the amount of ice used for family consumption as the water itself.

PATHOLOGY AND DIAGNOSIS OF TYPHOID FEVER.

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STAMFORD.

Typhoid fever may be regarded as a local disease with well marked and definite general symptoms, due to absorption into the general circulation of the toxines produced by the Eberth bacillus at the site of the lesions. The small intestine composed of its mucous, sub-mucous, muscular and serous coats is the principal seat of the lesions of typhoid fever. The mucous membrane is studded throughout with folds or replicae, which run partly around the lumen of the tube, and are named the "Valvulae Conniventes." These folds serve to increase the area of the intestine, and are beset, as well as the intervening tissue, with finger-like projections called villi. The villi are the radicles of absorption, containing in their centre the chyle-vessel or lacteal which ends in a blind pouch at the extremity. Surrounding this lacteal are numerous unstriped muscular fibres, the afferent artery, the efferent vein and nerve fibers the whole being held together by adenoid and connective tissue. The mucosa proper is composed of the true secreting glands of Lieberkühn, whose mouths open between the bases of the villi. These glands furnish the intestinal secretion. Between the glands of Lieberkühn we find dense aggregations of lymphoid tissue, named respectively the solitary glands and the agminated glands. The first named are isolated lymph nodes, the second a collection of the solitary.

Peyer's patches are large oval groups of closely aggregated lymph follicles, held together by diffuse adenoid tissue. These patches vary in size and number and

are usually limited to the lower two-thirds of the small intestine, reaching their highest development in the ileum.

What concerns us most about these glands is the fact that they are not limited to the mucosa proper, but encroach upon the sub-mucosa, sometimes to such an extent that the muscular layers of the intestine are stretched only thinly over them. Typhoid ulceration having destroyed these patches, we have practically nothing left of our intestine but the serous coat, and a much thinned and perhaps ulcerating muscular layer, and it can be readily seen that but little force is required to cause a rupture of these the remaining structures. We may well ask ourselves the question, "Why have we so many lymph follicles situated along this tract?"

The answer is plain. Lymph glands all over the body act as sentinels which guard the systemic circulation against the introduction of infectious material. In the intestine, bacteria, and digestive and putrefactive processes are continually in operation, and it is to prevent the deleterious products of intestinal activity from reaching the general circulation that the lymph glands are so thickly placed in this part of the economy. The digestive product is taken up by the lacteals and emptied into these nodes which filter it and destroy all deleterious substances. If the infecting agent overcomes the resistance of these glands, death of tissue, ulceration and general infection follow.

After the infecting agent has passed the stomach, and it is often destroyed here, it reaches the small intestines, the contents of the bowel being alkaline in reaction, multiplication begins, absorption into the lymph nodes follows and the disease enters upon its course unless the lymph nodes are able to overcome the germs. Infection of the lymph nodes is characterized first by cell infiltration, followed by a marked dilation of the capillary blood-vessels. These after a time become compressed

by the pressure from increased infiltration, and if continued this results in the death of the part. While not all glands of Peyer which are the seat of cellular infiltration undergo necrosis, yet as a rule those situated in the lower portion of the ileum do, and show the process to its fullest development. Necrosis and sloughing begins between the eighth and tenth days, and ends on or about the twenty-first day.

This process of sloughing leaves behind the typhoid ulcer, which corresponds exactly to the amount of tissue destroyed. It may involve only the mucosa or may dip down to the muscular or even the serous coat of the gut. Its size depends upon the degree of severity of the infection or the coalition of a number of small areas. Hemorrhage which is likely to occur at this stage is due to the erosion of a vessel, an accident occasioned by the separation of the sloughs, small bleedings may take place from the swollen hyperemic edges of an ulcer. Perforation which occurs in about six per cent. of cases is attributed to a perforative necrosis; and this is proven by the fact that the sloughs are usually found attached to the orifice of rupture. The perforations are usually found in the lower third of the ileum, for it is here that the lymph nodes attain their greatest development. A mild peritonitis is invariably present in typhoid, and the diarrhea, which usually accompanies this affection, is due to the general catarrhal state of the large and small intestine, and especially the former. Healing promptly follows the formation of the typhoid ulcer, and as in the formation of the sloughs, begins at the periphery and extends inward; in fact, it is this process of healing which separates the sloughs. It can readily be seen that thus the process of healing and that of sloughing may be going on in the same area.

In healing the mucosa is entirely replaced, including its glandular and epithelial elements. The different stages of the local lesions of typhoid do not follow one

another, strictly speaking, but are all present at the same time to a more or less degree depending upon the time elapsed since infection.

Changes in the mesenteric glands occur simultaneously with those of the intestine, those glands situated near that portion of the bowels showing the most extensive ulceration, being the ones most severely involved. Hyperemia and swelling due to cell infiltration are among the earliest changes and this may go on in severe cases to necrosis and suppuration. With rare exceptions the spleen becomes enlarged in typhoid fever. At first hyperemic, the tissue grows soft and granular and at times is almost diffluent on section. Infarction is not a rare occurrence and may lead to suppuration. In some cases whether spontaneously or as the result of injury, rupture of the organ has taken place.

The secondary lesions of typhoid are due either to the long continued temperature or to secondary infections. They consist mostly in parenchymatous changes of the organs, such as cloudy swelling and fatty degeneration.

The diagnosis of typhoid fever may be divided into the Clinical and the Laboratory; these should go hand in hand, as very often the laboratory tests, whether confirmative or negative, decide an otherwise doubtful diagnosis. On the other hand all our faith should not be pinned to the results obtained in the laboratory at the expense of our clinical history, for it very often happens that through some pre-existing conditions at present not apparent, an entirely different result is obtained from the one anticipated.

It is only when one is confirmed by the other that positive knowledge results. The laboratory tests of use in typhoid are Erlich's Diazo reaction, Piorkowski's culture test and Widal's agglutination test.

The first named, Erlich's Diazo-reaction, is of negative value only, for it is obtained in a number of diseases,

tuberculosis, malaria and measles. Often it is absent early in the case when a positive sign is most desired.

The test depends upon the presence of an unknown substance in the urine, which when acted upon by certain reagents induces a carmine red coloring of the mixture.

It is made as follows:—

Two grammes of sulphanilic acid are dissolved in a mixture of 50 c. c. of hydrochloric acid and 1,000 c. c. of water, and labeled Solution I.

A one-half per cent. solution of sodium nitrate is labeled Solution II.

Fifty parts of No. I and one part of No. II are mixed and equal parts of this mixture and urine are placed in a tube and saturated with ammonia. If the reaction is positive the solution is colored a carmine red, which if allowed to stand twenty-four hours throws down a greenish precipitate. The frequency of a positve diazo reaction in acute miliary tuberculosis is its chief drawback to its usefulness in typhoid fever, as it is this condition which is most difficult to exclude.

A method of diagnosticating with safety the typhoid bacillus from the coli communis has been elaborated by Piorkowski. He takes advantage of the different manner of growth of the organisms upon a medium composed of urine and gelatin. A normal urine having a sp. gr. of 1020, alkaline in reaction is mixed with 0.5 per cent. of peptone and 3.3 per cent. of gelatin. This is kept in a water-bath for an hour and at once filtered.

Test tubes are filled with the mixture, closed with cotton, and sterilized in autoclave at 100° C. for fifteen minutes. On this medium after twenty-four hours the bacterium coli communis grows in round, yellowish, finely granular and sharply outlined colonies, while the typhoid bacillus produces colonies arranged in thread-like lines radiating from a center. The culture must be

kept at 22° C., as at a lower temperature the typhoid colonies do not show the characteristic growth. In normal feces Piorkowski never obtained the peculiar arrangement seen in growth from typhoid stools.

In an examination of forty cases who were subjected to this test, it proved satisfactory in every case. His experiments have since been investigated and favorably reported by Schutze and Michaelis. In some cases the characteristic growth was obtained from the third day of the disease up to the third day of apyrexia, and while the Widal reaction was still absent or not positive.

The Widal Reaction.—From a series of 5,978 cases of typhoid fever collected from different observers in which the Widal reaction was employed, a positive reaction was obtained in 5,814 cases, or 97.2 per cent. Of the cases with negative reaction, 164 in all, 113 were tested upon one occasion only.

The earliest date at which the cases showed the reaction is as follows:—

Of 70 cases, 9 showed reaction on 6th day; 21 on 10th day; 16 on the 15th day; 12 in two to four weeks; 1 on the 3d day in bed; 7 on the 7th day in bed, and 4 on the 14th day in bed. This is the main drawback to Widal's reaction, for unfortunately the test is often negative until the disease has sufficiently developed to enable one to make a diagnosis without it. It must also be borne in mind that a positive reaction is often obtained in patients who have had a previous attack of typhoid, in some cases as long as twenty-one years have elapsed since attack, and yet a positive reaction is obtained. The longer the time elapsed since the attack the weaker the reaction, consequently a strong, quick reaction would indicate a new attack of the disease.

The test is made as follows:

One part of typhoid blood or serum, with or without

a previous dilution, is added to a twenty-four-hour bouillon culture of the typhoid bacillus in a hanging drop. When the typhoid reaction is present, the bacilli quickly lose their motility and become clumped together in masses.

The dilution of the serum which answers all practical purposes and has been found to be most trustworthy, is a one to twenty with an hour time limit for clumping.

A positive reaction so obtained has a diagnostic value about equal to that of the eruption. If more delicate tests are desired, the dilutions may be carried up to a hundred, but many cases of typhoid do not give the reaction with this dilution during any part of their course.

The clinical diagnosis of typhoid fever is very often and especially in the beginning a perplexing question.

The period of incubation lasts from eight to fourteen days, sometimes twenty-three, during which time there are feelings of lassitude and disinclination for work. The onset is rarely abrupt. The prodromal symptoms may be either a chill, which is rare, or chilly feelings, headache, nausea, loss of appetite, pains in back and legs and epistaxis. These symptoms increase in severity, and the patient at last takes to his bed. From this event the definite onset of the disease may be dated.

During the first week there is in most cases a steady rise in the temperature, the evening record rising a degree or a degree and a half higher each day, reaching 103° or 104°. The pulse is rapid, from 110 to 120; full in volume, but of low tension and often dicrotic; the tongue is coated and white; the abdomen is slightly distended and tender. Unless the fever is high there is no delirium, but the patient complains of headache, and there may be mental confusion and wandering at night. Constipation may be present, or there may be two or three loose movements daily. Toward the end of the week the spleen becomes enlarged, and the rash appears in the form of rose colored spots, seen first on the skin

of the abdomen. Cough and bronchitic symptoms are not uncommon at the outset.

In the second week the symptoms become aggravated; the fever remains high and the morning remission is slight. The pulse is rapid and loses its dicrotic character. There is no longer headache, but there are mental torpor and dullness. The face looks heavy; the lips are dry; the tongue, in some cases, becomes dry also, and thirst is incessant. The abdominal symptoms are more marked, diarrhea, tympanitis and tenderness. Death may occur during this week, with pronounced nervous symptoms, or towards the end of it from hemorrhage or perforation. In mild cases the fever declines, and by the fourteenth day may be normal.

In the third week in cases of moderate severity, the pulse ranges from 110 to 130; the temperature now shows morning remissions, and there is a gradual decline in the fever. Loss of flesh is now more noticeable, and weakness is pronounced. The diarrhea and meteorism may persist. Unfavorable symptoms at this stage are the pulmonary complications, increasing feebleness of heart, and pronounced delirium and muscular tremor. Special dangers at this time are perforation and hemorrhage.

With the fourth week in the majority of cases, convalescence begins. The temperature gradually reaches the normal point, the diarrhea stops, the tongue clears and the desire for food returns. In severe cases the fourth and even the fifth week may present an aggravated picture of the third, the patient grows weaker, pulse more rapid and feeble, the tongue dry and abdomen distended. He lives in a condition of profound stupor, with low muttering delirium and subsultus tendinum, feces and urine are passed involuntarily. Heart failure and secondary complications are the chief dangers of this period.

In the fifth and sixth weeks protracted cases may still

show irregular fever and convalescence may not set in until after the fortieth day. In this period we meet with relapses or recrudescence of the fever, also many of the complications and sequelae.

The onset of typhoid is as a rule insidious, and the patient is unable to fix the date when he was taken ill.

The onset may be with severe nervous symptoms simulating cerebrospinal meningitis, or with pronounced pulmonary manifestations, so as to mislead the physician, and cause him to suspect a pleurisy or pneumonia. The gastrointestinal symptoms may predominate, vomiting and diarrhea being uncontrollable, or it may begin with symptoms of acute nephritis.

Another form deserves mention, namely: the cases that keep about and attempt to work, and follow the routine of their daily life. The patient may come under observation with a temperature of 104° or 105° and the rash well out. These cases generally run a severe course.

The temperature in the majority of cases runs a definite course. In the stage of invasion, it rises steadily during the first five or six days. The evening temperature is about a degree or degree and a half higher than the morning remission, so that a temperature of 104 or 105 is not uncommon by the end of the first week. Having reached the fastigium it persists with slight morning remission.

The rash of typhoid fever is perhaps its most characteristic symptom. It consists of a variable number of rose colored spots, which appear from the seventh to the tenth days, usually first upon the abdomen. The spots are flattened papules, slightly raised, of a rose red color, disappear on pressure, and range from two to four millimeters in diameter. After persisting for two or three days, they gradually disappear, leaving a brownish stain. They come out in successive crops, but rarely appear after the third week. The changes in the blood are a great

diminution of the red corpuscles, and no increase in the number of leucocytes. The complications of typhoid are numerous, those most frequent being myocarditis, thrombosis of veins, infarcts of kidney, spleen and lungs, nephritis and pyuria. Neuritis and multiple arthritis occur occasionally, and the disease is sometimes followed by necrosis of the long bones.

THE TREATMENT OF TYPHOID FEVER.

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The serious question which confronts every busy practitioner is: "Am I giving each of my patients the advantage of the best treatment?" With this aim in view, I have developed from experience the following practical plan:

Have always freshly in mind a rather routine treatment which is the composite of your training, reference reading and clinical experience. With this as your basis, it is easy to individualize and to meet those varying conditions and symptoms which necessitate constant study to successfully combat. So in the case of Typhoid Fever: it is not a discussion of the different systems of treatment nor of any one line of treatment, I submit for your consideration, but rather an "up-to-date"-working epitome. This summary is reducted to three headings—Hygienic, Dietetic, Therapeutic.

The Hygienic treatment of Typhoid Fever is of more than usual importance. We have before us a disease, the duration of which is one of the longest; the prognosis of which largely depends upon the patient's resisting and enduring powers. It is like a ship on a long voyage, usually safely weathered if staunch and well manned—the passing storms testing but more the strength of the ship and the judgment of the one in command.

A large, sunny, quiet room, kept at a uniform temperature, devoid of all unnecessary furnishings, yet cheery in the appointments, preferably with several windows and an open fireplace for free ventilation. Attendants kind, encouraging, firm; well trained to meet emergencies, to properly administer to the patient, and to

attend to the careful disinfection of the discharges and clothing, which should be changed daily. These are the desiderata: Refresh the patient with frequent baths, alcohol, salt, or plain: anticipate possible decubiti by giving especial attention to the dependent portions of the body. Avoid wrinkles in the sheets. Turn the patient often.

Mouth hygiene is essential. Prevent sordes by cleanliness, thus both adding comfort to the patient and improving also the struggling digestion. The danger of secondary parotiditis, and otitis media is also lessened by this means. Scraping the tongue, the use of listerine, peroxide of hydrogen, boracic acid, sol. 2%, lemon or orange juice and glycerine, weak tea—all are of service. The acid phosphates refresh the parched mouth, assist in maintaining stomach tone and energize the nervous system.

For disinfecting the dejecta, one may use routine, Platt's chlorides, diluted, 1:4: solution of carbolic acid, 2%; hydrarg, bichloride, 1:2,000, or chloride of lime, four ounces to the gallon. This is the cheapest and equally germicidal.

For the fomites, the same, having in mind the bleaching effects of the chlorides if used in too strong percentage. Let the clothes remain in the solution for several hours, and then as an extra (to make sure) precaution, have them boiled for at least half an hour.

When the patient is convalescent, give the room a thorough renovation, and have the mattrasses steam cleaned. With these procedures, we may have no fear for others, and it is only from the neglect of these measures and carelessness that, except in the rarest instances, our nurses contract or spread the disease. This is the best prophylaxis as well, for, by thorough disinfection, the bacilli will be destroyed, and so our water and milk supplies will not become contaminated—at present the chief sources of infection.

This statement is well proven by the vital statistics report published by our State Board of Health. The rate of total mortality from Typhoid Fever has steadily fallen from 7.8% in 1865 to 1.3% in 1899—or concretely from 584 deaths in 1865 to 189 in 1898. This instructive and really remarkable showing is due in large measure to our improved sanitary conditions, though we must give proper credit to therapeutic progress. This is the essence of medicine to-day—prophylaxis!

The dietetic treatment of Typhoid Fever is, ceteris paribus, the most important of all. A prolonged, exhausting fever, weakening the digestive apparatus, yet requiring, for this very reason, more food to compensate for the extra drain. This is the problem which has taxed our experimentors and which has filled our books and journals with all too voluminous reports.

Here again, may be accepted for our routine method, Ovid's "in medio, tutissimus ibis,"—(the middle path, the safest guide). Milk is the diet par excellence, highly nutritious, easily digested, hence usually well borne; a good diuretic, so helping to keep the system free from poisonous accumulations. Milk also is not a favorite pabulum for the typhoid bacillus. From one to two quarts of milk per diem, four to six ounces every two or three hours, may be the only nourishment required. This may be varied in taste by the addition of salt, salt and soda bicarb., celery salt, or a little caramel, cocoa, or coffee. Gelatine, which tends to lessen the curds and is also nourishing, may be added. Whey or buttermilk may be substituted.

Should milk disagree, dilute with lime water, or an alkali effervescent water. White of egg, barley water, koumyss, matzoon or Zoolak, or peptonized milk may be allowed as a change and in certain cases, some of the milder strained broths—as chicken, veal, mutton. May flavor with the vegetable bay. Let the evident digestive strength of the patient be the guide to departure from strict lines.

If milk is positively refused, we must rely upon the broths, and may employ some of the prepared (even the proprietary) goods, like Mellin's, Malted Milk, etc. Liquid beef, peptonoids, panopeptone, beef juice, home-made, or the more concentrated preparations, as Valentine's. A little clam broth, in the absence of diarrhea, is an acceptable relish.

Rapid emaciation demands farinaceous gruels. These may be flavored with cream. The great danger is in over-feeding, not under-feeding. Expect the patient to live somewhat upon himself; let him reconvert into food elements his adipose layers. Try to maintain that happy equilibrium of supply and demand which does not overtax the digestion nor yet drain too much the enfeebled system. Allow pure water plentifully.

Maintain this strict fluid diet for one week after the even fever has subsided. This is a safe general rule, exceptions to which may be made in the individual case. More relapses follow from increasing the dietary too rapidly than from any other cause.

Very carefully add semi-solids, e. g., the first day, chicken broth, thicken with rice, or milk toast, or junket, but only one preparation should be added a day. Chew a little steak but do not swallow the pulp. By the third day a soft boiled egg may be added, thre or four oysters, and so on. Still let milk be the staple food for some time. After two weeks of convalescence (three weeks from the subsidence of fever) usual foods may be allowed. Starchy foods in excess or those which leave a bulky residue must be proscribed. Some authorities will not allow potatoes for one year after Typhoid Fever.

Malt extract, stout, ale, Hugarian wine, Burgundy, all have their place, together with general tonics, iron, quinine, arsenic, strychnia, etc.

If constipation is present, give fats, as glycerine, cream, cod liver oil, salad oil, butter; maltine with cas cara if necessary.

Indigestion calls for a return to a more bland diet.

A complete change to the mountains or seashore has tens recuperation.

The therapeutic treatment of Typhoid Fever would result in endless confusion,—the land of chaos and darkness,—if we should accept all the suggestions offered in our books and journals; even by our eminent authorities and original experimentors. Culling out the heart from much chaff, admitting possible good in all lines proposed, let the proposition be: "Give medicine for cause only."

Five to ten drops of dilute hydrochloric acid every two or thre hours certainly comforts the parched lips and assists gastric digestion, where both hyperacidity and lessened quantity of gastric juice are usually present.

Tonic doses of quinine fortify the system and may also be rather routine. Add strychnia if the nervous system requires, or digitalis with or without nitroglycerine or strophanthus if heart complications arise.

Commence the administration of alcohol by the beginning of the second week. By this time, the patient usually is showing signs of the impression of the fever upon him. The formal guides to quantity and frequency, two to eight drams of spiritus frumenti or vini gallici every two to six hours are (a) a more moistened tongue, (b) steadier pulse, (c) less delirium, (d) less subsultus, (e) with absence of the "alcohol-breath." These prove the immediate benefit of the stimulant and its more remote beneficial action we find in its aid to digestion, and its general tonic effect, besides supplying an easily oxydizable carbohydrate food for the fever, so saving the body tissues and lessening systemic drain.

The goal all are seeking is some means of destroying the typhoid bacilli in the Peyer's patches without at the same time destroying our patients.

Accept the eliminative preventive, and the abortive Woodbridge and other antiseptic lines of treatment as

still sub-judice, recognize the value of their trend by adding, say, Salol gr. v—x four to six times a day. This lessens the meteorism and is somewhat germicidal. Lessened bowl distention both adds comfort to the taxed nervous system and reduces the danger of hemorrhage and perforation by causing less strain upon the ulcerated areas. Turpentine stupes are trustworthy, and if the distention is excessive, add Mv—x of the oleum terebenthinae three to six times a day. This also supports the sympathetic nervous system and hastens the healing of the ulcers.

For undue restlessness, phenacetin, gr. v—x, protected if necessary with caffein, gr. ss—i. is probably as efficient as any remedy, far safer than most. Use opium in any form as little as possible.

The secretions are already too poor. An occasional hypodermic may be required, or codein by mouth as the least objectionable. Avoid the heart depressants, like antipyrine, aretanilid and the like. Sometimes strong coffee will allay restlessness, by improving nerve tone, so also alcohol. Trional or sulphonal are allowable.

For the hyperpyrexia, depend upon the ice-coil, the cool sponge-bath, or pack, (temperature 90°-70°). The tub bath is usually not practicable in private practice. If the patient is quite weak, give spiritus frumenti, one half to one ounce, before beginning the cold-water treatment. Commence the cold pack when the temperature rises to 102½-103 and so often prevent the hyperpyrexia stage. Usually ten to twenty minutes will suffice to reduce the fever. Repeat as often as the fever rises—generally every three to four hours.

This revival by Brand of the cold-water treatment of Typhoid Fever is by far the most useful single measure in our armamentarium to-day. By keeping the temperature below the hyperpyrexia limits, tissue waste is avoided, the system is less rapidly depleted, and the tonic,

comforting, and sedative effects are immediately apparent. Many lives have been saved by this, after all, most simple measure.

It is a real satisfaction to doctor and nurse to see a delirious helpless patient, burning with fever, with parched lips and even in his delirium calling for water, every muscle twitching convulsively, almost at once transformed into a comfortable rational being with fever reduced to safe limits by this bath or pack treatment.

The modified tub treatment, introduced into the Hartford City Hospital in 1894 and there used so successfully, is more possible for private patients and is especially of service when the cold pack fails. It is described by Dr. Joseph Hall in the Transactions of the Conn. Med. Society for 1895.

The intense headache in the early days of invasion is greatly relieved by the ice coil. At times phenacetin may be necessary. Only use opium or its alkaloids if other drugs fail or for special indications.

Epistaxis usually requires no special treatment—ice to the nostril or at most the post nasal tampon.

For diarrhea, let the milk be boiled, use Bismuth and Dover's Powder, or lead acetate if necessary.

Vomiting is relieved by mustard to the epigastrium. Bismuth and cerium oxalate, internally, champagne, if more obstinate.

Ordinary hiccough denotes indigestion, hence lessen the food and improve digestive tone by, say, a few drops of Tr. Nucis Vomicae, or a simple bitter, like Tr. Calumbae. Serious hiccough is an evidence of new exhaustion and calls for immediate stimulating and tonic measures. Increase the alcohol and strychnia.

A recrudescence of the fever from whatever cause requires a return to strict routine treatment. No one measure reduces to a minimum the danger of hemorrhage and perforation, and of relapse like a perfect rest. Keep

the patient in bed from the first and well into convalescence. They will beg to be allowed up, as they cry for food, but be firm on this point. Remember also that every motion means an expenditure of nerve energy, which it is most important to conserve, especially at the height of the fever.

While our efforts are directed to keeping the fever within safe limits, it is also highly desirable to maintain free elimination. Many cases show a tendency to constipation. Insure a daily movement from the bowels by enemata, as the routine; varied by an occasional mercurial purge, if the liver becomes torpid, or a mild hydragogue, or even castor oil. Cascara Sagrada often acts well and is safe. Remember that malaria often complicates typhoid in our district. Treat it, if suspected, with quinine or Warburg's tincture. In fact, it is often well to administer Warburg's tincture, half an ounce every four hours for a day or two during the invasion, both for its tonic effect and as a means of excluding malarial infection, where a blood examination is not possible.

This may conclude the routine regime of an average case of Typhoid Fever.

Possible complications are always to be had in mind. Some will be prevented by strict adherence to principles already stated; some are unavoidable.

The more frequent complications are: Hemorrhage in the second and third and fourth weeks, often preventible by proper care in diet by limiting meteorism, and by absolute rest. If it occurs, lessen the food, maintain perpect quiet, apply cold applications to the abdomen and administer ergot, hypodermically if necessary; or Bismuth and opium, with or without lead acetate. Keep the bowels confined for several days, then open carefully with enemata.

Combat the attendant shock with stimulants, hypodermically, if necessary only; elevate the foot of the bed;

bandage the extremities; hypodermoclysis may save the life.

Perforation, fortunately rather uncommon, is most serious when it does occur. Combat the shock as for hemorrhage. An enema of strong coffee is a powerful stimulant. As a surgical complication, operate as soon as the general condition will permit.

Localized Peritonitis: Opium is necessary to relieve pain, and to lock up the bowel if hemorrhage complicate; otherwise drain away the congestion by salines, e.g., Magnesium sulphate, administered preferably by enemata and high.

Secondary Bronchitis: May or may not call for special treatment.

Less frequent complications are:

Decubiti: Usually preventible, if proper care is given the patient. In asthenic types, bed-sores may occur despite every precaution, because of trophic disturbances. Use hair or rubber rings to relieve and redistribute pressure. If the skin is unbroken, brush with a 4% solution of silver nitrate, harden with alcohol and alum, brandy and castor oil; if broken, treat along surgical lines.

Pneumonia, usually hypostatic, and pleurisy do not prevent the employment of baths for the pyrexia. Stimulating measures, never depressing, are indications; more alcohol, digitalis, unless the temperature is high, but let strychnia be the sheet anchor. Change the patient's position frequently; encourage deep breaths. The Pneumonia jacket and Counter-irritation are well-tried remedies.

Possible Meningitis, parotiditis, otitis media (suspect if leucocytosis is found), nephritis and uremia, phlebitis, sensory hyperesthesia and paraplegia, typhoid spine, abscesses or furunculosis, erysipelas, retention of urine (the bladder should be palpated daily),—any of these may develop, and of course are to be treated along usual

lines. It would prolong my paper beyond limits to more than mention them.

In general, have a typhoid patient wear an abdominal binder or flannel band for months. It lessens the shock of sudden atmospheric changes, supports the weakened abdominal viscera and is appreciably comforting.

Post-typhoid Alopecia may be lessened by the free use of the ice-coil and occasional scalp massage with some stimulating lotion, as e.g., Pinaud's Eau de Quinine Tonic, or a more formal dermatological prescription.

The anti-typhoid serum, as a prophylactic measure, is still in the experimental stage. The tests made, especially among the British soldiers are on the whole discouraging though they warrant further research.

THE RELATION OF THE COUNTRY WELL TO TYPHOID FEVER.

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Typhoid fever is the chief of our so-called filth diseases, and is always of interest to sanitarians as the typhoid death-rate is in general the best index of certain phases of the sanitary conditions of a community. The disease is caused by the well-known bacillus, which enters the body commonly through the mouth in some article of food or drink. Water is the most common means of infection and dissemination, but milk, green vegetables and other articles of food may become infected, and under certain conditions flies and dust may be important media of dissemination. The bacilli leave the body in the feces, the urine, and probably in the saliva. The most important factor in prophylaxis is the proper disposal of these excreta, for it is from these materials that food and drink become infected. The chief subjects of inquiry in a study of the dissemination of typhoid fever are, therefore, the disposal of the house wastes and the source of the water supply. In sparsely settled districts these terms are reduced to the privy, the sink drain and cesspool, and the well. There is surely no need that I should comment on the convenient relation of the house and these important domestic institutions which is so conservative of minutes, and so wasteful of lives. My object is to call attention to the relatively isolated condition of this country domestic system as compared to those existing in areas of crowded population. The evils arising on the farm are largely confined to the residents of a particular house and their visitors, and there

is little liability of one system directly contaminating the more or less remote neighbor. Furthermore, comparatively few persons are exposed to a single infected system. As the population becomes concentrated the risk of infection from one system reaching another increases, until under the conditions in some cities large regions may become infected. As cities increase in size and wells are abandoned for a public water supply brought from a distance, the conditions improve and a further improvement follows the introduction of sewers to replace the privy and cesspool. But the population also increases in the region about the city and the sources of water become contaminated with sewage and there then appear the scattered cases of typhoid and the occasional epidemic due to an infected water supply. After this in natural order follow the best conditions attainable in city life when the public water supply is changed to a carefully protected source, or is purified by efficient filtration, and shallow wells are all abandoned and privies are all abolished.

The cities and boroughs of Connecticut may be said to be in the second of these stages; they all have public water supplies, and all the larger ones have systems of sewerage, yet in most places there are still many wells in use, and many privies. Our water supplies are mostly from impounded surface waters not yet subject to gross pollution. None of our cities draws its water from sources comparable in pollution to the large sewage polluted rivers used in some American cities. On the other hand, none of our towns, with the exception of Greenwich, is provided with filter works, and most of our reservoirs are not as carefully protected as they should be. The conditions prevailing in the large towns of our State, therefore, favor a moderate typhoid death-rate, higher than should prevail in the small towns, but not so high as is to be expected in cities without public sani-

tary works, or in those drawing their waters from sewage polluted rivers.

Before stating the actual typhoid death-rates in Connecticut cities, permit me to call your attention to some rates existing elsewhere, that we may have a basis for comparison. The lowest typhoid death-rates are found in certain foreign cities; thus average death-rates of from six to ten per 100,000 of living population have been secured for several years in Berlin, Hamburg, Munich, Vienna, The Hague, Dresden, and some other continental cities. In this country the best rates in cities of considerable size fall between fifteen and twenty; for instance, in New York City, where shallow wells and privies have been practically abolished, the rate is about nineteen. On the other hand, rates of fifty, sixty and more are not uncommon in cities having polluted water supplies.

The following summary of the average typhoid death-rates in 135 American cities of 30,000 population or more, is based on statistics for the three years, 1898, 1899 and 1900, collected by the United States Department of Labor (George W. Fuller, American Public Health, Vol. XXVII, page 100).

Typhoid death-rates per 100,000 living in 135 American cities:

Rates	20 and Under.	21-30.	31-40.	41-50.	Above 50
No. of cities, ...	19	40	29	15	32
Per cent. of cities,	14	30	21	11	24

The rates in Connecticut towns of a population of 10,000 or more are shown in the following table. (See report of the Epidemic of Typhoid Fever in New Haven, Connecticut State Board of Health Report, 1901, pages 281-283).

Average Typhoid Death-rate for 100,000 Living Population for the Two Decades, 1881-1890 and 1891-1900, and three years, 1898-1900. For Connecticut Towns of 10,000 Inhabitants or more in 1900, for the Remaining Towns, and for the State.

	1881-1890. Average Rate.	1891-1900. Average Rate.	1898-1900. Average Rate.
Ansonia and Derby,	35	28	16
Bridgeport,	21	12	18
Danbury,	44	35	15
Greenwich,	27	17	19
Hartford,	48	52	48
Manchester,	26	38	35
Meriden,	42	28	19
Middletown,	31	24	16
Naugatuck,	82	31	31
New Britain,	47	29	19
New Haven,	37	29	29
New London,	36	25	21
Norwalk,	23	23	22
Norwich,	35	21	13
Stamford,	28	43	18
Torrington,	40	22	25
Waterbury	71	43	35
Windham,	67	23	16
18 Large Towns,	40	30	26
150 Small Towns,	39	27	22
For State,	40	29	24

From these data it is first, especially noteworthy, that the rate has materially declined in nearly all cases during recent years. Thus the average rate in the eighteen towns having a population of 10,000 or more, during the decade ending in 1890, the decade ending in 1900, and the three years 1898, 1899 and 1900, were respectively, 40, 30 and 26. This improvement is even more marked in most of the towns when considered individually instead of in the average, and may be fairly credited to the improved sanitary conditions of recent years, and to the better care of the dejecta of typhoid patients. It is also to be noted that only two of the towns showed an average rate of less than twenty during the last decade,

and that the average rate of the six towns having a population of about 30,000 or more, was thirty-two.

Returning now to the conditions of the sparsely settled districts, the country towns of the State, let us consider their typhoid fever rates as an index of their sanitary condition. In the table it is seen that during the three periods already referred to the rates for the smaller towns were respectively 39, 27 and 22. In order to get at the rates for the smaller towns more certainly it has been calculated for all the towns in the State not having water supplies or in which they have been recently introduced. In these towns the rates for the three periods was found to be, 38, 26 and 25, as against 40, 30 and 26 for the larger towns. These figures show improvement in the successive periods as seen in the case of the cities, and which may be safely credited to the same cause. The rates in these small towns are in general a little better than those in our cities, whereas, as already stated, if we consider the comparative isolation of the country house, and if we consider the greater liability in cities to neighborhood infection, and the prevalence of epidemics, we might reasonably expect the country rate to be much better. Apparently the advantages of isolation do not much more than offset the improvements due to the partial introduction of pure water and sewage systems.

In seeking the cause of the maintenance of what must be considered a high death-rate in the small towns, we are led to the consideration of the privy and well as the two most important sources of direct infection. That the privy is a direct source of infection has been clearly demonstrated in cities by the observations which have been made at Leicester and Birmingham, England, of the greater prevalence of cases during typhoid epidemics, especially of secondary cases, in houses using earth closets as compared with those using water closets. That this source may be a very important one under some conditions is manifest from the experience in military

camps. Thus in the war with Spain the board which investigated typhoid fever in the army concluded that "not less than one-fifth of all the troops located in camps of mobilization had suffered from typhoid fever." (Munson's Military Hygiene). It was generally considered that polluted water supplies were not the chief factors in the dissemination of the infection in our camps, but that it was spread from the dejecta, and very largely by the agency of flies. Considering all conditions one must assign to the open privy an important etiological position in typhoid infection, but one cannot consider it the chief factor in civil life. If not to the privy then we must assign the chief position to the well.

What is in the construction, or surroundings, of our country wells to account for this state of affairs? The most common form is the dug well without impervious walls; it is frequently but a few feet deep, but even if thirty or forty feet in depth, it is so constructed that it may receive drainage from the adjacent soil, especially in times of heavy rainfall, at any point even close to the top. It is only with driven wells, or those with some other kind of strictly impervious walls that we can even assume that the water has received the amount of filtration represented by the depth of the well. The usual type of well, therefore, is so constructed that it may receive drainage from its immediate vicinity and from high levels, and hence after but little filtration. For convenience the well is located near the house; the drainage from the house is discharged near at hand on the surface, or perhaps a drain is provided to convey it to a distance. Shallow tile drains are very likely to become leaky even if not originally laid with loose joints and thus frequently the sewage is deposited near the house and near the well. The sewage is not distributed through a considerable amount of earth by a sudden intermittent discharge as is practiced in that excellent system of sewage disposal, known as the Waring Subsoil System, but

is applied frequently at one spot, and thus the soil is kept wet, oxygen is largely excluded, the oxidizing bacteria do not flourish, and the ground becomes surcharged with organic matter from which it cannot clear itself. It thus happens that the well becomes surrounded with a soil contaminated in its upper layers with much nitrogenous organic matter. It has been abundantly shown by culture experiments that soil so contaminated will not only permit the long continued existence of typhoid bacilli, but that it will support their multiplication. If now this soil by chance becomes infected, we must believe that the bacilli will increase in number and maintain themselves for long periods; how long it is impossible to say, but certainly for months. After an infection the disease may become endemic on the farm and the bacilli may at favorable times, as in periods of heavy rainfall, washed into the well.

One reason that our country towns show a relatively high typhoid death-rate appears to be, therefore, that the conditions exist by which the disease may in a measure become epidemic on the farm, a single infection resulting in several cases, perhaps after considerable intervals of time.

For chemical evidence that the water of a considerable proportion of our country wells is such as to indicate a soil contamination one must depend largely upon his personal observation, for there has been no extended series of analyses of such waters in our State. One set of such analyses, however, is available in the report of the examination of the school wells which was made by order of the State Board of Health in 1898. (Connecticut State Board of Health Report, 1898, pages 279-296). From analyses of samples from about two hundred and fifty such wells it appears that about one-third were to be regarded as normal and, therefore, free from sewage contamination, and that enough more were nearly normal to make about one-half which could be considered as

of satisfactory purity. The other half showed distinct evidences of sewage contamination, and a few were grossly polluted. Considering that school wells are not subject to the same probability of contamination as wells located near permanent residences, these results confirm the opinion formed from considerable personal experience, namely, that the water of a considerable proportion of our country wells shows unmistakable evidence of serious soil contamination, and that even gross pollution is not uncommon. That the results are not more serious than we find them is to be attributed to their fortunate isolation and the consequent infrequent infection.

It is most clear to all who have given the matter attention that the water supply of our country districts requires attention from our sanitary authorities no less than that of our larger cities.

Much can be done by a proper selection of the site for a well and in the choice of the kind of well. Much can also be done in directing the method of the disposal of sewage. A small tract of ground may be made to dispose safely of a considerable amount of sewage if this is properly applied, as by subsoil irrigation. Sewage may be safely conducted past a well by replacing tile drains with long sections of iron pipes such as our building laws require to be placed under city houses. In many cases rain water might be used to great advantage for a drinking supply. There are difficulties in the storage of rain water, but masonry reservoirs can be constructed above ground in favorable locations which are satisfactory and free from the dangers of sewage contamination.

The arrangements for the water supply and sewage disposal for a given house must be adapted to its surroundings and peculiar requirements, and constitute a problem for each house builder. Undoubtedly much benefit would result if we as physicians could give the matter sufficient attention to be in position to afford competent advice in these important matters.

THE FUTURE CARE OF THE INSANE IN CONNECTICUT.

By Edwin A. Down, M.D.,

HARTFORD.

THE INSANE.

It is an interesting though pathetic fact, and one comparatively little known, that on a plateau overlooking the city of Middletown in this State, there resides a population exceeding in point of numbers the individual populations of nearly one hundred towns in the State. To be precise, the population of the Connecticut Hospital for the Insane is greater than that of any one of ninety-seven towns, according to the findings of the last census. On March first, 1902, the total number of the insane under care and treatment was 2,189, and the number of employees about 300, making a total of 2,500 in round numbers who are provided for within the hospital precincts. It is a safe assumption that not only the laity but the profession generally does not clearly comprehend the polyhedral character of the problem relating to the housing, care and treatment of the mentally defective in our own State: and it is in the security of this assumption that the attempt has been made in this paper to present a few brief and temperate statements regarding the management of the beclouded element of our population; to which are added some statistics of an official character for the purpose of illuminating the subject matter. A few words historically are inserted for the purpose of rendering comprehensible some of the propositions which follow.

The Connecticut Hospital for the Insane was first opened for the admission of patients April 30th, 1868.

During the first eleven months completing the fiscal year, there were admitted two hundred and sixty-eight cases. Prior to the erection of the buildings, there were about seven hundred insane persons in the State, according to a report submitted to the Legislature in 1865; the estimate including those already under custodial care.

Two years after the opening of the Hospital, the elastic properties of its walls had reached their limits, and no more patients could be accommodated.

With a waiting list of from fifty to seventy-five, and no vacancies, the officers of the institution found themselves beset with inquiries, accusations and appeals which required an almost Spartan equanimity to withstand.

Unable to secure proper care in Connecticut, many patients were sent to Northampton, Mass., and Brattleboro, Vermont, awaiting the time when additional buildings would be erected at Middletown for their reception.

Overcrowding, criticisms, appeals to, and appropriations from the Legislature show a net result up to the present time of three colossal structures in addition to the original building, each containing several hundred patients; besides some half dozen less pretentious buildings which shelter from twenty to forty patients each, and one brick structure which accommodates about one hundred male patients, many of whom are employed on the farm and grounds.

The erection of one building after another in quick succession, besides extensive additions to those already occupied, begets an import of such significance as to justify the query, how long will this state of things continue?

Furthermore, has the ideal system in the care of the insane been fully attained?

The conviction that the last appropriation of one hundred and sixty thousand dollars by the Legislature of 1901 for a congregate dining-room at the State asylum

had furnished the solvent of the problem relating to the care of the insane for many years to come, was deeply rooted in the minds of many; but I have yet to learn that such representation was made by any one officially connected with the institution.

Let us study the situation briefly, and we will discover that such conviction has little basis in fact. A few figures will settle the difficulty.

The new congregate dining-room is intended to abolish several smaller dining-rooms which it is designed to convert into dormitories, accommodating two hundred and fifty patients.

By observing the rate of increase, it is safe to hazard the conjecture that by the time the new dining-room is in complete operation, there will be few if any vacancies out of two hundred and fifty provided for.

At the time the last bi-ennial report (1900) of the institution was issued, there remained in the asylum 2,078 patients. On a corresponding date of the year previous there were 1,992 patients, showing a net gain for the year, after removals from all causes, of eighty-six persons. For the three preceding years there were ninety-seven, sixty-seven and forty-six respectively. As the population of the State increases, the admission to the hospital will also increase proportionally, and an annual net increase will also be maintained; therefore it does not require the gift of prophetic inspiration to foretell that additional and extensive accommodations will be required before the legislative session of 1905. Further proof in support of this proposition is furnished when we compare the present population of the asylum with the available accommodations. On March first, 1902, there were present 2,189 persons under care and treatment; on the same date there were but 2,000 beds, cots and other temporary arrangements making up the balance of the 2,189 required.

These demonstrate that out of the two hundred and

fifty places provided for by the use of the small dining-rooms as dormitories, one hundred and eighty-nine will be required as soon as the change can be effected.

Another year's average increase, say seventy, will more than take in the accommodations provided by this scheme. As an offset to this it must be stated that within a few weeks, an addition to one of the large buildings has been completed, and will provide for eighty cases, reducing the number to about one-half of the extra accommodations provided by the Legislatures of 1899 and 1901. It is far from my intention to eke out this paper with diffusive explanations and multiplicity of argument; but it seems only proper that some emphasis should be placed upon the actual condition of things, in order that such suggestions as the members of this Society will advance during the discussion, may have the leading facts in the case as a basis. If success has followed the attempt to make this subject comprehensible, you will unite with me in the belief that further provision for the insane must be made at a period not remote.

What class of cases shall be provided for? Is it advisable to continue the same general plan of construction? These and many other questions arise, but they cannot be answered satisfactorily in this incomplete presentation of a subject whose qualities are perennial; but after analysing one or two classes of cases, a few suggestions will be offered for criticism which relate to the care of the larger class of the insane, viz.; the chronic and incurable.

When the term incurable is employed in this paper, it must not be understood as being synonymous with the chronic class, for some chronic cases are curable; while the larger portion is not. We are now to consider the worn out beings, in whom the process of disintegration began at various stages of growth, maturity and senescence, and is now nearly or fully completed; persons of whom it may be said, that while others are called, these

are chosen for disease, and have only the reflex and automatic functions,—and these not always perfectly performed—as a residuum after the cell life has completed its limited cycle. Patients of this class live on year after year, less responsive than an infant, and wholly unmindful of events transpiring about them. Having suffered a total mental eclipse, the fact of their surroundings being palatial or the reverse is without meaning to them; and in many cases even physical necessities have lost their appeal.

We have now to deal with a practical problem: that of the maintainance of a large and ever increasing number of public beneficiaries such as I have just described, and if these can be provided for at much smaller cost than at present is found to be the case, our duty to the useful and productive class of workers outside of institutions is strikingly obvious. One of the ways proposed in this paper exhibits the manner in which such cases are provided for both cheaply and satisfactorily. I refer to what is known as the Wisconsin system. This, briefly, is the housing of the incurable class in separate buildings in each county, and under State control. This last fact is the vital point of the whole system, and forestalls the objection that such institutions or shelters are practically almshouses, and patients are liable to suffer in keeping with local political mutations. This is conspicously not the case; for being under State supervision, the same objection could be raised against any of our State institutions with equal propriety.

At this point let me read a few brief quotations from opinions which are authoritative: A few years ago, the Hon. J. R. Elder, a member of the State Board of Charities of Indiana, said, after an examination of the Wisconsin system: "On a visit to Wisconsin, I learned how they take care of their insane. That was a new development to me, to see men and women taken from the poor-houses and State hospitals in charge of one male and one fe-

male superintendent, doing all the work of the house and a large farm, with no doors locked, no resident physician, coming and going as they pleased, as contented and happy as they could be in their condition.

"Wisconsin has accomplished what other States must do. More than half of the present inmates in our State hospitals could be cared for in this way; better for the harmless insane, much better and cheaper for the State."

Mr. F. B. Sanborn, of Massachusetts, who has made the subject a study for many years, makes the following statement:

"I make the assertion, and I challenge anyone to prove the contrary, that the State of Wisconsin comes at this moment nearer the ideal standard of providing for every person under the treatment best adapted to his needs than any State in the Union. The insane of Wisconsin are better provided for in all the essentials of treatment than the insane of any other State."

Another plan, worthy of your consideration and which I personally indorse, includes the erection of an unpretentious class of buildings in which comfort and safety are not made subservient to bizarre notions of architect or builder; but in which such structural features will be incorporated as to secure an abundance of sunlight and fresh air,—elements so essential to physical comfort in any building; such buildings to be, preferably, one-story structures, capable of accommodating not more than fifty patients each, with their attendants.

Doorways should be arranged for on each side in the center, as well as the ends of the building; thus insuring the two-fold advantage of rapid egress in case of fire, and rendering the passing in and out on their daily excursions less burdensome to the feeble and helpless with whom every step counts.

The fire record of the past year includes the names of sixty-eight public institutions, with loss of life in several instances—an argument more forceful than a mere ver-

bal presentation of the necessity for providing in the future all the safeguards possible; especially in buildings in which large numbers of persons are herded together.

What would be the probable result if two or three nurses attempted to save fifty or sixty patients (who are not easily managed under the most favorable circumstances) if fire should start in one of the wards of a large multi-storied asylum? The law of self-preservation would be operative here as elsewhere, and if the nurse escaped unharmed with his or her belongings, there would be time for little else.

To arouse a large number of patients, dress them and lead, or compel them to pass through, a long corridor filled with blinding smoke and suffocating gases, and conduct them down several flights of steps to a place of safety would be next to an impossibility.

The fire escapes attached to many of the public institutions in this country would be of service to a college athlete, but for the class of helpless humanity we are speaking for, they would prove almost as destructive as fire itself. The simplicity in structure I have recommended renders the danger from fire almost nil; for not only would the four regular channels of exit be utilized, but the windows being near the ground and without bars would be available in emergency. With such buildings occupied by the class portrayed, no expensive administrative department is required.

One supervisory head who can keep the records of admissions and discharges in a prescribed form, and be responsible for the safe keeping and humane treatment of the patients, will fulfill all the functions of superintendent, clerk and steward. He should be a married man, and his wife capable of performing the duties of matron.

Such medical attention as may be required can be satisfactorily afforded by local physicians whose ser-

vices could be solicited by the superintendent at his discretion.

Leaving untouched many important details connected with this subject, I will conclude this imperfect sketch to take up another group of cases for your consideration.

INDIGENTS.

Other interesting and economic facts are presented for deliberation when we focus our attention upon the class of cases known as indigents. When a patient is committed to the asylum as an indigent, his financial status differs from that pertaining to the private or pauper cases, in that the relatives, friends or legal guardians are required to pay a large part of the expense of keeping; the State making up the balance, amounting to something less than one-third of the total assessment. Doubtless, persons are committed as indigent whose financial condition will admit of a higher rate being charged in some cases, but such increase is not legal under the present statutes.

"Send them to the small asylums!" ejaculates the individual who has but a misty comprehension of the situation. This is precisely what has been done in so far as has been practicable; but in the small institutions the lack of accommodations for more than a negligible few when compared with the numbers received annually into the State institution renders such an injunction unwarranted. In round numbers, about five hundred patients, or twenty-five per cent. of the total population of the State Hospital are indigents; and a proposition has been advanced, showing a financial loss to the State resulting from defects in this mode of commitment.

From personal knowledge, I have known many persons who were able and willing to pay five or six dollars per week for patients, but, owing to the requirements of the statutes, two dollars was the limit the officers were allowed to reach.

Assuming that one-half of the present number of indigents in the State Hospital can pay five dollars per week, this would mean a net gain of seven hundred and fifty dollars per week for the State, or annually about forty thousand dollars. This question of the indigent class, however, must be viewed with some care and circumspection. We must not assume that because a patient is indigent in the legal sense, he is therefore able to pay a higher rate than is, at present, laid upon him. A varying percentage included in this class is close to the pauper line, and the estimate of forty thousand dollars is based on fifty per cent., only, of the total number of cases registered. The estimate is intended to be a conservative one, but, taking the figures as they appear, we discover the important fact that with the gain per annum, already given, the State could build and equip a new institution every five or six years, capable of accommodating four hundred patients, without imposing additional burdens upon the tax-payer.

For a number of years I have advocated the erection of a building at a distance from the present State Hospital where provision could be made for just the class of cases we have been considering; which could be made not only self-supporting, but in a measure, contribute a fair amount toward the erection of additional buildings when these became necessary.

Assuming such an institution to be in operation, we would discover that the State makes an important saving in another direction; for with the removal of the tax of eighty cents per week, which the State pays on each indigent case, there would be a net gain of ten thousand dollars a year from this source alone, which, added to the forty thousand dollars previously shown, makes a grand total of fifty thousand dollars.

As the insane population increases there will of necessity be a proportional increase in the number of indigent cases, but it is not my purpose to indulge in speculations

regarding the growth of this class of patients, and the cursory review of some of the leading points pertaining to it, should be considered as given in the spirit of fairness and moderation. Other facts and arguments germane to this subject might be dwelt upon with profit, but the number of valuable papers on the programme to follow, renders it imperative for me to terminate this part of my paper, unfinished as it is, and direct your attention to another class of public charges, whose care and guidance will form an interesting chapter in the future history of the State's beneficient undertakings.

CARE OF FEMALE MISDEMEANANTS.

By Edwin A. Down, M.D.,

HARTFORD.

To the student of sociology, or even to the quasi-indifferent individual whose attention is attracted to questions relating to the care of the three D's; viz., the dependent, defective and delinquent classes—there must occur the thought that we are in the midst of an era when prophylaxis in the treatment of the criminal is as important as the same process in the practice of medicine.

Data gathered through observation and inquiry prove incontestably that true reform can be accomplished more completely and satisfactorily by methods directed to crime in its incipiency, than can be attained by concentration of effort in the form of sporadic moral cyclones in the path of the habitual criminal or recidivist.

How to meet and counteract the evil tendencies of the younger misdemeanants and prevent their becoming a menace to our civilization, has been met in most of our sister States in the establishment of reformatories and industrial schools which have passed beyond the stage of places of detention merely; and by education, instruction in domestic science and other self-supporting occupations, in addition to a full-rounded moral and physical development, succeed, in many instances, in fitting young women for the position and responsibilities of true womanhood.

While it is desirable that institutions exhibiting these features should exist in Connecticut for both sexes, it is especially urgent that some provision be made for females, particularly the younger class of misdemeanants. During the last session of the Legislature, the State

Board of Charities presented a bill for the establishment of a reformatory for females. Through the co-operation of prominent persons interested in philanthropic work, the bill passed the committee; but, owing to the unusual draught upon the treasury for the new building at Middletown and additions to the State Prison, the bill did not become a law.

One section of the bill provides that: "Such reformatory is intended for all females above the age of sixteen years who shall be convicted of any offence which, under the laws of this State, might be punished by imprisonment in jail." And jail it has been up to the present time. No place or opportunity is offered for the young offender to receive the moral support and encouragement so essential in reclaiming her from the forces claiming her for destruction.

There is an art in shaping public sentiment which is capricious to say the least. Why is it that well-meaning individuals will contribute liberally toward the care and reformation of an individual thousands of miles away, and maintain a placid indifference to the baneful effects of moral decomposition occurring in their own community, and possibly within a stone's cast of their own neighborhood? To such persons genuine "philoplism," or love of a community, is merely an empty phase; to them the parable of the good Samaritan is limited in its application, and "The Vision of Sir Launfal" is worth the reading for its literary merits only.

Let me anticipate what some one here may ask, by stating that the Industrial School for Girls at Middletown is not a State institution. The school is owned and controlled by a corporation which elects its own officers and attends to the general regulation of its affairs. Like all private institutions it willingly receives cases committed to its care by the State when vacancies will permit, but this does not constitute it a State institu-

tion; and the limited number that could be accommodated would not vitiate the conclusion reached regarding the desirability of having a similar school under the control of the State.

The scheme as entertained by the State Board after many years investigation and oversight in this line of work, includes the construction of a suitable building or buildings at moderate cost, in which utility shall be the chief requisite; such buildings to be located sufficiently remote from the city or other populous center where a large tract of land can be obtained at moderate cost; thus securing necessary isolation, and providing for future contingencies in the line of extension and the pursuit of industrial employment such as market gardening, horticulture, the cultivation of small fruits, besides other light and profitable employment which, being turned to account, will serve to place the institution on a nearly self-supporting basis. The educational side I will refer to later on.

The advantages of such a home are two-fold,—yes, manifold. Not only do we forestall the propagation of the unfit in a large measure, but we remove a too common spectacle from our police courts with its inevitable draft upon the taxpayer. Besides providing a shelter where moral support will be rendered and every right impulse nurtured, the beneficiary will be removed from degrading and disintegrating influences, and have ample opportunity for reflection and the formation of habits and resolutions which cannot be otherwise than uplifting.

Let us start out with one proposition generally accepted, which maintains that the primary office of a reformatory of the class we have been discussing, is the custody, discipline and education of the younger misdemeanants: young women in a salvable condition whose offences have been clandestine chiefly, and who would abandon the practices into which they have been forced

or led by older offenders, were some honorable employment assured them. Attempts toward the obliteration of this social evil have been conspicuous for their failures; and while society is at present constituted, commendable efforts in the direction of such suppression without institutional oversight will result in a demonstration to the promoters that they have been in pursuit of a chimera. This paper is not intended for a thesis on prostitution; but the few lines introduced seemed necessary in order to show that we need a reformatory which reforms, and not simply a convenient domicile for the bawd who, after remaining for a variable time returns to her former practices, without manifesting any desire toward reformation, save by the usual promise closely related to the profound avowal of the inebriate, when he declares with some approach to earnestness, "I'll never touch another drop."

In these days when knowledge is widespread, the public is ever on the alert to know just what the facts are in a given case in order to insure a correct judgement in the matter. Given these conditions we, as physicians, will not be opening the door to an indictment for heresy if we attempt to show that, from the psycho-physiological point of view we have an element more potent than intelligence to control before genuine reform can be brought about, and that such governance can be best attained by fostering and augmenting such mental capacities as may be present at the time of commitment. To restate a well-known fact, desire or appetite antedates intelligence; is more deeply rooted, and often exhibits a normal or increased vigor when intellect has become inoperative.

Hence with the imbecile, or the condition closely related to imbecility to which the terms "weak" and "not a strong character" are often applied, we have to adopt other means than addressing the intellect only.

Sequestration, and discipline first; then education in

its present day comprehensive sense, are the rational steps toward an ideal standard for the management of misdemeanants of this class.

The tactful teacher will soon discover the tastes and capabilities of those brought to her for direction, and by training those which are for her welfare, and stimulating the pupil to further effort in other wholesome fields of inquiry, will have initiated a new career in the life of the girl, fitting her to rise above temptation and strengthen the resolution to prove herself worthy of living on a higher plane than was possible before such training had been instituted.

When the wise man uttered the familiar aphorism, "As a man thinketh in his heart so is he," he expressed not merely a moral maxim but a scientific truism. What men mentally dwell upon they become or grow like. The quality of thinking determines consciousness, and consciousness determines character. Character is, therefore, nothing more nor less than an habitual quality of consciousness.

Action is often temporarily modified from motives of outward policy, but its constant effort is to become a true copy of the inner pattern.

The scientific way to destroy evil is not to hold it up and analyze it in order to make it hateful, but rather to put it out of the consciousness.

The following brief table discloses the fact that we have in the State of Connecticut ample material for reformatory methods and oversight, and verifies the statements presented in this paper in the attempt to demonstrate that the need of a reformatory such as has been described, is imperative.

Table showing the number of females committed to jail in the various counties during the past two years:

Hartford County	587
New Haven "	432

Fairfield County		336
New London	"	168
Middlesex	"	31
Windham	"	25
Litchfield	"	21
Tolland	"	5
Total		1,605

The statement that "jails are schools of crime" remains unchallenged, for the reason that it is in these places that the younger criminals are brought in contact with those who are deep in the slough of vice and depravity, and become readily infected with the noxious ideas emanating from the habitual criminal or recidivist.

> Men think it is an awful sight
> To see a soul just set adrift
> On that drear voyage from whose night
> The ominous shadows never lift.

And it is for the purpose of preventing these shadows from falling upon the lives of the younger class of female misdemeanants that the co-operation of the intelligent physician is earnestly solicited in the effort to secure for these young women a suitable place for their timely sequestration.

CONNECTICUT'S INFLUENCE IN THE DEVELOPMENT OF THE AMERICAN HOSPITAL FOR THE INSANE.

CHARLES W. PAGE, M.D.,

MIDDLETOWN.

No statement of historical fact is more humiliating to the pride of man; none more conclusive as regards his prolonged ethical groping through ignorance, superstition, and error, into light, truth and humanity, than the simple account of how insane members of the human race were maltreated by their more fortunate associates, from early time until within a period so recent that it is well nigh possible to produce living witnesses of harrowing incidents in the widely enacted tragedy.

Historical America covers such a short period of time, when compared with other civilized countries, that we certainly have a less voluminous, if not less objectionable, record for neglect and abuse of the insane, than other people. But the early settlers of the United States, while pursuing high ideals, and while actuated by lofty purposes along the major lines of their conduct, were trammelled by the experience and prejudice of their European ancestors, and for a time, no doubt, viewed insanity from the traditional standpoint. And yet, at the early suggestion of rational ideas on the subject, America sympathetically responded. Her physicians, in New England especially, quickly and heartily adopted the theory and practice of the epoch making Pinel in France, and Tuke in England, although the ideas and methods of these men were not only advanced, but even revolutionary concerning the custodial and remedial treatment of the insane. Pinel dramatically illustrated

the uselessness and folly of using shackles and chains upon excitable patients; while Tuke quietly demonstrated that blood-letting, which to an excessive degree was the prevailing practice, restricted diet, mechanical restraint and close confinement, injuriously affected the insane; retarded or prevented their recovery; increased nervous excitability, and largely accounted for that hospital turbulence which had, at that time, rendered the Old Bethlehem Hospital,—or "Bedlam," as it was generally pronounced,—a synonym for the unnecessary noise and purposeless jargon.

The eminent success of Dr. Tuke's radical methods of treating the insane, first practiced by that English Quaker, at York, England, whereby the insane were considered simply as sick persons, requiring gentle nursing, a liberal diet and strengthening medicine, was a matter of common knowledge among those open to conviction about the year of 1815, when a parliamentary investigation brought the facts into conspicuous public notice.

Previous to that time but one hospital calculated solely for the care and treatment of the insane had been built in America,—that at Williamsburg, Va., in 1773. It is true that some insane patients had been treated in general hospitals, notably at the Penn. Hospital in Philadelphia, where the celebrated Dr. Benjamin Rush, the first American authority on the treatment of the insane, made his critical observations, and, in some respects, quite remarkable studies of mental disease.

The McLean Asylum, a detached branch of the Massachusetts General Hospital, was opened in 1818, and the Bloomingdale Asylum, bearing similar relations to the New York Hospital, but located several miles from it, was commenced as a semi-independent institution in 1821.

Meantime, in 1817, The Society of Friends in Pennsylvania, had established an asylum for the sole treatment of the insane at Frankfort. This hospital was pat-

terned after the English York Retreat, and no doubt did excellent work, but its management was quiet, and did not attract outside Quaker circles the attention its merits probably deserved.

It must also have commenced work in a small way, since it had admitted for treatment but one hundred and thirty-nine patients at the time the Connecticut Retreat was opened at Hartford, in the year 1824.

Thus it appears the Connecticut Retreat was the third institution founded in the United States exclusively for the care and treatment of the insane, wholly independent of general hospital connections. This institution, a child of the Connecticut Medical Society, was destined to assume at once, and long maintained, a leading influence in questions relating to insanity.

The high character and superior ability of its promotors, the grand ideals which they embodied in the construction, organization and management of the Retreat, its brilliant record for efficiency in curing insanity, and the humane principles which it has always advanced, reflect great credit upon its early friends, and the community which contributed means for its erection and support, a constituency which was practically scattered throughout the whole State of Connecticut.

Certain members of the Connecticut Medical Society, prominent among whom were Drs. Eli Todd and Samuel Woodward, having become enthusiastic believers in the Quaker system of lunatic hospital treatment, conceived the idea of putting it in actual practice in Connecticut, and soon had the whole Society interested and working towards that end. A charter was obtained and funds for construction were solicited. From its limited resources this Society appropriated the sum of $600 towards the building fund, and recognition of its leading influence in founding the Retreat, the Connecticut Medical Society, by the terms of the Retreat charter, retains authority to nominate and thus control the

appointment of its Medical Superintendent for all time.

When the Hartford Retreat was opened in 1824, public opinion, and medical treatment of the insane in England, and on the Continent, had been modified only to a limited extent by Dr. Tuke's new practice and marvellous success at the Old York Retreat; yet here in Connecticut were master minds in the medical profession, alive to the significance of the Quaker movement. They adopted not only its principles and practice, but proudly copied its name, "The Retreat," which word stands for all time as indicating the parting of the ways for the insane.

Before the York Retreat was opened a lunatic asylum insanity, had been regarded quite too frequently as diabolical possession.

Dr. Eli Todd, the first Superintendent of the Retreat, was a remarkable man. Not only was he guided in his treatment of the insane by the instincts and judgment of humanity and clear intelligence, but he completely changed American medical practice in this specialty.

The eminence of Dr. Rush, of Philadelphia, in intellectual, in professional and in political circles, had given his writings upon insanity, published in 1812, a prestige, which the ordinary physician if inclined dared not assail. Dr. Rush held in theory that "the primary seat of insanity was in the blood-vessels," that venesection was necessary in consequence of there being no outlet from the brain to receive the usual results of the supposed inflammation. He claimed that there was always a morbid condition of the blood in insanity, and referred with evident pride to the extraordinary success as he viewed it which attended artificial bleeding in the Pennsylvania Hospital. He advised abstracting from twenty to forty ounces of blood at once, and a repetition of such practice if maniacal symptoms persisted. Besides he recommended purges, blisters, prolonged cold baths, low diet, etc., etc.

Dr. Todd began his Retreat practice positive in his

convictions that Dr. Rush's views and instructions were radically wrong. The success of Dr. Todd's practice not only confirmed the truth of his theories, regarding the treatment of insanity, but the Hartford Retreat, under his management, became the center of a wide-spread and lasting influence for good to the previously neglected and abused lunatic.

Dr. Brigham, a subsequent Superintendent of the Retreat, thus wrote concerning Dr. Todd's humane and efficient service. "He," Dr. Todd, "early discountenanced depletion, particularly bleeding, in insanity and insisted upon the necessity of generous diet, and recommended a frequent resort to tonics and narcotics in the treatment of the insane. This course of treatment, though it had been taught by the best writers in Europe, had not to much extent been resorted to in any country previous to the time of Dr. Todd, and it was contrary to that recommended by Dr. Rush."

Dr. Brigham observes that "it required considerable boldness, and much address and management to introduce it and make it popular in this country, but this Dr. Todd accomplished." Dr. Todd not only instituted radical reforms in the medical treatment of the insane, but he adopted wholesale the York Retreat methods of management, discipline and hospital regime, which measures constitute the so-called moral treatment of the insane, —and not only contribute to remedial success, but practically determine the institution life of an insane person, rendering the hospital existence of chronic, as well as acute patients at least, measurably pleasant and comfortable.

Ten years after the death of Dr. Todd his appreciative and loyal friend, Dr. Woodward, published the following tribute: "Dr. Todd, a distinguished scholar, medical philosopher and philanthropist, by his management gave the Retreat a name for humanity and success which was unparalleled in the history of institutions at that day."

The leaven he thus incorporated in American Lunatic Hospital practice has never lost its saving power, and for many years it could be plainly traced in subsequent lunatic hospital developments in America. Eight years after Dr. Todd commenced practice at the Hartford Retreat, the Insane Hospital at Worcester, Mass., was opened under the Superintendency of Dr. Samuel Woodward. Dr. Woodward was a Connecticut man, and had been a prominent member of the Connecticut Medical Society. He was an intimate friend of Dr. Todd, and had been not only instrumental with him and others in founding the Retreat, but, as one of its official medical visitors, he had been a co-worker with Dr. Todd in developing and managing its affairs and outlining its practice. Thus the Worcester Hospital, still the leading New England State Hospital for the Insane, in many respects; the first American State institution for the insane founded upon the theory advanced by Horace Mann that "the insane are the wards of the State," was organized and conducted on the same basis and theory as that established at the Hartford Retreat by Dr. Todd.

In 1839, seven years later, the city of Boston opened a lunatic hospital under the charge of Dr. John S. Butler, who had obtained his ideas of insanity and its treatment from Dr. Woodward in the wards of the Worcester Lunatic Hospital. There he certainly got Dr. Todd's ideas and methods; at second hand, it is true, and tinctured with Dr. Woodward's strong personality, but yet it was substantially the doctrine of Dr. Tuke, the York Quaker, which Dr. Todd Americanized at the Hartford Retreat. When Dr. Todd died in 1833, Dr. Silas Fuller, a prominent physician in Eastern Connecticut who conducted a small private hospital at Columbia, was selected to superintend the Retreat. Dr. Fuller no doubt possessed eminent qualifications for success in the management of the Retreat. However, he retained the position but a

year or two—a period so short he seems to have made no lasting personal impression upon the history of the institution.

Dr. Fuller was succeeded by Dr. Amariah Brigham, a medical practitioner, then residing in Hartford, who was a man of superior intellectual capacity, possessing a well balanced character, and was actuated by rational and humane sentiments towards the insane. He perpetuated Dr. Todd's methods, developed special aptitude for hospital work, was tactful with his patients, and established such an excellent reputation that he was selected to take charge of the larger New York Insane Hospital at Utica in 1843—at that time the largest one in America. He held that position until his death, in the year 1849. Meanwhile he had founded and was editing the American Journal of Insanity, which is still the official organ of that Medical Association which embraces the Superintendents of American Lunatic Hospitals.

By establishing Retreat standards at Utica—the parent State hospital for the insane in New York, he advanced the noble cause immeasurably. Such was the esteem he commanded in professional and public circles, his name was given to a high class private hospital for the insane at Brigham Hall, Canandaigua.

Dr. Rockwell, an assistant physician connected with the Retreat during the last year of Dr. Todd's administration, or the next under Dr. Fuller, subsequently located at Brattleboro, Vt., where he developed the Brattleboro Retreat, an incorporated insane hospital which became another secondary center for good work and influence, the inspiration for which can be referred back to the Hartford Retreat.

While Dr. Brigham was Superintendent of the Retreat, Dr. Buttolph, then practicing medicine in the neighboring town of Bloomfield, had become particularly interested in insanity and had made a study of the medical and philanthrophic work going on in the Retreat.

After becoming thoroughly posted in Retreat methods of treating insanity, he assumed charge of the New Jersey State Insane Hospital at Trenton. Dr. Shew, the first Superintendent of the Connecticut Insane Hospital, began his institution life under Dr. Buttolph at the Trenton Insane Hospital. Thus was the influence of the Hartford Retreat spread directly among early American Lunatic Hospitals, while indirectly it affected a much wider circle.

Dr. Butler continued in charge of the Boston Lunatic Asylum only a few years. But no better imitation of the York Retreat Quaker System of lunatic hospital management has ever materialized than that developed by him at South Boston. The published reports of Dr. Edward Jarvis, of Dorchester, and Charles Dicken's account of his visit, recorded in "American Notes," abundantly substantiates this claim.

When Dr. Brigham went to Utica, Dr. Butler succeeded him at the Hartford Retreat, where he continued to administer its affairs with enthusiastic devotion about thirty years. He never ceased to emulate those worthy men he recognized as masters in his chosen specialty—Pinel, Tuke, Todd and Woodward.

While Butler was Superintendent of the Retreat, many young medical men came under his influence, imbibed some measure of his abounding enthusiasm for hospital work and acquired their notions of lunacy practice under his tuition. Some of these Retreat assistants, among whom the writer is proud to be classed, subsequently became hospital Superintendents, thus perpetuating the influence of the old Connecticut Retreat at Hartford.

For a considerable term of years, both before and after our late Civil War, when there existed in this country but few private hospitals for the insane, the Connecticut Retreat at Hartford enjoyed a well-earned reputation throughout the United States. Its liberal

patronage from all sections, including the far South, and the distant West, attested public appreciation of the vitalized humanity and sound medical sense of its founders, and the high standards their successors have fostered and perpetuated. By force of circumstances, the lavish outlay of capital for the erection of palatial public hospitals in every part of our land and the up-cropping of a host of private hospitals in every State, the field of its operations have to some degree been naturally circumscribed in the past quarter of a century. Yet there is ample scope and opportunity for the philanthropic work of the Retreat, while professional and local public pride in its record for the past seventy-five years guarantees a continuance of its illustrious career.
"Qui Transtulit Sustinet."

Dr. Todd, his successors, and others who have been engaged likewise in the practice of mental medicine, have left on record their convictions respecting State policy towards, as well as the personal management of the insane. Such views become interesting, as they are analyzed and tested in connection with more recent hospital development.

Superintendents of early American Hospitals for the Insane, through their adherence to the ideal, of which the Retreat was the best early exponent, attached especial importance to individual treatment of, and intimate personal association with their patients.. In those early times the Superintendent's duties were multiform. He attended to the admission of patients, personally examining each, interviewing relatives until he had obtained a complete life history of one and all. He daily visited, conversed with, and prescribed for those in the wards, and met for conference the friends of patients and other visitors. Besides, he generally continued the outside practice of medicine, consultations, etc.

Dr. Todd with his own hand kept the Retreat Journal,

in which were recorded all the essential facts, as he viewed them, clinical notes, progress of disease and results of treatment, in each case.

Such exacting requirement naturally tested human capacity and taxed both physical and mental endurance. The more pains-taking in the discharge of his duties; the more generous in the bestowal of kindly, healing sympathy; the more circumscribed the group of patients the Superintendent felt able to treat and supervise.

It naturally followed that those early American specialists put on record their serious convictions that hospitals for the Insane should be limited in the number of patients. The consensus of their official opinion as regards the size of hospitals first placed the limit at 200 or 250. But well informed upon this subject as they were, and true to their convictions as they undoubtedly were, they could not check the increase of insanity. Nor could they persuade State Legislatures to erect a new lunatic hospital for every multiple of 250 insane persons found in the community, although they urged the importance of such additional institutions on the score of economy.

Furthermore, magnifying to an extreme the importance of moral, or external influence, they urged State authorities to make such hospitals as attractive as possible, regardless of first cost, claiming that the surroundings of patients in acute attacks might have a preponderating remedial value, and that it ultimately cost less money to cure fresh cases by using even expensive appliances and care, than to maintain chronic cases for life.

Unquestionably the conclusions of those early Superintendents were logical deductions from their experience. But regarded in the light of subsequent hospital development and more recent views of psychiatry, while many of their opinions are still regarded as sound, others-and especially those concerning the proper size of institutions and the curability of early treated cases, are more

or less fallacious. We can easily see now that the standpoint they occupied was naturally deceptive in respect of those questions, that the constant overcrowding of existing hospitals compelled them, from time to time, to raise the limit of numbers which could be properly assembled in any one institution; consequently the reports and addresses of these revered pioneers in American Psychiatry can be quoted as favoring lunatic hospitals varying in capacity from 200 to about 1,000 patients.

Of late years the futility of official dictum on the question, has become so apparent, few Superintendents have cared to discuss it.

Possibly a majority of present-day Superintendents would admit that the standard advanced by the early Superintendents still constitutes the ideal hospital for the insane,—a community of patients so limited in numbers that an ideal Superintendent could personally carry all the detail as well as the broader problems of organization, discipline, treatment, etc., thus impressing his personality upon every patient and every page of its records and history.

But in these later days questions of public expediency, the pressing increase of insanity, the accumulation of chronic cases, and the burden of taxation involved in supporting institutions, call for practical, rather than ideal consideration in devising the future hospital for the Insane.

The per capita cost of maintenance can be gradually reduced as the number of patients under one management increases from 250 to 1,500, or more. This fact alone will probably determine the ultimate size of public American Hospitals for the Insane. The smaller ones now existing will, it is believed, be enlarged from time to time, and only those of the largest capacity will be projected hereafter.

In such institutions the best features of the ideal Retreat pattern should be retained if possible. Generally

the principle, if not in the original, in some modified form at least, can be employed. By such conservatism, combined with the use of desirable modern methods found practicable with large groups of patients, it may safely be affirmed that the vital interests of the insane are in no manner or degree necessarily sacrificed in the larger modern hospital.

Hereafter large lunatic hospitals will be the rule. Possibly a few small psychopathic hospitals may be established in cities, at medical centers, in deference to the requirements of medical students for clinical instruction in insanity, and the recently revived suggestion that a remedy for insanity may be discovered when studied under conditions similar to those surrounding other diseases, which modern medical science handles so skilfully in large general hospitals. But such a parallel argument scarcely applies to the case.

In this connection it is interesting to note that the McLean Asylum, and the Bloomingdale Asylum, the third and the fourth insane hospitals to be established in America, were the outgrowth of insane wards or departments of general city hospitals. Not only did early experience apparently justify the separation and distinct management of these asylums, but in the past dozen years each of these institutions has been re-built and each has been still further removed from the city, thus more effectually ignoring their general hospital affiliations.

If city hospitals for the insane are so important, as some writers urge, why have not these prominent institutions conformed, in their transfer, to this demand, rather than provide for still wider separation of the different departments.

Then we have the Blockley Almshouse experiment weighing down the general hospital proposition. There a general hospital scheme of management in the insane department, although under the control of eminent spe-

cialists for years, was voluntarily abandoned about fifteen years ago in favor of the prevailing features of lunatic hospital organization, a local medical Superintendent, etc.

As a matter of fact, the protracted character of insanity, even in many of the recoverable cases, the necessity for immediate official attention in emergencies, liable to arise at any time, the vital importance of discipline, and the maintenance of moral influence, present problems which cannot be satisfactorily solved by general hospital methods.

Again the increased cost of maintenance which pertains to the general hospital scheme, renders it more than probable that the vast majority of the insane will continue to be provided for in large institutions, sufficiently remote from populous centers, so ample grounds can be had for the necessary exercise of patients; where a free and abundant circulation of fresh air can be assured; where perfect sanitary equipments can be provided, and where farm and garden operations on a large scale can be performed by the labor of able-bodied male patients.

Fears that such large hospitals necessarily jeopardize the chances which acute cases have for recovery are unfounded. The claim often advanced that the smaller lunatic hospital of past days made a higher percentage of recoveries than the present day larger ones is misleading. Although the theory may be bolstered up by a comparison of statistics from hospital reports, ancient and modern, such numerical statements must be considered in relation to the personal equation of the several authors of such reports; and furthermore, they must be interpreted according to conditions which have been widely modified within fifty years. When lunatic hospitals were first established in this country, they were opened only to the most obviously insane patients, the turbulent, the seriously depressed, or the suicidal cases, and such cases largely constitute the recoverable classes

now, as they did in those earlier hospital days; whereas in these latter days a much wider variety of cases with additional phases of mental alienation have been subjects for hospital treatment.

With increased public confidence in the management of insane hospitals, which has developed in comparatively recent years, and the growth of State paternalism towards the unfortunate and helpless; imbeciles, dotards, epileptics, mildly demented and borderline cases are now hastily consigned to the custody of the modern State insane hospital, while none, or but few from these classes, (incurable under any circumstances and at any time in the world's history), would have been admitted to the small, former-time, hospital.

Under such changed conditions, when the basis of the statistical table differs so greatly, it is manifestly unfair to draw superficial comparisons. Notwithstanding these small ideal hospitals cured from fifty to eighty per cent. of their cases under treatment; it is well known that at the same time the chronic insane constantly accumulated in surrounding almshouses and jails, while many were sequestered in private homes, and other harmless, so-called, roamed about the country at will.

If, as seems inevitable, the ideal hospital of the Fathers must be abandoned, the organization of the future large hospital for the insane can be gauged to fit the changed conditions. In all lines of business we have witnessed surprising developments within twenty-five years. Business success now largely depends upon consolidation, upon combinations of capital and experience and large operations under the direction of one head.

Schemes of hospital construction and methods of management admit of similar expansion. Medical specialities and department work have been adopted in successful private and hospital practice. The most enthusiastic and optimistic of those early Superintendents, who put on record their views in favor of small hospitals,

never conceived of the advanced hospital ideas which are embodied in the laboratory equipments employed to aid clinical, as well as pathological investigations; in the daily presentation and discussion of cases before the combined medical staff, which are to-day prominent features in the management of large insane hospitals. Consider the large hospital with its medical staff of six to twelve assistant physicians, including a specialist in pathology and neurology (who devotes all his time to laboratory and special clinical work), regularly holding a daily staff meeting or clinic, at which in turn every new case admitted to the hospital is fully and critically discussed; and before which staff meeting is presented in due order all pathological findings in post-mortem cases.

The Superintendent of earlier days, with his small ideal hospital, had, after all, but limited time at his command for systematic professional work, yet he had to depend upon his personal examinations, studies and conclusions in each case.

With a large and competent medical force, such as the large hospital must have, the cases upon admission are assigned to the several assistant physicians in rotation. And this rule should obtain, irrespective of the ward to which the patient is assigned, or the department over which individual members of the staff have personal supervision. Thus no favoritism results, and each man has an equal chance in working out and recording psychological, neurological and pathological histories, in conducting clinical examinations and defending, in staff meetings, if questioned, his expressed diagnosis, prognosis, line of treatment, etc. As a result, painstaking examinations of all patients are obtained, the best authorities are consulted and quoted until they become perfectly familiar, and the progress of treatment is followed with especial interest. Minutes of the staff meeting discussions are preserved, and unexpected subsequent developments in a case frequently call for a re-examination,

or fresh discussion, of such case. Of great practical importance in such studies and discussions are the laboratory reports,—the chemical, microscopical, bacteriological and pathological findings which systematic examinations disclose. Then the new problems in mental disease which crowd upon our attention, can be settled only by aid from a scientifically conducted laboratory. Such a laboratory must be supplied with chemicals, a great variety of apparatus and extensive instruments. A special library, with a large number of imported books and journals, is also requisite for the best work. Then a special medical officer must be employed to regulate laboratory operations, and this officer should have special assistants competent to carry on the routine work, so he can devote considerable time and study of mental and other symptoms as displayed, especially by new cases, and those liable to come to autopsy. In that way it becomes ultimately possible, in fatal attacks, to present to all members in special meetings the associations between certain clinical pictures or conditions, and the anatomical pathology of the case. Such professional work in a large lunatic hospital stimulates research, develops enthusiasm, and gives routine duties perpetual life and fresh interest.

Now it is impossible to carry on such extensive and advanced professional work in a small hospital where the per capita cost of maintenance must be kept at a reasonable figure. But in a large institution, with 1,500 or 2,000 patients, the extra per capita cost of such modern requirements is so small, that even the poorest individual in the community, if committed to the hospital, can have the advantage of these elaborate and important investigations of his case without appreciable extra cost to the tax-payer. In a professional point of view then the large hospital has the advantage.

In a large measure the classification of patients in the big hospitals may facilitate the recovery of the curable,

the comfort, well-being and self-respect of the appreciative chronic, and the proper management of the feeble and demented patients. However large the institution, the department for acute cases should be comparatively small, accommodating 200 or 300, perhaps, and if possible it should be located a little apart from the other buildings. In such wards the features of a general hospital may be extensively copied. An ample corps of trained nurses should be actively engaged in all wards, both day and night. Locking patients into small rooms at night should be avoided as much as possible. Suicidal patients should be under continual supervision. In male wards married nurses, both male and female, should be employed. The tranquilizing influence of judicious and well-trained women in the male wards of an insane hospital has been repeatedly demonstrated.

Every large hospital for the insane should maintain a training school for nurses. It is unnecessary to train all ward attendants in the asylum, but those engaged in the wards for acute cases, and those in the infirmary department should be selected for the special work and be taught all branches of nursing. Instruction should be thorough and consist of daily recitations from the approved text-books, with regular examinations, attending lectures, taking notes, bedside instructions, etc.

A special home, or separate apartments, should be provided for the nurses where they would be sure of quiet, restful nights, and to which they could retire when off duty, thereby securing a relaxation from the nervous strain inseparable from ward work.

All the assistant physicians should give regular courses of lectures, subjects being selected by the Superintendent to prevent clashing, or twice covering a given ground. It is possible to so train pupils in a lunatic hospital that they can do efficient private nursing. As a matter of fact nurses with insane hospital experience are specially qualified to care for nervous subjects, and

most invalids are nervous. If the hospital is constructed and organized for department work where patients in the hospital wards develop a chronic condition, they can be transferred to the asylum or infirmary section, as their physical and mental status suggests. In any large institution the asylum department will embrace about two-thirds of those present. If such patients no longer retain a prospect of ultimate recovery, still the authority, or power, which denies them freedom, is in duty bound to do all possible to ameliorate their irksome position, and reduce to a minimum the monotony and depression which are inseparable from long confinement in asylum wards.

No feature of hospital management combines so many resources and admits so much art in its employment, to improve the environment of patients, as the congregate dining-room. As in the family, so in any intimate association of human beings, the table locates the natural, social, center of the group, and reveals the key to the sentiments, the impulses, and aspirations of those constituting the circle. Why not elevate the asylum table to its due importance and dignity? Provide at some distance from the wards, if necessary, a well-proportioned room sufficiently large to accommodate all the patients in the asylum group.

Passing three times a day from the restricted confines of the asylum ward into a spacious, well-lighted dining-room, tastefully decorated, adorned with flowering plants, ferns and palms, patients will at once experience a grateful sense of space. Space has a subduing influence over sane, reflective minds. Likewise it soothes the irritable, stills the turbulent and hushes the maniacal. Seat patients in such a dining-room, at well-dressed tables, serve them by drilled waiters, selected from attendants and convalescing patients, who will distribute food in orderly courses, at such intervals that forty-five to sixty minutes are occupied by each meal, and their

manners improve, the drift of their table-talk becomes relatively high, and the self-respect of all participating, attendants as well as patients, will be happily augmented. To perfect the successful operation of such moral agencies, throughout the meal-time, music should be rendered by a skilful orchestra. In the main only music of a high order should be selected. Few, if any, patients are disturbed by music, and it so engages the attention of the great majority that it antidotes individual disturbances and incipient excitement. It entertains most agreeably, counteracts the tendency to mental wandering, soothes the distressed in mind and civilizes even unruly dispositions. Let patients spend an hour three times a day, in such diverting and elevating associations, and asylum days possess some compensating features of good cheer and possible pleasure. Again such wholesale but most effective employment of moral influence is inexpensive, when computed at its per capita cost in a large institution. Because institutions for the insane are coming to accommodate ten times as many patients as did the early American Retreats, a Superintendent need not be submerged by his responsibilities, nor fail to personally control affairs. A proper organization will afford all the machinery required for him to maintain his preeminent position of authority and influence. By daily presiding at the staff meetings, where, besides the discussion of mental disease, reports of unusual daily experience in the several departments are called out, the Superintendent not only discovers the individual qualifications of his staff, but their normal reaction to the pressure of duties and emergencies. By openly commenting upon such reports, as are presented, he will impress the whole staff with his views, his expectations and his requirements, and thus insure their universal application at once throughout the institution.

Then a corps of attendants, or nurses, however large, can be held under his authority and discipline by the aid

of special reports of all unfortunate occurrences in the hospital. Provide each employé with a pad of blank forms, one of which he must fill out whenever a patient receives an injury, serious or slight, self-inflicted, received through the agency of another patient, or an attendant; whenever, for any cause the attendant has to resist, coerce, or seclude a patient; whenever a patient is destructive to property, and whenever a patient escapes or attempts to do so. Insist that such reports shall be fully explanatory of the affair, be carried without delay to the assistant medical officer in immediate charge of the ward, and by him be countersigned and transmitted to the desk of the Superintendent. At his convenience the Superintendent can take such reports to the wards, examine the patients, canvass the affair with the attendant and others who may have been witnesses. If such is the practice, attendants will soon learn that unpleasant happenings cannot be covered up; that any attempt to belittle their responsibility for results will come to naught, and that the patients under their care must be treated with deliberate consideration. Then let the attendant be personally corrected, admonished or complimented, as the facts may warrant. If such reports are thus followed up, the Superintendent can easily and quickly impart to his attendants his conceptions of their duties, and his rules for their discipline. Even if the affair reported is not serious the attendant soon comes to dread having to make personal explanations in every case presenting difficulty or trouble, and his wit is generally quickened to avoid an official interview by giving special heed to his intercourse with patients, and he soon learns it is much easier and safer to lead than to drive nervous and insane persons. Then mechanical instruments for the personal restraint of patients should be absolutely prohibited in a lunatic hospital, not for the reason that such restraint in every case necessarily injuries the patient to whom it is ap-

plied, but because its use, in exceptional cases even, can but weaken the moral resources of both physician and nurses.

When the nurse realizes that he must control his patient without resort to rough usage, or threats of a strait-jacket, hand-cuffs, or solitary confinement, he thinks twice before he gives irritating commands. He soon employs skilful methods, calculated to divert the attention of the nervous, maniacal, patient, rather than antagonize his imperative whim. When such gentle tactics are habitually substituted for the natural tendency of uniformed attendants to arbitrary rudeness nine-tenths of the personal friction possible between insane patients and their attendants never comes into evidence.

Patients, as well as attendants, soon appreciate such improved methods of discipline, and the personal power for good which a Superintendent can thus enforce will affect every individual under his authority. Then the congregate dining-room presents great opportunities for a Superintendent to display his interest in, and his solicitude for the welfare of his patients. As often as possible he should be present during meals. He should watch the details of service, correct faults and devise all possible improvements. He should pass from table to table, exchange greetings with patients, listen to suggestions, and enter fully into the spirit of such occasions, always propitious when the physical needs of man are being satisfied with wholesome food, carefully prepared and attractively served. He should identify himself as fully as possible with such important features of hospital management, where the surroundings impress all active minds with self gratulatory sentiments, and where the soothing strains of appropriate music evoke chords of agreeable emotions in all who are present and thus characterize the social center of the modern large asylum for the insane.

Without question Dr. Todd so organized and conducted the Connecticut Retreat at Hartford that its influence upon lunatic hospital management was strongly felt for half a century, and has never ceased to have a beneficent effect.

At the present time Connecticut has an opportunity to take again an influential and helpful position in relation to problems involved in hospital development. By incorporating such advanced features with those approved ones already in operation at Middletown, the combinations, the grouping and the special features will constitute a model working hospital for the insane of the largest dimensions and broadest scope, the sort which future requirements will reduplicate throughout America.

NOTE. Since this* Society has voted to bring the matter of a memorial to the attention of the Legislature, a petition to this effect from the Connecticut Medical Society would probably secure the necessary legislative action.

*Read before the Middlesex County Medical Association.

MELANCHOLIA, PERIODICAL DEPRESSION, AND OTHER DEPRESSIONS, WITH DIFFERENTIAL DIAGNOSIS.

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Depression is defined by Webster as follows:

The state of being depressed or cast down; a sinking.

Humiliation or abasement.

Dejection or despondency.

Synonym: melancholy.

Melancholy is defined thus:—A gloomy state of mind, often of some continuance, or habitual; depression of spirits induced by grief; dejection of spirits. Hence gloom of mind; great and continued dejection of spirits; dejection.

Depression is defined by the Century Dictionary as follows:—A sinking of the spirits; a state of being pressed down; dejection; a state of sadness; want of courage or animation.

Depression is such a prominent feature in some forms of insanity that the term melancholia has been applied to a large group of psychoses which on recent analysis are found clinically to present different pictures, which justify their classification in a more scientific way. The trouble, heretofore, has been in giving too much prominence to an emotional attitude, without regard to concomitant symptoms, the onset, course, and termination of the psychoses. The same error has occurred in regard to exaltation, or "mania."

Depression is a prominent element in the following psychoses, viz: Manic-depressive (periodical) Insanity, Melancholia, Dementia Paralytica, (General Paresis),

Dementia Precox, Dementia Senilis, Neurasthenia, and Hysteria.

In each it is colored or modified by other fundamental symptoms, and as the outcome of each is different it is of interest and importance to ascertain as early as possible in the course just what form the depression will assume, and its bearing upon the further development and outcome of the disease. In the limited space at the writer's disposal, an attempt will be made to briefly describe the symptoms of some of the above mentioned psychoses, and to present material for their differentiation. The task is difficult, and if clearness has been sacrificed to condensation, it is hoped that none of the important features have been omitted.

MANIC-DEPRESSIVE (PERIODICAL) INSANITY.

This name is applied to that mental disorder which recurs in definite forms at intervals throughout the life of the individual.

The greater number of cases usually called recoverable mania, simple mania, simple melancholia, periodical mania or melancholia, and circular insanity, belong to this group. According to the old conception, these diseases presented difficulties because of the frequent occurrence of conflicting symptoms. In periodical melancholia, there appeared evident maniacal symptoms, and conversely. "Any series of ten cases of 'periodical mania or melancholia,' in each of which there have been at least three attacks closely observed, discloses such varying features that one is forced to conclude that these manifestations, inharmonious with the old conceptions, are not accidental, but phases of one disease process. The constant recurrence of certain fundamental symptoms in all the attacks, the uniformity of their course and outcome, and the occasional intimate relation of different forms of the disease, where one form passes over either gradually or rapidly into another, has led to the

conclusion that the individual attacks appear in one of three forms, viz.: the maniacal, the depressive, or the mixed." —A. R. DEFENDORF.

The depressive forms are characterized by psychomotor retardation, absence of spontaneous activity, dearth of ideas, dejected emotional attitude, prominent delusions and hallucinations and considerable clouding of consciousness.

Depressive States. These are divided into three groups,—simple retardation, retardation with hallucinations and delusions, and the stuporous condition.

1. Simple retardation, in which there are neither hallucinations nor delusions. The onset is generally gradual. Mental processes are retarded; a mental sluggishness gradually appears; thought becomes difficult; the power of decision and verbal expression is impaired. Attention is difficult, and there is a lack of usual interest in surroundings. There is poverty of thought and the association of ideas is delayed. It is hard to remember or think. There is great constraint in speech and in all movements. Emotionally there is a uniform depression. Life has lost its charms; everything is a failure; religious faith is lost; death is desired, although suicidal attempts are infrequent. The course is rather uniform, improvement is gradual, and the duration varies from a few months to over a year.

2. Retardation with delusions and hallucinations. Here we have delusions of persecution and self-accusations in addition to retardation and difficulty of thought. Hypochondriacal delusions are prominent; patients are self-centered and think only of their own misfortunes. They are dejected, gloomy, and perplexed, and sometimes lament for hours in low and monotonous tones.

Psychomotor retardation is evident in the slow and hesitating replies, and in slow and languid movements. There is seldom any independent action. At times

there may be considerable anxious restlessness, when patients pace to and fro, sway the body, pick at the clothing, rub the head, etc Physically, there is numbness in the head, oppression of the chest, palpitation, anorexia, constipation, impaired and dreamy sleep, lusterless eyes, and sallow skin.

As the depression and retardation are fully described in the differentiation of the disease, no delineation is needed here.

The term melancholia is restricted to certain conditions of mental depression occurring during the period of involution, and must be distinguished from the melancholia of many writers who apply the term to any condition of depression, whether it enters into the picture of paresis, dementia precox, manic-depressive insanity, etc. The psychosis is an evidence of beginning senility, the majority of cases occurring between the ages of forty and sixty. Sixty per cent. are women, in whom there is a relation to the climacteric, while in men the onset is later.

The symptoms are:—

A. Prodromal, often lasting for months; most prominent are persistent headache, vertigo, insomnia, indefinite pains, general debility, anorexia, constipation, palpitation, and increasing incapacity for work.

B. Typical. Sadness, dejection, apprehension, doubts, fears, self-accusations, are very characteristic, and patients not only accuse themselves of present sins but review and condemn many trivial errors in their past life, even as far back as childhood. "I asked a sick sister to keep out of the kitchen;" "at my mother's death I thought about the division of property," etc.

Religious elements are often prominent. Many have not been fervent in prayer, possess no true religious feelings, have "committed the unpardonable sin," "are eternally lost," etc.

Delusions of fear are common. Patients will be evicted from home, cast into prison, be tortured, must starve, etc. Fear is a very prominent and characteristic symptom of melancholia.

Hypochondriacal delusions are frequent. The stomach is gone, the brain rotten, etc.

Delusions often cause seclusiveness and refusal of food.

Hallucinations of hearing and sight may be present at some time during the course, but are not essential to the picture.

Thought centers on depressive ideas, which constantly recur, but there is no characteristic retardation.

On the whole, the conduct is in complete accord with the depression and delusions. Hence while we see some patients indolent, inert, motionless for hours, etc.; others are very restless, sigh, groan, weep, wring their hands, ejaculate "oh, God," etc. Suicidal attempts are frequent, and are often due to sudden impulses or to fear.

The facies in melancholia is very characteristic. The jaws are not firmly closed, giving the face an elongated appearance; the forehead is puckered by several parallel transverse wrinkles, with several vertical wrinkles in the middle; the corners of the mouth are drawn downwards; and the whole expression indicates fear, dejection, or even despair.

Demeutia Paralytica (general paresis) is a chronic psychosis of middle life, characterized clinically by progressive meutal deterioration with ultimately absolute dementia, and paralysis. It affects more men than women, in the proportion of four or five to one.

We now recognize four forms of paresis, viz.: demented, expansive, agitated, and depressive. The disease rarely appears before the age of twenty-five or after fifty-five, and is most frequent between the ages of thirty-five and forty. The onset is later in women than in

men; women suffer more often from the depressive form; and hence in them we must differentiate especially between paresis and melancholia.

At present we are concerned only with the depressive form, whose onset is insidious, and which is characterized through the entire course by the depressive tone of the emotions and delusions.

Prominent symptoms are failing memory, decreasing power of application, greater fatigue upon exertion, and despondency over the physical condition. Soon hypochondriacal delusions appear, and at this time many patients are regarded as neurastheniacs.

The delusions soon become senseless and may be associated with self-accusations. Delusions of persecution may appear. The depression is not always uniform, and brief periods of a feeling of well-being may intervene. At times there is stupor, and again active manifestations of grief, sadness and anxiety. In a word the depression is colored by the blunting of emotions due to progressive deterioration, and the effect is much less than in melancholia or manic-depressive insanity. Hence neither expression nor conduct show decided signs of depression.

The course of the depressed form of paresis is rather short, the greater number dying within two years.

Dementia Præcox includes the Hebephrenia of Hecker and Kahlbaum, (1891); the Catatonia of Kahlbaum, (1874); and the Paranoid Dementias, including the form formerly described by Kraepelin as Fantastic Paranoia. The disease comprises 14 to 20% of all admissions to hospitals; and in more than 60% of cases the onset occurs before the twenty-fifth year. Defective heredity appears in about 70% of cases.

Many cases present mental and moral peculiarities from youth up, as seclusiveness, precocious piety, impulsiveness, and susceptibility to alcohol, while at least 7% have always been weak-minded. Various stigmata are

occasionally observed, as asymmetries, malformations of palate and ears, etc.

While the disease picture appears varied, yet certain fundamental symptoms usually permit early recognition of the psychosis. Patients are usually well oriented for time, place, and person, except in transitory excitement, in catatonic stupor, or during presence of hallucinations, but even then many events in the environment are appreciated. Hallucinations of hearing are most prominent, next those of sight, and rarely of touch.

Voluntary attention is decidedly impaired.

Memory begins to deteriorate from the onset. School knowledge may be retained to some extent, but new ideas are not readily, if at all, apperceived and assimilated. Even in the early stages there is a characteristic looseness of thought with some distractibility and flightiness.

Judgment is impaired very early, and numerous silly or fantastic delusions appear, which later become unstable and changing, or subject to additions.

In addition to mental deterioration we always find emotional deterioration. Lack of interest in, or indifference to surroundings, home, family relations, personal affairs, etc., may be the first symptom noted.

Depression and anxiety may appear early, or at various periods during the course, but is rarely profound, except in catatonia, and does not profoundly influence the conduct or produce marked affect, as in melancholia

There is rather indifference or even apathy. Even in depression patients may laugh or smile in the silly manner so characteristic of hebephrenia.

In catatonia we often have a preliminary period of depression, followed by one of excitement, and later development of stupor, negativism (mutism, refusal of food, passive resistance) automatism, muscular tension (flexibilitas cerea) stereotypy, verbigeration, and echolalia. Depression in catatonia is more marked than in the other forms of dementia precox, and will be considered in the differentiation.

The differentiation of the depressive forms of manic-depressive insanity from the depressed form of paresis is easy when there is a history of previous depressive or maniacal attacks. But in first attacks of periodical insanity in middle life or later, the diagnosis cannot be established from the condition picture alone. When patients are conscious and ordered, the presence or absence of disturbances of memory, weakness of judgment, and pliancy, have special significance. A simple alteration of disposition and the occasional appearance of pressure of activity and light expansive ideas, are to be utilized only with the greatest caution for the assumption of dementia paralytica, on account of the possibility of a change to a maniacal condition. The absence of any signs of mental or moral deterioration, and the presence of retardation makes for manic-depressive insanity.

In stuporous states the manic-depressive patients apprehend their surroundings much better than paretics, but show more motor restraint; hence they pay greater attention to events in their neighborhood, are more easily depressed, move seldom and slowly, show discomfort at interference, and sometimes give vent to their internal excitement in whispered soliloquies. In contrast to this paretics manifest no concern about the external world, hardly notice threatened dangers, are more free in their movements, and either restless, or dull and inaccessible. In single cases it is naturally not always possible to obtain clear views of the inner mental processes of the patients, and differentiation would be slow, unreliable, and often impracticable without consideration of the physical symptoms, which, though sometimes uncertain, are usually more decided and prominent in paresis.

Melancholia is differentiated first by the onset at the period of involution, although a few cases of manic-depressive arise at this time. In the latter the rapid and favorable course with single maniacal symptoms, as

pressure of activity, flight of ideas, exaltation, without any evidence of deterioration make the differentiation possible. The psychomotor attitude furnishes the best guide. While the entire behavior of the melancholiac pictures the natural expression of his depressed or fearful mood, in manic-depressive insanity the volitional incapacity, retardation, etc., are very prominent.

The depressive states must above all be differentiated from the initial depression of dementia precox. It lies in the discrimination of negativism from psychomotor retardation. The clear consciousness, absence of disturbance of thought, and especially the social obtuseness seen in the latter are in marked contrast to the stupefaction, insensibility, and sorrowful or uneasy disposition of periodical (manic-depressive) insanity.

The early appearance of numerous hallucinations and senseless delusions must always awaken the suspicion of catatonia. Here the disposition is strikingly indifferent; patients take no part in their environment, do not greet their relatives, are often mute, but devour greedily all food given them. In depressive states we never miss an inward anguish or deep sadness. Here visits of friends can lead to sudden and extremely severe outbursts of grief.

It is very important not to confuse the negativism of the catatonic with the anxious resistance and retardation of the depressed periodic. In the former we see rigid and stubborn resistance to every attempt at change of position, especially on actual interference, while simple and even dangerous threats (needles in the eyes) are usually endured without earnest defence, and finally the resistance passes over into automatism, either spontaneously or under the influence of cautious compulsion.

In manic-depressive on the other hand, the resistance begins with the threatened danger, just the same, whether a change of position does or does not take place; also when their limbs are placed in different positions pa-

tients do not often assume the earlier attitude with invincible tenacity, like the catatonics. The stuporous catatonic moves about very little or not at all, especially on request. But when he does act it is without perceptible delay, and often indeed very rapidly, while in retarded cases every separate movement is effected slowly and hesitatingly, as they frequently demonstrate in simply raising the hands or in counting. Here also many requested movements are wholly omitted, but are suppressed by anxiety or strong retardation, since one often sees the disposition to perform the movement (slight movements of the lips, twitching of fingers, etc.), especially when the retardation is overcome by strong persuasion.

Inversely one can observe in catatonics that an apparent impulse is interrupted at the very beginning, annulled, and perhaps changed to its very opposite. Lack of affect in catatonia is strongly emphasized by Kraepelin.

The differentiation of melancholia from paresis is sometimes very difficult. These cases especially which occur between the ages of forty-five and fifty-five can remain in doubt for a long time, as the psychic disease picture is very similar. Greater clearness and consciousness, lively uniform affect, and subacute development speak more for melancholia, while in paresis we see psychic weakness (forgetfulness, defective time orientation, indifference, loss of judgment, silly and contradictory delusions, impairment of morals, and feeble affect). It must be remembered that paresis is a deterioration process from the start, the development is slow, and some at least of the characteristic physical symptoms are present, as slurring speech, ataxia, incoordination, tremors, pupillary inequalities, etc.

In senile dementia the depression is due to delusions of persecution—(robbery, frauds, etc.); is usually transi-

tory; and can be often transformed into the exact opposite by trivial causes. Here the age at onset and the characteristic senile alterations will usually be conclusive.

The prodromal period of melancholia is difficult to distinguish from neurasthenia, especially when the latter follows an acute disease or appears in a neuropathic individual. The appearance of apathy without sufficient cause, of delusions of reference or persecution, with primary fear and self-accusations, point to melancholia.

The depression found in hysteria needs merely a mention, as the symptoms of this disorder are more familiar to the general practitioner than to the hospital physician.

CONCLUSIONS.

The salient features in connection with depression in various psychoses are:—

DEMENTIA PRECOX.

Depression transient.

Lack of affect is pronounced and very characteristic, especially in Catatonia.

Hallucinations and delusions prominent.

MELANCHOLIA.

Depression marked and permanent.

Prominence of fear.

Affect marked and in accord with delusions.

Hallucinations not essential.

Self-accusations.

Suicidal attempts.

MANIC-DEPRESSIVE INSANITY.

Depression severe but not permanent.

Affect less than in melancholia.

Self-accusations rare.

Retardation a prominent and characteristic symptom.

DEMENTIA PARALYTICA.

Depression less intense.

Little or no affect.

Retardation and fear absent.

Deterioration rapid.

RETARDATION OF THOUGHT.

Disturbances of the train of thought are uniformly frequent in the different forms of insanity. Unfortunately, however, they have hitherto been insufficiently investigated.

The simplest form is the flagging of the course of ideas through diminution of intellectual activity. In the first place there arises a more or less powerful retardation of thought, with which further on changes are associated, especially monotony and distractibility. Light grades are found in fatigue—severe forms in poisoning by narcotics. Further, intellectual paralysis forms the general characteristic feature in the most varied forms of deterioration—as dementia paralytica, dementia precox, senility, etc.

In retardation the elaboration of external impressions is effected laboriously and slowly; the train of thought is powerfully delayed and prolonged; and the store of ideas is exceedingly imperfect. Sometimes this mental constraint can proceed to almost complete cessation of thought.

Patients clearly perceive the resistance which they have to combat. They do not lack mental activity; they are not obtuse and indifferent like weak-minded or deteriorated patients, but are unable, even with the greatest exertion, to overcome the constraint and narrowness of their thought. We encounter this disturbance most distinctly in the depressive and mixed forms of manic-depressive insanity; possibly also certain disturbances of thought in epileptic stupor are to be included here.

THE USE AND ABUSE OF BROMIDES IN THE TREATMENT OF MENTAL DISEASES.

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The occurrence of six cases of bromism among the admissions to the Connecticut Hospital for the Insane during the past three years offers a sufficient excuse for calling the attention of the general practitioners of this State to the common abuse of this drug in the treatment of mental diseases, its profoundly toxic effects when used in excessive doses, and some unusual symptoms of bromism observed in these cases. From time to time since the discovery of the physiological effects of this important drug by [1]Graf and [2]Huette and its later adoption by Brown-Séquard as the remedy par excellence in the treatment of epilepsy, warnings of this sort have been sounded, notably by [3]Voisin,[4]Weir Mitchell,[5]Hodges and [6]Alexander. Hare in the last edition of his Materia Medica and Therapeutics says, "I know of no other drug, with the exception of those that produce habits, such as morphine, cocaine, etc., that is so enormously outraged as the salts of bromine are. It is only necessary to see the colossal mental and physical depravity that sometimes results from the ignorant administration of this drug in minor ailments, and some-

2 Huette. Recherches sur les proprietes physiologiques et therapeutiques de bromure de potassium. Mem. de la Societe de Biologie—1850. Vol. II.

3 A. Voisin. De l'emploi de bromure de potassium dans les maladies nervenuses. Paris.—1875.

4 Mitchell, On the Exceptional Effects of Bromides Tr. Ass'n. Am. Phys., Phila.—1896. XI, 195.

5 Hodges. Maryland Med. Jour.—XXV, p. 384, 1896.

6 Alexander. Alienist and Neurologist.—XVII, p. 279, 1896.

times even in epilepsy to fully appreciate this statement."

The chief purpose in presenting five of these six cases is to record some nnusnal symptoms of bromism and to offer additional safe-guards to the practitioner in detecting its symptoms when administering this drug.

The first case was that of an nnmarried man twenty-one years of age with a slightly defective constitutional basis (Father and sister convergent strabismus, mother diabetic, one sister suffered from excessive headaches for twenty years and one sister excessively obese), but with a good personal history. except for one attack of gonorrhea at twenty years.

At twenty-one he began to suffer from what was diagnosticated as petit-mal, and was immediately placed on the bromides, which were gradually increased to one hundred and eighty grains daily. Two months after beginning this treatment he developed bromism with thickened speech, staggering gait and emaciation, but no somnolence. The bromides were continued in slowly diminishing doses, but these symptoms increased, and two and one-half months after the appearance of the bromism, were accompanied by hallucinations of hearing (people made slurring remarks about him), and three and one-half months later by hallucinations of sight (people were seen dodging behind trees and strange men about the house). He then began to show mental apathy, thought and mental application became difficult, and he was suspicious of his surroundings, but gave no evidence of definite delusions. Meanwhile the bromides were continued in doses of about one hundred and fifty grains daily to the end of the sixth month, or the fourth month from the onset of bromism. At this time somnolence appeared for the first time, and food began to taste salty. The bromides were then withdrawn. After five days somnolence disappeared, but the hallucinations of sight and hearing, and delusions of persecution increased in

intensity and definiteness. In the course of six days insomnia appeared, and there developed great fear as the result of constant hallucinations which impelled him to move restlessly about in search of persecutors or taking refuge from them. There were also hallucinations of smell and taste. At this time he was committed to our care.

His consciousness was somewhat clouded, and he was partially disoriented for time, place, and persons. His memory was only moderately impaired, and that mostly for events occurring during the recent weeks. Mental action was very sluggish, and it required considerable time for him to recall well-known facts. He had very little control over his motions, frequently weeping, and at times crying when angry. His movements were slow and sluggish, and he rarely moved except in reaction to his numerous hallucinations. The physical symptoms of bromism had gradually increased during these four months until his speech became very thick and indistinct and his ataxia so pronounced that he could barely stand alone. There was also great muscular weakness. The deep reflexes were much exaggerated, the pupils widely dilated and reacted very sluggishly to light. There was a considerable fine muscular tremor involving the extremities and the muscles of the face and tongue. The skin was pale and anemic, the breath typically bromic and the secretion of saliva greatly increased. The heart's action was feeble, the pulse rate increased and the arteries compressible.

During the first week the patient became alarmingly weak and once fell into a state of collapse, from which he was revived with great difficulty. From the third week his physical condition improved gradually. In one month the speech had become more distinct, and the pupils normal, but the great muscular weakness and ataxia continued, necessitating his confinement in bed for three months. Mental improvement was also very

gradual. At the end of two and one-half months after withdrawal of the bromides his consciousness had become clear and most delusions had disappeared. Hallucinations were still present mostly at night. He would say that women came into his room and prodded him in the buttocks to make him mad, that men filled his stockings with feces, etc. He overheard men say that he had murdered a colored boy and had better run to escape the police. At the end of the third month the hallucinations and fear had mostly disappeared, but he still remained languid and had no energy for mental application or desire for social intercourse. He retained only a partial memory for the events of his psychosis. His reflexes were still much exaggerated at this time, when he was removed from the hospital. The patient fully recovered in the course of five months from the time the bromides were withdrawn.

The next patient was a woman, thirty-nine years of age, who developed epilepsy at the age of three, and from that time until thirty-two suffered from only nocturnal petit-mal. At thirty-two she had one severe seizure of the grandmal type, which necessitated her confinement in bed for five days. At thirty-nine again she had a series of seventeen convulsions of moderate severity, and following this an attack of influenza. The patient at this time and for some months previously had been taking "enormous doses of potassium bromide." Immediately following the influenza she developed hallucinations of sight and hearing with fear, at the same time showing a profound disturbance of nutrition with great loss of weight, and in the course of five weeks became stuporous. Meanwhile there appeared a characteristic bromide eruption and such marked ataxia and general muscular weakness that she was confined to bed.

She was received at the hospital two weeks later, at which time the condition of stupor was pronounced; she was entirely unable to comprehend her surroundings, her responses to questions were mostly incoherent and irre-

levant, and expressed slowly and with difficulty. Her memory was also much impaired. The hallucinations of sight and hearing (boys and men calling to her, snakes in the bed, etc.), were accompanied by fear and some restlessness. She would attempt to leave her bed and go to her children whom she heard calling to her, and at other times would leave her room because it was afire. Emotionally, she presented great instability with frequent crying. Physically, she was greatly emaciated with extreme ataxia, exaggerated deep reflexes, bromide breath, weak heart, and a flabby rapid pulse (120). The extremities were cold and clammy. Insomnia and gastritis were also present, and the face and neck were covered with the characteristic bromide eruption.

For several days after her admission the patient was on the verge of collapse, but following this improvement was rapid and by the twentieth day her consciousness had become clear and all hallucinations and fear had disappeared. The physical symptoms had also greatly improved. The ataxia did not entirely disappear until about the thirty-fifth day, at which time the reflexes had also returned to their normal condition.

The date of the withdrawal of the bromides is not accurately known, but probably occurred two weeks before her admission to the hospital, at which time the family physician is said to have become alarmed at her condition. In this event the whole duration of the state of bromism was fifty days.

The third patient was a woman thirty years of age, with excellent family history. The psychosis for the treatment of which she received bromides appeared rather suddenly following overwork as a cashier during the heavy holiday trade in a large dry-goods store. It was at first characterized by despondency with delusions of reference (she thought that she was being suspected of stealing money from her employers, etc). Two weeks later hallucinations of hearing and finally of sight appeared.

The history of the psychosis following this and until committed to our care is very incomplete. She is said to have been restless and loquacious and to have expressed expansive delusions. Bromide treatment was begun about one month after the onset and continued for at least six weeks, the patient receiving at times as much as ten grains of sodium bromide every three hours. The date of the onset of bromism is unknown, but it probably occurred about one week previous to her admission to the hospital, which took place in the third month of the disease. At this time she began to develop a stuporous state. When first seen by us, she presented marked ataxia, some general muscular weakness, faulty articulation, exaggerated deep reflexes, and ankle clonus, moderately dilated and irregular pupils, faulty nutrition, acneform eruption and a strong bromide breath. The consciousness was profoundly clouded. The memory greatly impaired,especially for recent events, and the content of speech incoherent and disconnected, but mental action was very sluggish, and there was marked difficulty of thought. She expressed many incoherent and expansive delusions; such as, that she was married to a wealthy man, had forty children, of whom the physician was one. Emotionally, she was continuously exhilarated, happy and often erotic. Her voluntary movements were retarded and performed with difficulty, because of the ataxia and muscular weakness. There was some restlessness seen in her tendency to wander aimlessly about, but she was too completely dazed to take any part in her environment. Of these symptoms the marked clouding of consciousness, incoherence of speech and mental sluggishness gradually disappeared in the course of two months following the withdrawal of the bromides. Likewise the speech became more distinct, the bromide breath disappeared, station improved, and muscular strength returned. The reflexes, however, continued ex-

aggerated and the acneform eruption persisted for several weeks longer. The mental symptoms which were a part of the original disease picture progressed unabated.

The next patient was a man thirty-six years of age, without hereditary taint, except that his father was eccentric. The patient himself had always been regarded as peculiar and eccentric, but a good steady workman. At the age of thirty-four he gradually developed a psychosis which presented the characteristic symptoms of dementia precox. Several months later he was placed upon the bromide treatment, one dram of sodium bromide three times daily, which was continued for eight weeks, at which time he was brought to the institution, presenting marked evidence of bromism. His articulation was difficult and ataxia was extreme. The patient stood alone only with great difficulty. The deep reflexes were greatly exaggerated and there was ankle clonus. He also presented the characteristic acneform eruption and bromide breath. The heart's action was feeble, the pulse small and rapid, and the extremities cold. Nutrition was profoundly impaired. Mentally, there had apparently been no marked change, except a tendency to somnolence and some mental sluggishness. In accord with the clinical picture of dementia precox his consciousness was unclouded; he suffered from many auditory hallucinations, expressed very many fantastic delusions of persecution, and presented a mild degree of deterioration, as evidenced by his faulty memory and judgment. During the first three weeks after the withdrawal of the bromides, the improvement was gradual. The ataxia and muscular weakness as well as the somnolence and langnor entirely disappeared. The nutrition improved and with it the heart's action became more regular and the peripheral circulation more healthy. The speech was clear and the ankle clonus disappeared within two weeks. The reflexes, however, remained exaggerated until the time of his discharge from our care

twelve weeks later. The mental symptoms characteristic of the disease process had remained unchanged throughout his residence at the hospital.

The fifth patient was a well-developed female, thirty-two years of age, with good heredity, but who had always shown a faulty constitutional basis, as indicated by a very nervous and excitable temperament. She suffered from an attack of manic-depressive insanity at eighteen years of age, of seven months' duration, from which she recovered entirely and was successfully employed as a mill-hand until the onset of the mental disturbance under consideration. The appearance of the disease, which was a typical maniacal attack of manic-depressive insanity, was very sudden. At some time during the nine months which elapsed between the onset of the disease and her admission to the hospital, she was submitted to bromide treatment, but just when cannot be ascertained. One week before her commitment to our care she rapidly became bed-ridden and so ataxic that she could barely stand, her speech was thick and slurring and, although still loquacious, she could hardly be understood; the countenance expressionless and she seemed to be in a low muttering delirium. When admitted she presented the unmistakable signs of bromism; a strong bromide breath together with extreme ataxia of the extremities, of the tongue and of the face; thick slurring speech, marked general muscular tremor, greatly exaggerated reflexes, widely dilated pupils and extreme general debility. There was no bromide eruption.

Mentally, at first she lay in a stupor with her consciousness profoundly clouded and unable to comprehend any part of her environment. There was no voluntary speech and she could be aroused to reply to questions only upon prodding, and then her replies were entirely incoherent and irrelevant. All mental processes seemed to be in partial abeyance. Her voluntary movements were slow and languid.

Ten days after the withdrawal of the bromide the stupor disappeared rapidly, leaving the patient in the maniacal state characteristic of her original mental disease; i.e., with marked pressure of activity, distractibility, flight of ideas, only slight clouding of consciousness, and without hallucinations or definite delusions, but this condition also improved rapidly and in the course of six days she was quite clear mentally, there remaining but a slight pressure of activity and a tendency to loquacity. Likewise, her physical condition improved rapidly, the pupils became normal in size and reaction, the speech distinct and free, and the ataxia was so much improved that by the seventeenth day she was helping about the ward and sewing. The reflexes continued somewhat exaggerated at the date of her discharge, fourteen days later.

One year later this patient returned to us, suffering from a third attack of manic-depressive insanity, which was also of the maniacal form, but failed to show any of the unusual and untoward symptoms of her previous attack. Her disease this time ran a typical course with recovery in two months.

The form of excitement in which the bromides can be used to advantage occurs in manic-depressive insanity. There accompany it very few, if any, hallucinations or delusions, and there is usually very little clouding of consciousness. The essential feature is an irrepressible pressure of activity; the patients are extremely active, over-energetic and talkative. The emotional attitude is one of elation and happiness with frequent evidence of irritability.

Other forms of mental excitement, which may be confounded with this condition and in which the bromides are useless are those that occur in dementia precox, general paresis and the exhaustion psychoses. In all of these conditions the motor excitement is usually accompanied by numerous hallucinations and delusions, and the consciousness is more profoundly clouded.

The exhaustion psychoses and particularly delirious states accompanying febrile conditions or infectious diseases, in which the motor excitement is apt to be very great, are distinctly acute conditions, arising from faulty metabolism, poor nutrition and exhaustion. Here bromides are clearly contraindicated because of their tendency to interfere with and embarrass nutrition, and disturb digestion. One rather needs to employ supportive treatment.

One further indication for the use of the salts of bromine, emphasized by Krafft-Ebing, is in those forms of mental disease which seem to bear a close relation to sexual excitement, particularly if this is periodical.

For the relief of mental excitement occurring in manic-depressive insanity, it is usually necessary to combine the bromides with some more powerful hypnotic; as chloral, sulfonal, trional, cannabis indica, hyoscine hydrobromate, etc., for, in order to obtain the desired effect one would have to employ the bromides in such excessive doses as to produce bromism within a very short time. It must be remembered that these remedies are all merely palliative and that the symptoms of motor excitement return as soon as they are withdrawn. It is for this reason that in recent years it has been regarded far better practice to overcome these symptoms by other than medicinal means, such as the prolonged warm bath, bed treatment, and the psychical influence of a tactful and experienced nurse. In some hospitals such measures are so successfully employed as to render unnecessary the use of any hypnotic whatever.

If it seems necessary to employ the bromides, it is essential that they be alternated with other hypnotics, a rule which applies to all sedative or hypnotic drugs in their use in mental diseases.

The inappropriate administration of the bromides is evident in the cases of insanity here reported. In two of these cases they were prescribed for a form

of insanity in which there was no apparent motor excitement, but the psychosis was one which is characterized primarily by a process of deterioration, involving the memory and judgment and accompanied by hallucinations and delusions. The moderate degree of motor restlessness in either case was probably due to the hallucinations and delusions. In the other cases of insanity, in which there was an indication for their use, they were given in excess, and probably without alteration or combination with other drugs.

The usual symptoms of bromism as described by most observers consist of great somnolence, depression of spirits, sluggishness of mental processes, insensibility of the skin and mucous membrane, abolition of sexual functions and deep reflexes, fetid odor of breath, muscular weakness, dilated and irresponsive pupils, ptosis of eyelids, cachexia and yellowish skin. In more profound intoxication there is paralysis of motion, of sensation and of the mental processes, somnolence becomes deep stupor; the circulation greatly impaired, the respiration slow but easy, and sometimes death ensues.

The unusual symptoms presented in these five cases are worthy of note. Among the physical symptoms the most marked variation from those enumerated above is the exaggeration of the deep reflexes, which occurred in all cases and in two was accompanied by ankle clonus. As far as ascertained exaggeration of the reflexes either with or without ankle clonus has not been previously recorded except by [7]Seguin. On the other hand, diminution and absence of reflexes are often mentioned.

The absence of the bromide eruption in one case is of importance, as it is often erroneously taken as a guide for dosage.

In the mental symptoms all of the cases presented unusual features. The somnolence, regarded as so characteristic of bromism, increasing to hebetude, lethargy and

7 Seguin. New York Med. Journ., April 5, 1890.

stupor, and finally coma, occurred in only one case. On the other hand, in two cases, there was a marked hallucinosis with affect of fear and concomitant agitation, and in one case even hallucinations of taste and smell. The presence of hallucinations in bromism has been noted by [1]Hammond, [2]Clarke, [3]Hameau, [4]Eigner, [5]A. Voisin, [6]Seguin, [7]Alexander, [8]Holander and [9]Baker.

In the remaining three cases those of insanity, the effect of bromism seems to have simply overshadowed the symptoms characteristic of the original mental disease. During the exhibition of bromism all of the mental faculties of the patients became sluggish; apprehension was impaired, the memory defective, the content of speech and association of ideas confused, the emotional attitude unstable and the voluntary movements anergic. In two cases this condition advanced to one of stupor with complete clouding of consciousness and dazedness, the memory entirely obliterated and speech so incoherent as to be unintelligible, the voluntary movements absolutely languid and confined to tottering about without evident purpose or fumbling with the bedding.

Another notable feature is the rapid appearance of bromism in one case following influenza, which misled the diagnostician until the more characteristic stuporous state made its appearance two weeks later.

A prominent characteristic of bromism mentioned by most writers is the rapid disappearance of the symptoms, both physical and mental, upon the withdrawal of the drug. Of the eight cases collected from literature, in which the duration of the symptoms was noted, the men-

1 Hammond, one case, Jour. of Psychological Med. Vol. 3, 49.
2 Clarke, one case, Wood's Therapeutics, p. 309.
3 Hameau, one case, idem.
4 Eigner, one case, Weiner Med. Pressee, 1886.
5 A. Voison, one case, loc. cit.
6 Seguin, one case, loc. cit.
7 Alexander, three cases, loc. cit.
8 Holander, one case, London Lancet, 1890, II, 816.
9 Baker, one case, Med. Sentinel, 1897, V, 53.

tal symptoms disappeared in one case in two days, in two cases by the sixth day, in one case in a week, while in the remaining four cases they were said to have disappeared quickly. In the cases here reported the duration in three was over one month (one over three months), in two cases three weeks, and in one case ten days. In all the physical symptoms were the last to disappear. There was no apparent difference in this respect in the two epileptic and three insane patients, as the duration in one epileptic was three months and in the other one month.

The symptoms enumerated above by no means exhaust the evil effects of the excessive use of this drug. One does not need an extended experience with epileptics to appreciate the truth of the statements made by Echeverria, [9]Bannister, Alexander, and [10]Keniston, that the use of the bromides may at times produce marked irritability, with outbursts of temper and suicidal attempts. The last observer states that in his experience it has been found that the fewer the patients who receive bromides and the smaller the dose, the less irritability, noise, violence, and destructiveness there is on the epileptic wards. Chapin makes a still stronger but more general assertion, that the ignorant and excessive use of this drug is without doubt responsible for a number of the hopeless epileptics that crowd our asylums.

[1]Alexander in his series of seven cases, six of whom were epileptics, ascribes, among other symptoms, a pronounced aphrodisiac effect to the excessive use of bromides. [2]Kiernan and [3]Monroe report similar cases.

It has also been observed that patients suffering from gross cerebral lesions show a great susceptibility to the bromides, which induce a variety of mental symptoms.

9 Bannister, Journal of Nervous Mental Diseases, 1881.

10 Keniston, Clinical Psychiatry—Defendorf—p. 350.

1 Alexander, loc. cit.

2 Kiernan, Medical Standard, 1887.

3 Monroe, Medical Standard, 1891.

[4]Mitchell reports one case in which the bromides caused melancholic depression, especially at the menstrual period.

A well-known author, writing on the treatment of nervous diseases, asserts that outside of the hypnotics, which produce habits, there is no drug which is so outrageously misused in these disorders as the bromides. The same statement, I believe, may be applied to its abuse in the treatment of mental disease. The prolonged administration of bromides in insanity is widespread and should be vigorously denounced.

In reality the value of bromides in this field is very limited. The physiological effect of the salts of bromine, which is to produce a lessened irritability of the motor centers, especially the motor cerebral centers and the reflex centers in the cord, acting directly on the ganglion cells, would seem to indicate their use in conditions characterized by motor excitement. On the other hand, the investigations of [5]Löwald show that the bromides have the most marked influence in allaying conditions of "nervous tension," but also affect memory profoundly while they have no apparent influence upon the association of ideas, release of volitional movements or muscular work. The indications then for their use would seem to be mental disturbances characterized by states of nervous tension and of excitability of the motor cerebral centers. In practice we find this to be true. The drug finds its best use in acquired neurasthenia in relieving insomnia and that peculiar state of "inner nervous tension." In conditions of mental excitement, in which motor excitation is the primary factor, the bromides receive almost universal recommendation (Krafft-Ebing, Ziehen, McPherson, Berkley, etc.). But one must make a careful distinction in the type of mental excitement, as there are several different forms, and but very few of them present motor excitement as the primary feature.

4 Mitchell, loc. cit.

5 Löwald, Kraepelins physiologische Arbeiter, Dd. I.

ALCOHOLIC PSYCHOSES: CLINICAL ASPECTS AND DIFFERENTIAL DIAGNOSES.

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Of the 996 cases of insanity (523 males, 471 females) admitted to the Connecticut Hospital for Insane for the years 1899 and 1900, ninety-five were of alcoholic origin. Eighty, or sixteen per cent. of the male admissions, were due directly to alcohol. From this statement it would appear that alcohol exerts a most deleterious effect on the mind, producing psychic debasement.

In seeking the truth regarding the evil effects (immediate and remote) of alcohol, the tendency to-day, I believe, is to underrate its poisonous and deteriorating influence on the race. In the last fifty or seventy-five years temperance reformers and others have unintentionally greatly exaggerated the evils arising from its abuse, and prohibitory laws, based on these mistaken ideas, have proved too abrupt and radical, and have consequently been ineffectual and productive of little real benefit.

There is no nation, and hardly a tribe of the human race, which has not succeeded in inventing some method of producing intoxication, and, of all intoxicants which are, or have been in use by mankind, alcohol easily takes the lead. Civilization has greatly multiplied the number and uses of stimulants, and commerce has made the product of each clime the property of all. Our remote ancestors indulged only in home-made varieties, but we moderns are content with only all of the best the world produces. The vine is supposed to have had its origin in India. The Romans introduced it into England. It was not, however, until about the sixteenth century that wine

bibbling in Great Britain became the common practice of all possessing sufficient means to indulge the habit. In speaking of the prevalence of the drink habit in our time, Doctor Kerr (alienist and author of a work on inebriety) states that there is scarcely a family in the United States or Great Britain which has not at least one relative who has been the subject of inebriety.

The symptoms of alcoholic intoxication described by medical men of olden times, differ materially from those ascribed to the alcoholism of to-day. This is accounted for, in part, at least, by the kind, quantity and particularly by the adulteration of the liquors imbibed. Physicians of to-day not only have to note the poisonous effect of the narcotic on the individual, but must also study the individual himself. In other words, individual inheritance plays a prominent role in the alcoholism of the present day. Unfortunately, the greatest predisposing factor to the disease to-day lies in the individual himself. Until comparatively recently the writings of medical men contain no mention of the narcotic or neurotic diathesis of which we hear so much at present, and which undoubtedly is the underlying cause of many nervous and mental diseases. Evidences of degeneration, of alcoholic origin, in individuals and families are only too apparent. Anstie puts it very forcibly thus: "Nervous enfeeblement produced in an ancestor by great excesses in drink is reproduced in his various descendants with the effect of producing in one insanity, in a second, epilepsy, in a third, alcoholic excesses, neuralgia, hysteria, and the whole train of nervous disorders. Idiocy, imbecility and criminality might also be added to the list.

All unbiased thinkers admit the value of alcohol in certain diseased conditions of the body, when judiciously employed by the physician. In moderate amounts it increases the flow of ideas, renders the senses more acute, speech more fluent, and movements more active. The physiological action, however, may be quickly trans-

cended and the toxic influence obtained, by the frequent ingestion of the drug, even in moderate amounts, and despite its rapid elimination. The difference between its physiological and toxic effect is merely one of degree and varies with the individual affected.

Nearly, if not all the symptoms of the different forms of insanity, are obtained in one or other of the phases of acute alcoholic intoxication. In the rapid release of ideas and motor impulses generally, the excitement, restlessness, talkativeness and distractibility of the beginning stage of exhilaration, is noted a marked resemblance to periodical insanity, manical form; on the other hand, the symptoms of depression with slowness of speech and retardation of thought and movement, of a later stage, are characteristic of depressive mania; and, lastly, the expansiveness, extravagant speech, rapidly changing emotional states, unequally dilated pupils, ataxic gait, sluggishness, stupor and paralysis of the last stage of alcoholic intoxication, furnish a picture of general paralysis.

By repeated poisonings of the system with alcohol, chronic alcoholism results with the effect that the moral sense is perverted and enfeebled; the will is weakened and becomes uncertain and vacillating; and, at last, the intellect is progressively invaded until psychic debasement is complete. The process of deterioration, so gradual as to be barely detected at first, finally becomes general, ending in moral and mental ruin.

In chronic alcoholism there may develop a condition resembling general paralysis of the insane which has been denominated alcoholic pseudo-paresis. It is often difficult to differentiate the two diseases. In both there is gradual and progressive impairment of memory and judgment with stupidity, hallucinations, weak expansiveness, a sense of well-being, and delusions of persecution and infidelity. Physically, each is accompanied by muscular tremor, absent or exaggerated tendon reflexes,

ataxia, disturbance of speech, and not rarely by epileptiform attacks. In alcoholic paresis, while the course may be protracted, yet in time the more marked symptoms disappear or remain stationary; in general paresis, the course progresses to a fatal termination. The parctic is more indifferent and less logical than the alcoholic, reacts less to hallucinations, delusions, or emotions of fear, etc. In both diseases, the pathological changes in the brain are similar. The granulations in the ventricles of the paretic are absent in the alcoholic according to Krafft-Ebing.

In a small group of cases of chronic alcoholism, with no clouding of consciousness, persistent but feebly systematized delusions of jealousy gradually develop. Although scarcely worthy of being designated a psychosis, it is known as alcoholic paranoia. The most marked and diagnostic symptom of the disease is a delusion of infidelity entertained by wife for husband or husband for wife, growing out of the estrangement which naturally arises from excessive indulgence in alcoholics. Failing sexual powers, due to alcoholism, may also be a factor. The patient's jealousy is aroused by the most trivial circumstances, such as a word or glance. Neighbors, callers, and others are often drawn into the family strife. Delusions of poisoning also are sometimes associated with delusions of infidelity. Frequently the patients react emotionally to their delusions, concerning which their reasoning is weak and absurd, and with which their actions are often strangely at variance. The disease is differentiated from true paranoia by the lack of system in the delusions, and by the symptoms of chronic alcoholism. Prognosis is poor in these cases. They may be made comfortable by the change of environment and abstinence from alcoholics, but a return to their homes and alcohol soon relights the same train of symptoms.

Finally, upon a basis of chronic alcoholism, two very

important psychoses may arise, viz.: alcoholic delirium and alcoholic delusional insanity.

Alcoholic delirium is sudden in its onset and attended by more or less clouding of consciousness. Its peculiar symptoms are due to nutritional changes in the cell elements of the gray matter of the brain, and may occur either after excessive indulgence in alcoholics or after their sudden withdrawal. One of the most striking peculiarities of the delirium relates to the hallucinations, which accompany it. These are, almost without exception, visual in character, although illusions or hallucinations of any or all of the other senses may also be present. The erroneous perceptions are numerous, embrace all manner of living, creeping things, often grotesque in form and terrifying in character, and which are always in constant motion. In contradistinction to the above, in ordinary delirium (of pneumonia, typhoid fever, etc.), the hallucinations are single and fixed. A second peculiarity is noticed in the restlessness of the delirium. The patient is uneasy and always on the alert, and finds rest nowhere. Emotionally, he is apprehensive, fearful that some calamity threatens or that some evil is about to befall him. Reacting to hallucinations he peers beneath the bed, and into corners and closets in search of some realizations of the fears that torment him. His fear is increased to terror by the ever-varying but constant hallucinations, and in his endeavors to escape, he may do bodily injury to himself or others. Physically, the chief diagnostic symptom is tremor; gastritis may also be present. With supportive measures generally, the main indication in treatment is to promote sleep; with this accomplished, the delirium subsides in from three to twelve days. Recovery is the rule; death occasionally results from exhaustion or complications, and chronic insanity claims now and then a case.

Finally, one of the most interesting of the alcoholic psychoses, is that described and denominated by Prof.

Kraepelin, of Heidelberg, as alcoholic delusional insanity, in which the clinical picture is as clear as that in delirium tremens. With a sudden or sub-acute onset and no obscuration of consciousness, the most marked and characteristic symptoms of the psychosis are delusions of persecution based on hallucinations of hearing. Why, under the same casual conditions, alcoholic delusional insanity should develop in one individual and delirium tremens in another, or why, in the same individual alcoholic delusional insanity should develop at one time, and delirium tremens at another, has not been explained. Unlike delirium tremens, in alcoholic delusional insanity, consciousness is not clouded. Loss of sleep, headache, dizziness and irritability may for a brief period precede the actual attack. Sleep is disturbed by strange sounds which suddenly arouse the patient from his slumbers. Later, these sounds take shape, are clearer, are heard in the daytime, as well as at night, and are finally resolved into voices. At first, a single word, an oath, or it may be the patient's name is heard, and finally sentences which have direct reference to the patient. The voices seem to be those of nearby shopmates, acquaintances, etc., and may seem to come from the wall, from an adjacent room, or it may be over the telephone. The patient hears himself accused of crimes, reminded of past misdeeds, is called thief, liar, murderer, traitor; he is to be hung, shot, burned; he hears that his children have been drowned, that his wife is unfaithful. All that he hears is derogatory to himself, defamatory, to all of which he is a powerless and unwilling listener. Delusions of reference are especially prominent in all cases of this psychosis. Everything going on in the patient's vicinity has reference to himself; all his thoughts and actions are commented upon. He is watched, jeered at, shot at, and pursued for imaginary crimes. Reacting to his delusions he becomes alert, suspicious, distrustful, fearful and often antagonistic. In his desperation he

may commit suicide, or in response to hallucinations, having been called a vile name, he may suddenly strike the supposed aggressor.

The patient's actions, especially in the beginning of the psychosis may be well directed; he often performs his accustomed employment for days before his psychosis attracts attention.

Physically: impaired appetite, loss of weight, insomnia, tremor of hands and tongue, occasionally exaggerated reflexes.

The course of the psychosis, like its onset, is acute or sub-acute. Usually in two or three weeks the symptoms rapidly disappear, sometimes very suddenly—occasionally they persist from one to eight months, gradually passing away.

The alcoholic history, acute onset, delusions of persecution based on hallucinations of hearing, with clear consciousness, form a symptom group by which it may be readily diagnosed.

The prognosis is usually favorable. It is rendered less so by marked physical changes of chronic alcoholism (arterio-sclerosis) and by a defective constitutional basis, according to statistics at the Connecticut Hospital for Insane.

Frequency: 7% of all alcoholic psychoses.

Treatment consists in careful watching to prevent suicide and in the promotion of sleep.

The epidemic of insanity among our soldiers in the Philippines in the late war, and which was chronicled in the newspapers at the time, was probably one or other of the two last named psychoses, caused by the excessive indulgence of our men, in a warm climate, in some alcoholic drink mixed with the juice of a native plant containing a narcotic principle.

I have shown that sixteen per cent. of the male admissions to the Connecticut Hospital for Insane for the years 1899 and 1900 were alcoholic psychoses. These

were severe and protracted cases, demanding special care. While it does not necessarily follow, yet the above figures would naturally lead to the conclusion that the lighter forms of alcoholism must be common in the State. The milder cases of inebriety, in which there are no organic changes due to alcohol, and, in which there is simply an uncontrollable thirst for drink, are cared for at the home or in private sanitaria. It would be manifestly unfair to make a comparison between cases ordinarily admitted to a "cure," sanitarium or similar institutions and those met with in an insane asylum. Many cases of acquired alcoholism, taken in their inception, are curable, under good hygienic conditions; change of environment, suggestion, and abstinence from alcoholics. According to good authority the use of double chloride of gold and sodium, reinforced by nitrate of strychnia has been productive of good results. A certain percentage of cases so treated make quicker recoveries, with less danger of the development of delirium tremens, than those treated with strychnia alone.

Of eighty-seven cases of alcoholism under treatment in the Connecticut Hospital for Insane, taken in the order of their admission, twenty-five were diagnosed as delirium tremens, thirty-one as alcoholic delusional insanity, thirty-two as chronic alcoholism, and the remainder as pseudo-paresis and alcoholic paranoia. As a large percentage of these cases are recoverable, the question of the advisability of committing the alcoholic to a hospital for the insane arises. Should not some other provision be made for his care and cure, thus avoiding the inevitable stigma which must attach to one adjudged to be of unsound mind and legally committed to an asylum for the insane? One who has been so committed, after his cure and release, often labors under a disadvantage in obtaining employment and otherwise, to say nothing of the unenviable heritage to his descendants.

The indirect and remote effects of alcohol are most damaging and difficult to calculate. Probably the worst effects of intemperance in the use of alcoholic liquors, are least known and least noticed. It is in the silent destruction of the nervous system, the slow poisoning of the great centers of thought, that it exerts its most injurious and far-reaching effects, and in the transmission by inheritance of the evil from parent to child, from generation to generation.

DANGERS FROM THE INDISCRIMINATE USE OF MORPHIA.

By T. D. Crothers, M.D.,

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Morphinism and other narcomanias are rapidly increasing in this country. Some of the more apparent causes are nerve and brain exhaustions, so common in all circles of life. Next are the toxic conditions, following failures of nutrition with auto-intoxications from lowered vitality and general debility. From these and other sources, the brain centers lose their vigor and power of endurance, and become highly sensitive to pain. The absence of proper rest to the brain centers is followed by irritation and instability which are transmitted to the next generation, and is apparent in the neurotic and hyper-sensitive states. The increasing number of neurotic and psychopaths in every community is an unmistakable sign of brain and nerve failure. In such persons, morphinism, alcoholism and narcomania generally are symptoms of low vitality, starvation and poison states. It is these conditions that prepare the way and make ready the soil for the growth of nervous diseases, of which morphinism and other narcomanias are common instances. There are reasons for believing that physicians are responsible for many of these conditions which a larger and more accurate knowledge would have prevented. One class of physicians who are more or less responsible are the thoughtless, unreasoning doctors who believe that the highest achievement of art is to relieve pain and suffering, irrespective of all consequences. These physicians have never been taught that morphia therapeutically was dangerous, except in the size of the doses and in certain conditions. The professors of

therapeutics describe at great length the value of morphine in medicine, but say little of the possible dangers from its use. In nearly all medical colleges, little or no instruction and seldom any warning is given the recent graduate concerning the danger of addiction to morphia. The moral theory of vice and wilful giving way to the impulse for relief from morphia is prominent in both medical and lay circles, and the victim who has become an habitué is regarded as one who might have done otherwise by the exercise of his will. A prominent physician recently wrote that the mania for morphine by the needle was more a moral lapse than a physical one. Another writer of eminence in this country talks at great length of the moral treatment of morphinism, conveying the same idea. Physicians believing these theories would naturally use morphia by the needle with great indifference. It is urged by some writers that in all conditions of pain, it is justifiable to use morphine by the needle. Some physicians when called to an obscure case, give morphia at once, before making a diagnosis, believing that after a certain narcotism of the pain centers the symptoms of the disease can be more easily determined or they reason, that the effect from cessation of pain by the needle will create confidence in the mind of the patient that will be followed by more successful after treatment. Other physicians use morphine in the most routine way, giving it in nearly all cases either alone or combined with other drugs, varying with the amount of pain present. In neurotic and rheumatic cases where the use of morphia brings rapid relief it not infrequently happens that the physician instructs the patient in the use of the needle, and trusts his judgment when and how to use it. Instances are not uncommon in which the physician has given morphia daily for weeks. When it dawns on the mind of the patient that he is contracting an addiction, the physician is discharged but the drug is continued in some form or another.

Where the physician has concealed the drug from the patient, a change of physicians is almost sure to reveal the fact and show the inability of the patient to get along without a narcotic. Many very excellent physicians have thoughtlessly given morphia until its poison effects were marked and the patient was unable to bear its withdrawal. In that case, the patient usually drifts away from the doctor, falls into the hands of quacks, and soon becomes an incurable. A second class of medical men, who are very active in promoting morphinism and other narcomanias, are spirit and drug takers themselves. They are physicians who believe in the food, tonic and stimulant qualities of alcohol and use it in so-called moderation, socially and at meals or upon any occasion of strain or overwork as a stimulant. Morphia is used in the same way. If suffering from insomia or overwork, morphine by the needle is used for relief. These physicians believe implicitly in the stimulant value of morphia and do not hesitate to use it on all occasions. The morphia-taking physician will combine this drug in nearly all his prescriptions whenever pain suggests its use. To him there is no possibility of an addiction, and should it follow, it is ascribed to other than the real cause. In one instance, a physician of this kind was known to have made or assisted in promoting morphinism in, at least, six different persons. A third class who are active in promoting narcomanias are druggists and manufacturers of proprietory medicines. The former soon discover the magic effect of prescribing doses of morphia for pain and the latter teach the person how to use the needle, the druggist profiting by the sale of the drug. Many druggists change inebriates to morphomaniacs by couter-prescribing some of the forms of opium or morphia. Physicians may start these cases, then the druggist helps on the addiction, and continues to sell the drug as long as the habitué can pay for it. The patent medicine proprietors use large quantities of opium, mor-

phine and cocaine in the pain-killers and nerve remedies. In one of these widely advertised drugs, an eighth of a grain of morphia was found in every teaspoonful. Many of the brain and nerve remedies contain cocain in addition to some form of opium. The popularity of such compounds often depends largely on the narcotics they contain. After their use a few months, the druggist substitutes for them a similar compound containing morphine. The patient is then a narcomanic. Not infrequently the history of the case begins with proprietary medicine first. The effect of morphia is then realized, although the drug is unknown. The physician is called in and he discovers morphinism in the abstinent symptoms, when the proprietary drug is stopped. After an ineffectual struggle, he continues the morphia concealed in some other drug and from this down the course is rapid. The patient drifts from one physician to another, each one discovering the addiction and unable to check it allows the case to drift into other hands. Sometimes the case begins with the druggist who prepares a mixture of morphine concealed in some flavoring substance which is used for a time, then the patient drifts away to a physician and finally becomes a morphine taker. There are in every community neurotics and psychopaths who are continuously seeking relief from states of exhaustion and depression. Indigestion, excitement, overwork and under work are followed by general emotional disturbances for which drugs are taken. Such persons are hunters for panaceas and specifics. When morphine is given, the narcotism is so perfect as to be a revelation of a new world of comfort and peace, and this is repeated with eagerness and reckless disregard of consequences. Should the drug produce nausea and after a short period of quietness and rest be followed by still greater depression, it is not usually used again. It is one of the unmistakable signs of danger when the morphine brings complete abolition of pain with quiet, restful slumber

and no after depression. Such cases are sure to become morphomaniacs with very little temptation. In one instance, a physician found two members of a neurotic family peculiarly susceptible to the narcotic action of morphia, given by the needle. Fearing that this would lead to a serious addiction later, he gave large doses of apomorphia which produced intense nausea and disgust, breaking up the mental fascination for morphia. Neuropathics, seeking relief from both physical and psychical pain should never be given morphia by the needle except for some special purpose, and then only when concealed. In these cases there is often a needle mania or an intense desire to get instantaneous effects from the drug, and feel the prick of the skin and see the raised surface into which the fluid is forced. This needle mania is serious and persistent, requiring great skill on the part of the physician to break up. Hyper-sensitive men and women insist on having drugs given this way, and when nothing but hot water is used, are satisfied. The danger of addiction to morphia, by using it indiscriminately and on all occasions, while always a serious one, is by no means the most important. The physiologic action of morphia on the nerve centers is first a slight stimulant or irritant and then a narcotic. This narcosis falls most heavily on the sensory brain centers, and while checking pain symptoms and depressing functional activities, reacts on nutrient centers and the metabolic processes. Narcotism of these higher centers disturbs elimination and when continued increases the growth of toxins, which still farther depress and derange the equilibrium of the nerve centers. The physiological effect of morphia, first causing irritation, increasing the heart's action, then depressing nerve activity and consciousness to a degree of coma and sleep after which reaction in nausea and depression follow, are certainly very serious interferences with the normal physiological processes of the body. Recently several eminent surgeons have

sharply condemned the custom of giving morphia after operations, asserting that the narcotism following still farther depresses the nerve centers, deepening the shock from the operation and depressing the vitality. Some English surgeons have recently protested very emphatically against the common use of morphia, giving as a reason the diminished secretions and changed metabolism which always follows. Dr Price, of Philadelphia, believes that opium in any form increases the mortality from abdominal operations and sustains his argument with strong clinical proof. Other authorities condemn the use of morphia by the needle, reasoning that the sudden introduction into the blood of a toxic agent lowering the nervous activity and concentrating its power on the sensory centers is a far more dangerous and serious interference with the vital processes than if used by the stomach. There seem to be good reasons for believing that chemical interference from suddenly changing the hyperesthetic sensory centers is followed by other and more serious states. The mere cessation of pain may be an interfering with and a prolonging of the cause, of which pain is a symptom. Morphia used to quiet pain is simply trating symptoms while the causes remain. Dr. Barrett has shown conclusively that water may be used in the place of morphia as a narcotic in nearly every instance where pain is to be overcome. Dr. Cowles concludes that the continued use of morphia favors the growth of intestinal toxins, absorption of which still farther poisons and deranges the vital processes. Opium, as a fluid or solid, has far more pronounced narcotic action and when given by the stomach is followed by more prolonged after effects. The alkaloids, morphia, heroin and other new combinations are more intense and brief in their action and all of them seem to fall more heavily on the higher brain. Another source of danger is apparent in many of the common cases which come under daily observa-

tion, as for example: A person taken down with all the symptoms of La Grippe is given morphia in small doses for days and sometimes weeks. He recovers, but complains of symptoms which have all the appearance of derangements from morphia poisoning: such as nutrient disturbances of the stomach and bowels with periods of depression, irritability and emotional sensitiveness. The appetite is variable and the brain is easily exhausted by the slightest over-exertion. While all these symptoms are usually attributed to the influenza, they resemble closely the withdrawal symptoms of morphinism and sustain the belief that they are in a large measure due to the poison action of morphia. More familiar examples are the neurotic persons who are suddenly affected with chills and coryza called colds, accompanied with mental fears of pneumonia, pleurisy and other diseases and morbid dreads concerning the symptoms and their meaning. Morphia used in these cases with syrups is a common remedy and is sometimes used for weeks. When discontinued, the same symptoms of nutrient disturbances, with mental and motor irritability seen in the withdrawal of morphia follow. In an example of this kind, the patient continued to be a nervous invalid for a year or more then found a specific in a quack medicine containing morphia. Later this patient became a morphomaniac. The order of sequencies was clear from the time of the first morphia prescription for the cold, up to the development of morphinism. The patient was not aware of the nature of the drug, but only conscious of the good effects. Other equally common examples are those of rheumatism, nutrient and neurotic disturbances or states of toxemias in which morphia is given, alone or with other drugs. While the pain symptoms are checked, new sources of poison and new derangements follow evidently due to the action of morphia. Malarious affections for which morphia may

be given are frequently followed by equally significant and almost pathognomonic symptoms. After a period of continuous use of this drug, either concealed or known to the patient, its withdrawal is followed by neuralgias, depressions and obscure psychopathic symptoms, for which the physician prescribes wines and tonics containing alcohols, and inebriety and alcoholism are almost sure to follow. Cough mixtures containing morphia have been condemned by many authorities. There is not only the danger of the addiction, but marked nerve and nutrient disturbances which lead to very serious diseases later. Continual narcotism of the pain centers leaves a degree of susceptibility and feebleness of control that may continue a long time. States of neurasthenia, marked by obscure pains, both physical and psychical, with morbid fears of disease and irritability, credulity and skepticism, when treated with morphia are supposed to be cured. The temporary subsidence of the irritation and pain is followed by an increased debility and exhaustion. Cases so treated often become alcoholics and morphinists. And later the effects of this continued narcotism and covering up of the pain symptoms may culminate in pneumo-paresis with death in a few hours or tuberculosis ending fatally in a few days. The sudden pneumonias and tuberculosis so often noticed are frequently traceable to narcotism from either alcohol or opium. The routine treatment of our fathers, using calomel and venesection for all forms of disease, was infinitely superior and scientific when compared with the present use of morphia by the needle for all aches and pains. The first fact I wish to make prominent is that, while morphia is a most valuable remedy and cannot be dispensed with in medicine to-day, it is an exceedingly dangerous one and should be used with great caution and never continued long except for special reason and under special conditions. In cases of carcinoma or fulminating diseases that are curable to a large extent, it is

invaluable. Even here the derangement that follows its use is apparent, but this is insignificant compared with the comfort it brings. There are other diseases often successfully controlled and managed largely by the use of morphia, but the wise physician anticipates and provides for the dangers and lessens them. The second fact I wish to emphasize is that morphia, given to neurotics and psychopaths is almost certain to increase the brain and nerve degeneration, and even if it does not produce an addiction, will increase the instability of control and the hyper-sensitiveness of the nerve centers. The possibility of narcomania including spirit addictions is greatly increased, no matter for what purpose morphia is given. The third fact is that morphia, while relieving the pain incident to the common dsorders of the functional activities of the body, actually increases the disturbances of metabolism and favors the growth of toxins. The pain symptoms which it checks, obscure the disease and make the treatment more difficult. By paralyzing the sensory centers, diverting nerve energies and breaking up their nutrition this checking is therefore always dangerous. Our knowledge of the good effects of the drug on the brain centers is obscure, but the injuries which follow from its use can be clearly mapped out in any clinical study. Another fact, although well known to all physicians cannot be too strongly emphasized, namely, that proprietary drugs given for the purpose of controlling pain always contain dangerous and uncertain narcotics and their use should be condemned. Reckless prescriptions over the counters of drug stores for sudden symptoms of pain are equally hazardous. Physicians should be more cautions in the use of narcotic drugs, particularly opium and its alkaloids and should remember that many obscure diseases can be traced to reckless medication, and are the direct result of poisons from morphia.

THE BIOLOGICAL TEST TO DETERMINE THE SPECIES OF BLOOD.

(WITH DEMONSTRATION).

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During the past year and a half, there has been developed a method of differentiating the blood of any given species of animals from that of all other animals except those very closely related. My excuse for offering a brief paper on the subject, in spite of several that have appeared during the past few months, and without myself having any new results to report, must be the importance that attaches to any means by which in doubtful cases of medico-legal importance, a given specimen of blood may be definitely determined to be or not to be human blood; the interest felt in the subject by physicians in general; and the close connection, as regards the method of production at least, between the substance giving this reaction and that of numerous other antibodies, the most important of which as yet are, of course, the anti-toxins of certain of the infectious diseases.

Briefly stated, this biological or serum test is as follows: Into a rabbit (that being the animal found most generally useful) defibrinated blood or blood serum from some other species of animal is injected subcutaneously, or better intra-peritoneally, in doses of from 5 to 10 c. c., at intervals of from two days to one week, depending upon the effect produced upon the animal. After five or six injections it is found that upon drawing blood from the rabbit, allowing it to clot and obtaining the serum from it, this latter when added to blood or serum diluted with physiological salt solution gives a precipitate only when this diluted blood or serum comes from the same

species of animals as originally furnished the blood which was injected into the rabbit. The reaction thus appears to be specific with such exceptions as are referred to below.

The recognition that some substance giving rise to a precipitate, and called a precipitin, is formed in the blood of rabbits injected as above is a part of the general result of the study of the various anti-bodies which may be formed in animals, and certain of the preliminary steps leading up to this may not be without interest here. Among the more important communications that have appeared on the subject of specific precipitins is that of Nuttall (Journal of Hygiene, July, 1901), and of Biondi (Vierteljahrsschrift für gerichtliche Medicin, Band XXIII, Supplement-heft, April, 1902). From these I shall quote freely.

In 1897, Kraus showed that the anti-sera of cholera, plague and typhoid fever, when added to the clear filtrates from cultures of the corresponding germs, produced a precipitate.

In the following year, July, 1898, two Italian observers, Belfonti and Carbone, reported that substances toxic for an animal were produced by injection of its blood into an animal of another species. These substances were in the serum of the second animal and to such serum the term anti-serum is applied. Following them Bordet (October, 1898), confirmed this and showed that the toxic action of the serum of the second animal was one of agglutinating and bringing into solution the corpuscles of the first animal, and that this action was specific, that is only producing the agglutination when the blood to which it was added was from an animal of the same species as that from which the blood was originally obtained for injection. Deutsch (1900) attempted to apply this specific property of agglutinating of the red corpuscles for medico-legal purposes, but this is evidently applicable only where the blood-corpuscles have

been well preserved, and hence must frequenly prove useless.

In March, 1899, Bordet published the results of his experiments on the production of specific anti-bodies which act on milk. By injecting the milk from a certain animal into rabbits, he found that the serum obtained from these rabbits gave a precipitate of the casein of that kind of milk which had been injected, but not of that from other species of animals. This was confirmed by Wassermann and Schütze, and later (February, 1901), in America, Fisch found that an emulsion of udder cells injected into animals produced the same results as when milk was injected. Specific precipitins were also obtained after the injection of pepton solution and of the white of fowls' eggs.

Tchistovitch (1899) appears to have been the first to show the formation of similar specific precipitins in the blood of animals treated with various sera. He made use of the blood of eels, goats, horses and guinea-pigs. These observations were extended by Uhlenhuth, Wassermann, Schütze and Stern, whose published results on the occurrence of peculiar specific precipitins in the serum of animals injected with blood or serum from an animal of another species all appeared about the same time in February, 1901. And it is following these reports that most of the practical work has been done by numerous investigators.

As our interest centers chiefly in the ability to obtain a specific reaction for human blood, I shall give the main facts concerning that, but it is to be remembered that in general these apply also for obtaining the reaction for other animals. Human blood for the purpose of injecting has usually been obtained by expressing this from a placenta, although that obtained shortly after death may also be used. But it has been found unnecessary to use blood or blood serum for the purpose, as a variety of pathological transudates and exudates, when injected

into animals, produce the same results, although the amount of precipitin may not be so great, or at least a larger amount of these substances has to be injected to produce similar results than is the case with blood serum. Thus ascitic, pleuritic and hydrocele fluids, and even albuminous urine, have been employed for injecting and a reaction obtained to a greater or less extent after each of these. Whitney, of Boston, (Boston Med. & Surg. Jour., April 24, 1902), emphasizes the value of hydrocele fluid for this purpose because of the ease and frequency with which it may be obtained. These fluids or blood serum may be kept for some time in an ice-chest or by adding chloroform to them, the latter being evaporated before injecting the fluid into the animal. The skin of the rabbit is shaved and cleansed before the intraperitoneal injection, which is done with a large hypodermic syringe with rather a blunt needle, and also before bleeding the animal from one of the ear veins or from the carotid. After five or six injections the anti-serum is usually active. Nuttall kept his rabbits under treatment for thirty days or more in all cases, although it has been shown that the anti-bodies may be produced in a shorter period than this. After bleeding the animal into a tube or Petri dish, allowing it to clot and obtaining its serum, this anti-serum may be preserved for a long time in a closed tube by the addition of a small quantity of chloroform.

In trying the reaction, the blood or serum to be treated with anti-serum is diluted about 1 : 100 with physiological salt solution. If not clear, it is then filtered, and to about $\frac{1}{2}$ c. c. of this in a tube, approximately $\frac{1}{2}$ c. m. in diameter, two or three drops of the anti-serum are added. If the blood serum, transudate or exudate injected into the animal was from a human being, a cloudiness, going on to the formation of a flocculent precipitate, will appear when the anti-serum is added to human blood or serum diluted as described. This

occurs in a short time usually and may be hastened by placing the tube in the thermostat.

As to the specific nature of this reaction, there seems to be a general agreement that only animals closely allied have reactions in common. Thus Nuttall in an additional note, published in September, 1901, reports that he has applied the test to samples of blood from one hundred and forty different sources. This includes, besides human blood, that from several species of monkeys, from the horse, sheep, gazelle, dog, pig, pigeon, chicken, etc., etc. Anti-serum for human blood gave a precipitate only with human blood and with that of monkeys. It is interesting to note that the blood of all monkeys of the Old World gave a marked reaction, though less powerful than human blood did. On the contrary, blood from South American monkeys gave but a slight reaction with human anti-serum, and in some of the specimens of blood a weak anti-serum produced no precipitate, a fact of considerable interest when taken in connection with Darwin's theory of the relation between men and apes from different parts of the world. Blood from the horse, ox and sheep gave, at the most, only a faint cloudiness with anti-human serum but no precipitate in Nuttall's experiments, while all the other bloods remained clear.

Anti-serum for ox-blood produced a distinct reaction with the blood of the goat and a faint clouding in that of the roebuck, Burrhel sheep, etc. Also anti-sheep serum gave a slight reaction with goat's blood, and a reaction with blood of other species of sheep. Tests with other anti-sera also seem to confirm the general rule that only blood of closely allied species of animals give interreactions. Another point of interest in this connection is that the production of an active anti-serum does not occur when the animal into which the blood or serum is injected is too closely allied to that from which the blood was obtained. Thus Nolf obtained negative results when he injected a dove with hen's blood, while hen's

blood injected into a rabbit gave rise to an active anti-serum. Likewise there is no reaction when rabbit's blood is injected into a guinea-pig. Apparently this reaction is produced only when the blood or serum injected is sufficiently different from that of the animal into which it is injected so that a new activity is called forth in this second animal.

It might further be added here that when this reaction has occurred in a pregnant animal, the young to which that animal has given birth have likewise contained the specific precipitin in their blood, though to a less extent than it was present in the mother's blood.

The varying conditions under which blood may be kept without losing this property of reacting with its homologous anti-serum is of prime importance, provided the test is to be put to any practical use for medico-legal purposes. Dried blood after dissolving in physiological salt solution gives equally as good results as does fresh blood. Specimens of dried blood which have been preserved for years have been found to react after prolonged soaking with salt solution to dissolve them. Also blood that has undergone considerable decomposition has been shown to give the reaction when tested with its appropriate active anti-serum. Rust mixed with the blood does not prevent the application of the test. Dried blood exposed for one hour to a temperature of 100° C. still possessed this property, but heating it in a moist condition to a temperature considerably below this prevented the reaction. Prolonged exposure to the sunlight does not prevent a precipitate. Biondi made tests of blood from many diseased conditions of such a nature that considerable chemical changes in the blood might be expected to have occurred, for example in diabetes, uremia, nephritis, leukemia, etc. Also blood from infectious diseases like typhoid fever, tuberculosis, articular rheumatism, syphilis, including those cases which had received mercurial treatment, also in skin diseases

like eczema, tumors, etc., and in cases of neoplastic cachexia. In each case tested, a positive reaction was obtained, nor could a difference in the rapidity of the reaction, nor in its intensity, be noticed. He emphasizes the fact that blood in every case, under the most various pathological and toxic conditions reacted when treated with active anti-serum.

The test has been repeatedly been spoken of as specific, or at least one where inter-reactions only occur in the blood of closely related animals. In another sense it is not specific. Thus extracts in physiological salt solution of various organs and tissues of the human body give a precipitate with anti-human serum. Certain pathological products, as pus, the serum of blisters,etc., give a similar reaction. The saliva, nasal mucus, spermatic fluid, milk, etc., have also been found to react, while similiar substances from other animals do not react with anti-human serum.

The test has been repeatedly spoken of as specific, nal gives rise to the production of an active anti-serum has been shown not to be connected with the red corpuscles, but to be in the serum, and to be of the nature of serum globulin, not a serum albumin. And finally, it is the serum globulin, and not the serum albumin, which when mixed with the anti-serum gives a precipitate. Thus the reaction may be produced in any of the body secretions, exudates, etc., which contain, even in a slight degree, serum globulin. The evident importance of this is that the obtaining of a reaction with a substance which is being tested with anti-human serum does not necessarily indicate that this is human blood, but one of the numerous substances from the human body which may give this reaction. The serum test must necessarily be combined with such chemical and microscopical methods as are suited to determine the kind of material in question. And also by testing it with anti-sera for other animals, it can be definitely shown not to be blood from these if the reaction in each case is negative.

Even when several kinds of blood are mixed, and in high dilution, the specific reaction for each one can be obtained. Thus Nuttall after mixing five different bloods together so that each was diluted about 1 : 500 was able to get the specific reaction for each with its anti-serum, but no reaction with anti-sera for other kinds of blood than those present in the mixture. Stern increased the precipitin in one rabbit's serum so that when added to human blood diluted 1 : 50.000 it gave a positive reaction.

That more work is required to determine the precise conditions under which this test is applicable and its exact limitations is evident. But, on the other hand, in those important cases of not uncommon occurrence where the ends of justice require an accurate differentiation between certain kinds of blood stains, this method certainly promises more help than any other yet known, and we may expect will supplant the attempts to obtain this differentiation by the determination of the size of the corpuscles.

Instances of the application of this serum method are already at hand. Here in New England I have noticed brief reports of two cases in which it has been used, and with evident satisfaction. One of these was by Dr. Whittier, of Maine, and the other by Dr. Wood, of Boston. As emphasized by Dr. Whitney, in any case of death by violence where "there is a possibility of a blood stain having to be examined, a strip of filter paper should be soaked in the blood of the individual at the autopsy." This should be dried and preserved and later can be tested with anti-serum in order to set at rest any doubt about that individual's blood giving the reaction.

RELATIVE NUMBER OF CONTRACTED PELVIS IN GENERAL PRACTICE.

PATRICK CASSIDY, M.D.,

NORWICH.

The general practitioner, although having a limited number of obstetrical cases in the course of a year, meets with many cases of difficult and prolonged labor. These cases are due often to causes which may easily be accounted for without any mechanical aid and may be classified as, 1st, those due to advanced age in primipara; 2nd, those due to adverse presentations, as breech, or face, or transverse, etc., in women having good pelves; 3rd, the so-called dry labors; 4th, those with insufficient or irregular pains; 5th, cases of very large child. But there are a certain number of cases in which everything seems to be favorable to an easy labor but in which labor is prolonged and difficult, sometimes requiring interference by the obstetrician and in which there is a great deal of mental and moral perturbation on the part of the patient and her friends. These in many cases are due to a slight contraction of the pelvis. Partly to be able to foresee these cases and so prepare the minds of the families and partly from personal interest, I have during the past year made pelvic measurements on my new patients and such of my old as came under the class last mentioned. I have kept records of thirty consecutive cases and will present my findings in this paper.

The question of the relative number of occurrences of contracted pelvis has been considered by many observers in this country and abroad during the past ten years. The observations in this country have caused us to recede from the attitude taken, even so late as 1896, that

among the American-born women the occurrence of contracted pelvis was very rare, and was to be found principally among women born on the continent of Europe. Lusk, in his text-book on midwifery, makes the statement that, although among the women of foreign birth, confined at the Emergency and Maternity Hospitals, the average frequency of contracted pelves was fully up to the fourteen per cent. of Michaelis, Spiegelberg and Schroeder; yet among the native American women the condition was rare. He adds, however, that he believes the condition in many cases to be overlooked. J. Whitridge Williams published in the Bulletin of Johns Hopkins Hospital in 1896 the results of examination of one hundred pelvic measurements taken by him, and found in this number fifteen cases of contraction. In eleven of these cases the women were of American birth. In this paper our first consideration is as to what we shall consider a contracted pelvis. If we should call all deviations, on the small side, of the external pelvic measurements to represent pelvic contraction, then out of the comparatively small number of cases here considered I found thirty-three per cent. of contractions. But considering as contracted only those pelves that have a deviation in transverse measurements of more than three centimeters, and of antero-posterior diameters, two centimeters contraction is found in ten per cent. of the cases measured. Of these, one was a generally contracted rachitic pelvis with more or less obliquity due to Scoliosis. In this case the external conjugate measured eighteen centimeters and the oblique conjugate between seven and eight centimeters. Caesarian section was advised, but the patient refused to consider it, and after attempted delivery by version, Craniotomy was of necessity performed on the dead child. In the other cases of contraction the pelves were of the justo-minor type. In one, the presentation was occiput posterior, and, after a difficult long forceps operation, the child was safely de-

livered, but at great expense to the perineum. In the other case, a simple forceps delivery was accomplished, but after prolonged labor. In the first of these cases, the patient was of American birth; in the second, of Irish birth; in the third, Irish. Not coming in this series, but almost near enough in point of time to be numbered among these cases, was one of a negress, an American born, having a deviation on the small side of two centimeters in the transverse external measurements, but no deviation from the accepted measurements in the external conjugate. Yet she required a high forceps operation in the delivery of her second child. Her first child was dead born, and, judging from the history given by the mother, craniotomy had been performed. Of the twenty-seven other cases, in this series, without pelvic contraction within my meaning, there were seven having a lesser degree of contraction, but yet not quite measuring up to the regularly applied standard of external measurements. Of these five were in women of American birth, between twenty-five and thirty-five years of age. One was a primipara of twenty-one, American born, who had a variation on the small side in all the external measurements; the second stage of labor was prolonged with her, but no interference was required. One was in a woman of Irish birth who had borne four children; with all was difficult labor, and in the fifth labor had an occiput posterior presentation requiring forceps and ante-rotation by them. In the labor just previous there had been prolapse of the cord. On the other hand, in one case of the series, that of a primiparous woman, aged thirty-five or more, the external measurements were greater than usual, and her entire labor period, much to my surprise, comprised only seven hours. In all of these cases, owing to the pelvic measurement, I was able to make a fairly good prognosis, as to difficulty or ease of labor. With the limited number of cases here

presented no conclusions can be reached as to the percentage of pelvic contractions in this section of the State, but the findings seem to point toward a state of affairs much as has been found elsewhere. One fact struck me, namely, that among the women between twenty-one and thirty-five of American birth, in nearly every case the measurements were somewhat under the normal standard. This paper is not intended to establish facts, or as a statistical output, but more to emphasize the value of pelvimetry for the general practitioner, if only for prognostic purposes.

CLASSIFICATION OF GYNECOLOGICAL CASES AS TO WHETHER MEDICAL OR SURGICAL.

HARRIS F. BROWNLEE, M.D.,

DANBURY.

After accepting the invitation of your committee to present a paper at this meeting, I took a long time trying to decide upon some subject which might prove of interest and perhaps be of a little help to you who do me the honor of listening to my remarks. While I see things of interest to me nearly every day, they are not always exceedingly rare or wonderful, and the same class of cases probably occur in the daily work of every one of you, which would result in a failure to excite the amount of surprise and astonishment which I might anticipate; so instead of some anomaly, some special feat of surgery or some vague hypothesis, I am going to lead your thoughts to my office and back to your own and look over a class of cases which have often puzzled me and perhaps have done the same to you.

I am presuming that the great majority of the members of this Society are general practitioners, some of you may do surgical and gynecological work and all of you probably have occasion to send cases to other men for advice when your own work and words to the patient will come in for review to be either confirmed or corrected by the specialist.

I want to take a certain number of gynecological cases which come to my office, which we see in their homes, some old familiar subjects, hold them up to present day standards and while trying to remain in a conservative median line between too radical surgery and fatal delay avoid temporizing more than necessary.

I know a great many cases are operated upon which never should have been, and the results in those cases are disappointing as they are bound to be. Other cases should have been treated surgically and have often been prevented by too conservative advice.

Patients come to me who have received one kind of advice from one man and an opposite kind from another, and thus having little confidence and being altogether bewildered as to what they should or should not do. Now perhaps by going over a few of these old cases we can arrive at some normal line of conservative opinion whereby our advice to these patients can be more in accord and productive of good results.

It is not my intention to go into operative details or discuss the merits of this or that operation but simply try and classify those cases which demand operation and those which do not. The method of operation we will leave to the operator, after we have decided that it is an operative case.

PERINEUM.

We will first consider the perineum, it being the first to come to our notice, at the beginning of an examination. We encounter here four classes of old lacerations which have taken place at a previous confinement.

(1) Those which are wholly confined to the vaginal wall:

(2) Those which have torn through the perineal body and skin:

(3) Those which have torn both the vaginal wall and the perineal body.

(4) Those which are torn through the recto vaginal septum.

A certain number of the lacerations, excepting perhaps the last class which include the rectal wall, heal by granulation to such an extent that normal support has

been maintained and the resultant damage only a surface of rough scar tissue, while others have resulted in a relaxation of the whole vaginal outlet and regarding even the complete tears I have seen cases where the whole septum was torn through and still the pelvic support was maintained as well as fairly good control of the bowel.

I will at this point call attention to a fact not usually understood, though clearly demonstrated by Kelly and some other writers that the perineal body in itself has very little to do with maintaining pelvic support, but the tone and caliber of the vaginal outlet depends almost entirely upon the levator ani muscle which arises from the internal surface of the ramus of the pubic bones, extending downward and around the rectum meeting at the back with the muscle of the opposite side.

I have seen any number of prolapsed uteri from relaxation of the outlet with good sound perineal bodies and on the other hand have seen a good firm pelvic floor with vaginal outlet of about normal caliber where the perineal body had been almost completely destroyed. It simply depends upon whether this muscle is affected or not. Now which of these old lacerations demand surgical treatment? In answer I would say that whenever the vaginal outlet is relaxed an operation is necessary to restore the normal caliber and support, and in complete tears when the bowel functions are interfered with, operation is necessary. As a rule most complete tears require operation. In saying that all cases of relaxed vaginal outlet should be restored I include a number of cases which have never been torn and perhaps have never borne children.

This relaxed condition is not to be determined by appearances or by the thickness of the perineal body but by placing two fingers in the vagina and pulling down into each sulcus thus testing its tone and resistance. You will often be surprised to find a normal appearing

outlet stretch out in this manner so as to easily admit three fingers or perhaps a whole hand and be equally surprised to see a scarred old perineum grip the fingers as firmly as if its integrity had never been attacked.

These latter cases do not require operation unless perhaps the scar tissue is sensitive and interfering with its normal functions. Therefore, excepting special cases which may present special features the question of operation depends largely upon the amount of relaxation.

LACERATIONS OF THE CERVIX.

Next we will consider lacerations of the cervix. I consider the treatment of the cervix as an important one as we so often find malignant disease originating at this point. Almost every woman who has borne children has some laceration. This may be hardly perceptible or extend deeply into the vaginal vault. These lacerations may divide the cervix in two, or only one side may be torn or we may find a stellated tear extending in many directions.

As a rule those cases which have healed smoothly and evenly and are not the seat of induration or any diseased appearance even though they may be deep tears do not require operation, although I have seen cases where small tears seemed the source of much irritation to the woman's nervous system and this irritation was benefitted by repairing the damage.

IMPROVEMENT.

Often this improvement is aided by the accompanying curettement, rest in bed and general hygienic surroundings during the period following operation and also by the general moral effect of having something done supposed to cure her, so we will admit that certain of these usually innocent tears require operation; this to be decided by the history of the case and the results of previous palliative treatment.

Those cases which are the seat of induration and in-

filtration when the lips are pouting and the hypertrophied lining membrane of the canal everted and when the cervical glands are inflamed and occluded presenting a quantity of viscid secretion, should all be subjected to surgical measures of cure. Perhaps simple scarification and depleting applications will suffice, perhaps the tear will need to be closed and perhaps the cervix will require complete amputation.

One or all of these proceedings should be at once advised.

In these days we hear less of the ulcers of the cervix, though we do hear the term often among our patients.

These so called ulcers are either simple erosions about the external os due to acid discharges from the cervix or body of the uterus or the everted cervical lining due to chronic hypertrophic catarrh. These can be easily distinguished. The former can be relieved by appropriate treatment to correct the irritating discharges while the latter can only be cured by high amputation of the cervix. I have seen cases presenting an everted hypertrophied cervical lining for nearly an inch around the os which have been treated as an ulcer for months. Ten years treatment will not cure. Amputation is the only resource.

DISPLACEMENTS.

The successful management of the various displacements of the uterine body requires some good sound judgment on the part of the physician. His opinion can sometimes be given at once after the first examination and in other cases a correct opinion can only be arrived at after observing a patient for some time and perhaps trying one or more ways of relief.

A normal uterus lies in an easy position of anteversion

A displaced uterus may be anteflexed, retroverted or retroflexed.

Anteflexions are not as common as the retro-displace-

ments and usually cause little trouble. However some cases do occur which cause considerable irritation to both the uterus and bladder. I have found that most of these cases can be relieved by soothing tampons so placed as to relieve the pressure and congestion. Some, however, are associated with stenosis of the cervical canal and are only relieved by dilation and curettement.

By far the most common malpositions are those displaced backward. A retroverted uterus may exist for a number of years without causing any trouble whatever and is only discovered by casual examination, and I do not think we are called upon to do anything with those; When they do not cause trouble they are to be treated the same as a retroflexion.

Now we will suppose that we have a retroflexed uterus which is causing all the pains and discomforts which they usually do. What are we to do with it? First we will find out all we can about it.

Note the extent of the flexion,—whether the fundus is freely movable or bound down by adhesions; whether the tubes and ovaries are in a normal condition and position or prolapsed back of the fundus, also whether there is any growth or inflammatory exudate in the pelvis which would have any bearing in the treatment.

We will now try to replace the body in its normal position. If there are adhesions we cannot do it. If not it is easily accomplished. Now how shall we keep it there? We may use a cotton or wool tampon, a pessary or resort to surgical fixation.

As to tampons they are indicated in extremely sensative and painful conditions as a temporary support, where a pessary could not be worn. They are purely temporary as regards the displacement.

Pessaries are of service in cases not extremely sensitive and when the adnexa are not adherent in such a manner as to bring pressure on them by the pessary. If it is possible to hold the uterus in an easy position with

a pessary which causes the woman no inconvenience, that may answer all purposes as long as she chooses to wear it. There are some cases of relaxed ligaments when the wearing of a pessary for a period of one or two years will prove curative, but my experience has been that while the pessary has proved valuable in relieving symptoms the uterus will almost invariably return to its old malposition soon after the support is removed.

However, there are a number of cases susceptible of easy replacement but which can not be held by a pessary. Fit them as carefully as you will, you find them down again in a few days or a week, perhaps a month, but they will not be held permanently. These cases should every one be fixed by surgical means. I will not enter into the merits of the various methods of doing this; that would be a paper by itself, and we will leave the surgeon to do the one which he thinks most suitable to the case. The relief afforded in these cases which cannot be held up in any other way is marked and permanent. In all of my cases I have done either the vaginal fixation or the ventro-suspension and have achieved such excellent results that I advise all cases of retrodisplacement which are not very easily held with a pessary to submit to operation, and even to those I advise operation as a means of getting rid of the pessary which may if not carefully looked after prove itself a source of trouble.

When the adhesions are firm we must be more guarded in our advice, particularly in prognosis.

Small adhesions can be broken up and the operation performed successfully, but if they are firm and extensive, raw surfaces left, give rise to adhesions of the intestines which cause as much and sometimes more trouble than the former conditions. In these cases which are often extremely difficult to manage, we may resort to a course of massage to break up the adhesions or the whole uterus may be removed.

ADNEXA.

Regarding the various affections we find in the adnexa it is impossible to make anything like a comprehensive classification, as the great majority of these cases are surgical and were I not confining my paper strictly to a classification I would have an opening for a long plea in favor of conservative surgical treatment of these cases instead of the unnecessary mutilation practiced by some operators with radical views, and I will only remark that I think such radical views are no excuse, but simply an indication of a lacking in surgical skill.

There are some cases, however, of tubal and ovarian affections which do not call for surgical interference. Simple inflamed tubes due to extension of diseased endometrium or displacement of the uterus do not often call for anything but general hygienic treatment with local applications to the endometrium and correction of the malposition. I have seen cases of infected tubes where pus in large quantities discharged into the uterus, draining the tube which were followed by entire recovery. I have in mind a case of that description which was accompanied by an extensive cellulitis with pelvic peritonitis; a quantity of pus was discharged through a retroverted uterus. The patient's condition at the time was not such as would warrant operation. After a time her condition improved, the exudate disappeared and the peritonitis subsided. I then opened the abdomen for the purpose of correcting the position of the uterus and removing the infected tube.

I found the tube free from pus and of normal appearance. It was hopelessly destroyed, however, by being occluded throughout nearly its whole length. The case is all the more interesting on account of the retroversion which afforded poor drainage. I cite this case simply as an illustration that nature often does wonders if given an opportunity, but you must not misunderstand me and quote me as advising expectant treatment for pus tubes, as I think they are usually surgical.

Small cysts of the ovaries do not call for operation unless they are the cause of long continued pain. Not long ago all such ovaries were regarded as dangerous, and were subject to removal, but at the present day we know that such small cysts do not often call for primary operation. If operating for other reasons I think it well to excise them from the ovary the same as you would do a curetteage or correct a bad position merely as a matter of routine in order to make the operation complete and productive of as good results as possible.

The small cysts do, however, sometimes cause so much pain and distress as to be the object of a justifiable primary operation.

Larger ovarian cysts of course call for immediate removal as soon as discovered.

FIBROIDS.

I want to emphasize the statement that all fibroids do not call for immediate removal and then I want to qualify the statements that any fibroid, however innocent in appearance, may at some time be subject to removal for cause. They are nothing to be scared about, but a good thing to keep watch of. I have in mind a number of patients who have carried a fibroid for several years with little or no discomfort, and in some instances it has been discovered by accident. In other cases they are the source of considerable vexation in various ways, but even many of these can be brought into subjection by conservative management.

However, when you find a fibroid, whether large or small, which interferes with a woman's health in spite of palliative treatment, then it should be removed.

They may cause interference with the circulation by pressure on the pelvic vessels; may cause serious difficulty by pressure upon the rectum, bladder or ureters, or when higher in the abdominal cavity cause pressure on the intestines and other organs; may cause persistent anemia

from hemorrhage, or may cause the patient to be an invalid from various discomforts, often incurred by the simple knowledge that it is there. In those cases I should advise removal.

MALIGNANT DISEASES.

It is hardly necessary to classify malignant diseases, as they are all surgical if they have not extended beyond reach.

CONCLUSION.

This classification which I have attempted to make is crude and necessarily incomplete, as there is no hard and fast line. Many cases which we select for medical treatment must after we have failed be classed as surgical, but that is the time to so class it, after we have made a good honest attempt to afford relief in any other way. So many cases are only amenable to surgical treatment that we are apt to include some others without giving them a chance, but while giving these doubtful cases their rightful opportunities we must not include with them others which are purely surgical from the beginning, and where valuable time is wasted in useless attempts to do something the impossibility of which should have been apparent at first.

I am aware that while trying to maintain a certain amount of brevity, my paper must necessarily be more or less incomplete, but if I were to attempt to make it exhaustive there are so many points at which I would necessarily diverge that it would indeed be exhaustive to the Society. However, I have given you this crude classification in order to call your attention to a class of cases which are often subjected to grave errors by hasty or indifferent advice, and I intend this paper as a ground work for discussion which will bring out some opinions of the members present.

THE MEDICAL INSPECTION OF THE PUBLIC SCHOOLS.

C. P. Botsford, M.D.,

HARTFORD.

In the fall of 1899 the Hartford Board of Health found itself in the presence of a serious epidemic of diphtheria. The number of cases reported during the season had been slightly above the average, and with the coming of cool weather and the opening of the schools, the increase was rapid.

The question of closing the schools was considered, but before going to that extreme, it was decided to try a system of frequent medical inspection of all the children attending school, and attempt, if possible, to discover and exclude the incipient cases before they could infect others.

With this end in view, two inspectors were appointed. Their duties consisted in visiting as many schools as possible each morning, and examining all the children present. This work has been usually done in the school-rooms, taking less time and causing less disturbance to the routine of school-work than in any other way. If any child has an inflamed throat or any sign of a catarrhal discharge from the nose a culture is taken. These are examined by the Bacteriologist of the Board and a report obtained the following day. Any child whose culture showed Klebs-Loeffler bacilli is immediatley excluded, and the following card sent to the parents:

"You are hereby notified that ———— having been examined by the Medical Inspector of the Board of Health for this district, is found to have the germ of diphtheria in the secretions of the throat, and is therefore excluded from school.

Your child is not sick, but is capable of transmitting the disease to others. You are advised to consult your family physician."

Accompanying this is a date, usually one week later, on which the child can return to school for another examination.

It is not customary to exclude the other children of the family unless their throats also contain bacilli, but a careful watch is kept over them and frequent examinations are made.

At the end of a week the children return to school, being kept by themselves, away from other children. A second culture is taken, and the child sent home again to await the result of the examination. If this proves free from Klebs-Loeffler, a permit to return to school is mailed the parents. If the bacilli are still present, the child goes home for another week.

No special routine of treatment has been advised in these cases, as each family physician has treated his own as he saw fit. It has been the general opinion, however, that fresh air and general tonic treatment have done more to clear the throats of bacilli than local applications have been able to accomplish.

The majority have been able to return to school in two or three weeks. In a few cases, however, the bacilli seemed to persist almost indefinitely. Several cases have been under observation over three months before they disappeared.

About three per cent. of the cases sent home from school have developed clinical diphtheria, and in many other cases in which no effort was made to isolate the child, some other member of the family has been sick. This shows quite conclusively the danger attending these cases.

No attempt has been made to test the virulency of the bacilli in these cases by inoculation experiments. It would have been interesting to have done so, but no one

seemed to find the time. It is the opinion of the Bacteriologist, however, that the mild cases take the stain less deeply than the virulent ones.

Having such a large number of children under observation, it has been very interesting to watch from month to month the changes in the appearance of the throats and in the bacteriological findings.

Attempts to tell what the bacteriological growth would be from the appearance of the throat have not proved satisfactory. The very red beefy throats usually contain streptococci with often a few Klebs-Loffler bacilli.

The throats that contain the most Klebs-Loeffler are not usually much inflamed, a dull venous color being most commonly found. Many of the worst looking throats contain the Diplococcus Lanceolatus in nearly pure culture.

In the nose, however, the clinical signs seem a little more definite, the majority of cases presenting a slight glairy discharge that is not prevalent and is not accompanied by symptoms of acute coryza, contain Klebs-Loeffler bacilli.

The bacterial growth of the throat seems to depend largely on what the most common disease happens to be at the time. If diphtheria is prevalent, most of the throats that are inflamed will contain Klebs-Loeffler bacilli. If there is much scarlet fever, the streptococcus is most common and at times a large part of the cultures contain pneumococci.

It has been rather interesting to note that each increase in the number of pneumococcus cultures is followed in a short time by an increase in the cases of clinical pneumonia.

As the amount of diphtheria diminished, the inspectors were able to pay more attention to the minor contagious and parasitic diseases. The routine examination of all the throats was omitted except in those schools in which there were cases of diphtheria.

If a case of diphtheria is reported all children in the rooms occupied by this child and the others of the family are inspected and cultures taken if necessary.

As with the limited number of inspectors it is impossible to visit each school daily, the teachers in the lower rooms where most of the trouble occurs have been taught to recognize the common parasitic troubles and exclude the affected children without waiting for the inspector's visit. Cases of contagious impetigo, ringworm, pediculosis, etc., can be easily handled in this way, and the child sent home with a note from the teacher without exciting the other pupils in the way that a visit from a stranger would do.

If there are any doubtful cases it is an easy matter to call the Inspector by telephone.

The Inspector gives each school a thorough examination at least once a week, discussing with the teacher the cases that have been excluded and investigating any of the cases that have been found.

A decided gain has been made in convincing the teachers that a child that is sick from any cause ought not to be in school and should be sent home. This often calls the parents' attention to an illness that had been overlooked in the morning hurry of getting ready for school, and is of undoubted good to all parties. The knowledge that an ailing child will be sent home, makes the parents much more careful about sending sick children to school, and it is the opinion of the older teachers that there has been a distinct gain in the average healthfulness of the children.

During the first month after the Inspectors began working the number of children examined was 5,441; the number of cultures taken, 287; the number of cultures containing Klebs-Loeffler, 52. Ninety-one cases of clinical diphtheria were reported by physicians during the month.

The month of November showed:

Number of children examined	6,871
Number of cultures taken	236
Number of cultures containing Klebs-Loeffler bacilli,	38

One hundred and twenty-two clinical cases were reported by physicians. This shows an increase of the disease about the city, but a decrease among the school-children.

The December report shows 101 cultures, of which 17 contained Klebs-Loeffler bacilli.

The clinical cases numbered 78.

In January, 73 cultures were taken, 17 of which showed Klebs-Loeffler. The number of cases in the city was 52.

From that time on the number of cases steadily diminished; a few new foci started up, but the trouble was easily controlled.

The year's report shows that 37,872 examinations had been made, 754 cultures taken, of which 266 contained Klebs-Loeffler bacilli.

The report for 1891 showed 489 cultures, 166 of which contained Klebs-Loeffler.

At the beginning of the work considerable opposition was experienced from some of the parents who found it hard to believe that a child could "have diphtheria and not be sick," as they expressed it.

It happened that several of the children whose parents made the most trouble, came down with clinical diphtheria soon after they were excluded, and the knowledge of these cases helped to strengthen the position of the Board. The citizens of the city co-operated in the work of educating the people, and are largely responsible for its success.

It is certainly a decided gain, to be able to keep the well children in school during an epidemic of contagious

disease, and not be under the necessity of stopping all school-work because a few children are sick.

It is possibly too much to say that with a careful system of inspection every child is as safe in school as in his own home, but for the children of the middle and poorer classes, whose home is the crowded tenement and whose play-ground is the street, that point has already been reached.

THE EYES OF SCHOOL CHILDREN.

HENRY S. MILES, M.D.,

BRIDGEPORT.

THE EYES OF SCHOOL CHILDREN.—Although always interested in this subject, I had done no work in the schools until March, 1897, when our Superintendent of Schools, through the Physical Director, asked me to examine the eyes of all the pupils in Bridgeport. I promised to give what time I could toward doing so.

Blanks were provided that the pupils' name, age, grade, vision of each eye, error of refraction, if any, and amount, whether pain in eyes or headache—if wearing glasses and other notes could be recorded. I found that, with a secretary to record results of the examinations and no loss of time in getting pupils, I could thoroughly examine only from fifteen to eighteen an hour or, with the time at my disposal, about six hundred in a term; as there were then over eight thousand pupils in all the schools and seven hundred new ones coming in each year, it was soon seen that we had undertaken too large a task, single handed, and the following year made a new arrangement whereby most of the normal eyes were eliminated. During that year, the teachers in the various schools were instructed to send to the Board of Education rooms only those scholars who complained or appeared in some way to have defective eyes. By this method I was able to examine the suspicious cases from every school in the city. The total number of pupils notified to appear was ten hundred, sixty-seven; nine hundred twenty-two, presented themselves and the eighteen hundred forty-four eyes were examined. Of these, two hundred sixty-four (28%) were found to have defects sufficiently marked to require further treatment

by a physician. They were reported back to the teachers and their parents or guardians were advised to have them attended to. A summary of defects is as follows: One hundred and two were hyperopic (far-sighted), forty-one were near-sighted (about sixteen per cent. of those defective); this is less than reported by most observers that have examined school-children in American and European cities. One hundred sixty-two had astigmatism without going into details of amount, kind of astigmatism and mixed cases. One hundred fifty-three, or 58% of those defective were girls, and one hundred eleven boys; in addition to these, two hundred ninety-eight had slight defects, leaving three hundred and sixty with eyes practically normal, 39%. This is very near the percentage found in other cities.

Thirty-two scholars had normal vision still with marked defects in eyes.

Forty-one were wearing glasses, seven of whom did not need them, and eight were wearing glasses not suited to their eyes. The remainder gave relief or helped to a certain extent. There were twenty boys that squinted and fourteen girls; this proposition is at variance with records in private practice, for among the errors of refraction found in four thousand eyes, which I reported to this Society in 1894, from the cards of Dr. Wilson and myself, there were fifty-five squinting girls and twenty-three boys. Thirty-nine of the school children had diseases of eyes or lids sufficiently severe to call for treatment, mostly some form of conjunctivitis or blepharitis.

The teachers helped us in a careful, prompt and thorough manner, and the parents almost without exception expressed themselves as grateful for the knowledge of the condition of their children's eyes. In 1899, a special committee of our State Society went to Hartford, and we secured the passage of a law which reads as follows:

SECTION 1. The State Board of Education shall pre-

pare or cause to be prepared suitable test-cards and blanks to be used in testing the eye-sight of the pupils in public schools and shall furnish the same together with all necessary instructions for their use, free of expense, to every school in the State.

Section 2. The superintendent, principal or teacher in every school, sometime during the Fall term in each year, shall test the eye-sight of all pupils under his charge, according to the instructions furnished as above provided and shall notify in writing the parent or guardian of every pupil who shall be found to have any defect of vision or disease of the eyes, with a brief statement of such defect or disease and shall make written report of all such cases to the State Board of Education.

In 1900 the teachers of Bridgeport thus examined eight thousand, eight hundred and nineteen of the nine thousand two hundred and forty-eight pupils enrolled, and notified the parents of thirteen hundred and nineteen with defects, about 16%; six hundred eighty-nine had vision less than half normal. In the entire State with 122,940 scholars enrolled 108,657 were tested and blanks sent to parents in 15,970 cases, a little more than fourteen per cent. of those tested.

In 1901 the law was amended so that the examinations will only be made every three years hereafter instead of yearly.

The eyes of school-children have received quite some attention since Beer published a work entitled "Healthy and Weak Eyes," in the year 1800, and James Ware first mentioned "The relation of myopia to the demands of civilized life," in 1813. Physicians in various cities here and abroad have examined and published records of over 300,000 scholars in all grades, but Connecticut is the first State, and so far as I have been able to learn the only State having a law which requires a regular uniform examination of all pupils. Some States and cities sanction an examination.

We realize that these examinations by the teachers cannot give the best results, for many errors must of necessity be made—pupils with far-sightedness may have normal vision and be overlooked and those with disease of the fundus of slight degree or in a position not interfering with sight will not be discovered. On the other hand, an expert would detect why vision was not perfect in some cases and so avoid notifying parents—quite a number have poor vision for which there is no remedy, as where caused by scars upon the cornea, etc., but certainly much good has been done and will be done by carrying out the provisions of our law. Some time in the future perhaps all eyes can be examined by opthalmologists, and ears examined for defective hearing and adenoids will be ferreted out and their removal advised. Possibly we may live to see medical supervisors for every school district as at present maintains in Asbury Park, New Jersey. I will read you Section 255 of the New Jersey school laws:

Every Board of Education may employ a competent physician to be known as the Medical Inspector, fix his salary and define his duties. Said Medical Inspector shall visit the schools of the district in which he shall be employed at stated times, to be determined by the Board of Education, and during such visits shall examine every pupil referred to him by a teacher. He shall at least once during each school year examine every pupil to learn whether any physical defects exist, and keep a record from year to year of the growth and development of such pupil. Said Inspector shall lecture before the teachers at such times as may be designated by the Board of Education, instructing them concerning the methods employed to detect the first signs of communicable disease and the recognized measures for the promotion of health and prevention of disease. The Board of Education may appoint more than one Medical Inspector.

Dr. John Taylor fills this position at present and has

sent me an interesting account of his work. He visits the school every morning between 10 and 10:30 o'clock, and will find in the Medical Inspector's office all pupils in which symptoms of illness are suspected by the teacher. This is getting at defects and diseases during their incipiency when they are most easily handled and surely no division of the work needs more early attention than the eyes and eyesight. It is very desirable to discover defects at the beginning of school life, so that by the skilful correction of errors, myopia, for example, may be arrested. Strabismus may be prevented or cured and most cases of asthenopia and headache relieved—and these things are being done, now that the prejudice against glasses for young folks is disappearing.

Besides determining and correcting defects as best we can we should give careful attention to school hygiene, the care of the eyes and the prevention of trouble. The desks and seats should be adjustable to the size of the pupil that is to occupy them; they should be properly placed and the scholar should be taught to maintain a proper posture, the light should be sufficient and come from the right direction, the print of text-books should be large and the lines leaded, attention should be given to the interruption and limitation of the hours of study. We hear complaints that children nowadays have too many studies. It may be so, but it is most important that teachers understand and drill them in the subjects of physiology and personal hygiene, the care of their bodies, and the care of their eyes; it is very encouraging that all these things are being looked after more and more, and our new school-houses are being built with them in view, to the end that the rising generation and the generations to come will be better fitted physically and intellectually for the American lives they will be called upon to live.

SURGICAL PAPERS.

REPORT ON PROGRESS OF SURGERY.

ANSEL G. COOK, M.D.,

HARTFORD.

"Life is short, the art is long, the time is urgent, experience fallacious and judgment difficult." What was said by Hippocrates, is no less true to-day.

There have been no great discoveries in surgery during the year, but distinct progress has been made along the old lines.

Operations have been perfected and have become more common. The number of men who can actually perform a simple operation like the removal of the appendix or the extraction of gall-stones—not talk about it—but do it well with a decent technique, has very greatly increased.

Certainly, the interest generally taken in surgery, is very much greater than ever before.

In Hartford, I believe, there is but one physician in good and regular standing, in the medical profession. All the others are surgeons. It would be but fair to state, however, that some of the surgeons do general practice.

Operations on the gall-bladder have been receiving considerable attention, and the writer ventures to predict (as this organ appears to be entirely superfluous) that in the near future, it will be snipped out and tied off, whenever it becomes troublesome.

A little book has lately come into the hands of the profession, written by Prof. Hans Kehr of Halberstadt, in which he describes 433 laparotomies for gall-stones, mostly in the cystic and common ducts.

His incision, four to six inches from the ribs, down-

ward, through the rectus muscle, is certainly much better than the usual incision over the fundus of the gall-bladder.

Prof. Kehr remarks—"Thanks to asepsis, we need not shy at laying free, and opening up the cystic and common ducts."

The local surgeons do not "shy"—far from it—but it is difficult for them at all times, to perform successfully, the operations that the physician reads of in books, and actually do the things that other surgeons, in distant countries, say they do.

The removal of stones from the gall-bladder itself, is comparatively easy, and is well done by all of our local surgeons.

Thus far, the writer has seen no brilliant work on the gall-ducts, yet believes that it is quite possible, but would call attention to the extreme vagueness of the symptoms, and the difficulty of arriving at an exact diagnosis of so obscure a trouble.

APPENDICITIS.

As the operation has become more common, and more generally understood, and the results of operations between attacks have been lately so successful, there is a growing opinion among the profession that a person who has once suffered from an attack, had better have the appendix removed.

During the last year, more of the surgeons have adopted the Dawbarn method of treating the stump, by inverting and tying with a purse-string suture.

MALIGNANT DISEASE OF ABDOMINAL VISCERA.

Operations for malignant disease of the caecum and stomach, including intestinal anastomosis, excisions, Murphy Buttons, etc., etc., are being performed quite frequently.

These cases are extremely interesting from a surgical stand point, and the patients live long enough to be

shown at our Medical Society meetings, and illustrate the skill of the operators.

Dr. Reginald H. Fitz of Boston, has recently written an article on the subject, based on some thirty-five cases in the Massachusetts General Hospital.

His statistics show that 36% died within one week; 19% between one and four weeks; 18% between one and six months; 11% between 1 and 2 years; 5% between 2 and 3 years. Thus 54% of the cases died within a month after the operation, and 72% within six months.

When the question of relief of suffering is considered, it appears that among sixteen patients who fully recovered from the immediate effects of the operation and lived four months or more after it, there was some, or much relief, in eight, and no relief also in eight. The operation was regarded as decidedly unsuccessful in a patient who died a month later and in ten days after leaving the hospital. A patient who lived for two months was afforded "Only temporary relief." One who lived four months was relieved "of the intense agony she was almost constantly suffering previously. After the operation the pain occurred occasionally." Her last four months of life, however, were spent in the hospital.

"Of a patient who lived five months it is stated the operation was no relief. The pain from the running sore continued. Only for the pellets you prescribed in the hospital he would be screaming all the time. They had the effect of deadening it."

"Another lived five months but derived no benefit from the operation. She suffered intensely except when under the influence of opiates. No doubt the operation prolonged the suffering."

"A patient who lived six months after the operation had 'slight temporary relief from acute suffering, but she never regained strength.' Another patient also lived six months 'free from severe pain until the end, and the

chills were less. An ugly growth formed on the outside which caused him much uneasiness.'"

"The patient who lived sixteen months died 'after a painful illness which lasted until death.' Excepting a few days at a time, he was continually under doctor's care."

"For one who lived twenty-one months, "the relief lasted only about three months. Then he was a great sufferer the rest of the time.' The life of one patient was prolonged 'for two years, during which time he suffered continually.' The relief afforded lasted about three weeks, and from that time on his suffering steadily increased."

Of another patient who lived two years, it was learned that "he was never so he could sit up, but he thought it must have been a great relief to him to have the discharge come the way it did. He thought that he lived longer by having the operation, although he would have been glad to go long before he did, he suffered so much. He suffered a great deal but he had a medicine that took away the pain in a measure." "He said if it was to do again, he should have the operation as before."

The two patients who lived twenty-seven and thirty months respectively were relieved for a year. Each was then operated upon for a second time, after which the condition was one of invalidism.

The evidence presented must be considered as offering grave doubts as to any considerable benefit from this class of operations as a whole.

CANCER.

The new cure for cancer appears to be a so-called burning by the X Rays. As we understand it, the patient's body is protected by a sheet of lead and the cancer exposed to the X Rays from ten to twenty minutes daily, until it is destroyed. Cures have been reported, but whether this has proven more efficient than the old way of burning by an arsenic paste, remains to be seen.

"One swallow does not make a summer."

A new method of inhibiting the growth of cancer of the tongue, is shown by Dr. Dawbarn: tying the common carotid artery, and injecting melted paraffin into the internal maxillary, thus diminishing the blood-supply, and causing the cancer to die. Dr. Dawbarn has reported some cures.

ENLARGEMENT OF THE PROSTATE GLAND.

The treatment of the Prostate Gland is a very serious matter. There is no question but what this disease is very common, and attacks men much more frequently than formerly. It begins at a younger age, and causes a great deal of suffering. Many deaths, directly and indirectly, are attributed to it, and the surgeon who can first successfully treat it, will not only confer a great benefit on humanity, but will be the owner of a gold mine.

At present the operations are suprapubic cystotomy and enucleation of the gland through the bladder. It is a very severe procedure, and the fact that most of the patients are elderly men, causes great mortality. It is usually successful—if the patient lives.

The method of Botteni, by which he burns off the middle lobe of the prostate, with a complicated electrical apparatus, has its difficulties, and even in the hands of the most experienced operators, is uncertain, as one is working at the end of a dark hole eight inches from the hand, and it cannot be ascertained positively, if the cautery is burning in the right place, or even if it is burning at all.

The operation, however, can be done with cocaine, which is sometimes an advantage.

The method the writer prefers, probably because he knows the least about it, is median perineal prostatectomy. The advantages claimed are:

First: It is the most direct route to the prostate.

Second: Injury to the bladder is avoided.

Third: The operation is easily performed—which the writer is inclined to doubt.

Fourth: It has the advantage of working through a smaller opening.

Fifth: Hemorrhage is avoided as long as one is careful to work within the capsule, the hemorrhage in the suprapubic prostatectomy being often alarming; also sepsis and intoxication from pus and decomposed urine being a source of danger in the suprapubic operation.

Sixth: Perineal drainage is more complete.

Seventh: There is less shock.

BRIGHT'S DISEASE.

The work of Dr. George Edebohl on operation for the relief of chronic Bright's Disease is worthy of more than passing consideration.

To quote Dr. Edebohl, the operation was based upon the favorable results obtained in four out of six cases in which nephrectomy had been performed for the purpose of anchoring a movable kidney in the presence of well-marked Bright's Disease.

In five of these cases, nephrectomy was undertaken without any idea of influencing the chronic nephritis known to exist, the motive for the operation being given solely by the existence in an aggravated degree of the usual symptoms due to the mobility of the kidney or kidneys.

Complete and permanent disappearance of albumen and casts from the urine, and the restoration to perfect and enduring health of three of the five patients, led Dr. Edebohl to undertake the operation with the idea of perfecting a radical cure.

The operation consists in the excision of the renal capsule, and is performed with the idea of giving a new and liberal supply of arterial blood to the diseased kidney.

The writer has not space to take up the details of the operation, and will simply quote Dr. Edebohl's conclusions in regard to it. He says: "As a result of my experience thus far, and from my present standpoint, I am prepared to operate upon any patient with chronic Bright's Disease, who has no incurable complication, or one absolutely forbidding the administration of an anesthetic, and whose probable expectation of life without operation, is not less than a month." The latter proviso is made in view of the fact that the beneficial effects of the operation can scarcely become operative to any extent in less than about ten days.

To our personal knowledge, several tubercular kidneys have been successfully removed by local surgeons, during the past year, and the results have been very satisfactory, the patients not only recovering, but remaining cured, and continuing in good health.

TUBERCULAR PERITONITIS.

Most writers recognize three forms of this disease; a suppurative, a serious exudative, and a variety characterized by the formation of adhesions. Cases without adhesions and with the collection of fluid in the abdominal cavity, have been those in which the best results have been obtained from operative procedure. They not infrequently entirely recover.

Where there have been adhesions with collections of pus walled off in the various parts of the abdominal cavity, most authorities think that no good can be accomplished by incisions. It is a safe general rule to say that where a patient's general condition is good, and he is free from fever, laparotomy will prove beneficial.

The radical operations which have been attempted upon tubercular lesions in the peritoneum, have proved uniformly disappointing, and attempts to cure the disease by such means are questionable.

The surgical treatment of ascites, due to cirrhosis

of the liver, consists in establishing collateral venous circulation by means of anastomosis, between the veins of the omentum and the veins of the anterior abdominal wall, thus relieving the obstructed vena porta.

This is accompanied by scarification and suture of the omentum to the anterior abdominal peritoneum, to which it readily adheres.

In a number of cases thus far reported, results have been encouraging. Tapping was resorted to several weeks before the operation in order to relieve accumulated fluid, only to find that it returned in a short time.

After the operation, however, anastomosis having taken place, ascites and edema rapidly disappeared and did not return.

It seems highly probable that if the operation were performed earlier in the course of the disease, before secondary involvement of other organs had taken place, even better results would be obtained.

Microscopists long ago told us that we could not disinfect living tissues, and surgeons are more and more coming to the belief that it is useless, and even harmful, to use the stronger disinfectants like bi-chloride,carbolic, etc.; notably Mac Burney, who has abandoned antiseptic for aseptic surgery.

In these days of gowns, caps, masks and rubber gloves, which can all be sterilized by heat, our only apprehension is the skin of the patient. This is best overcome by thorough scrubbing, shaving and a sterilized soap poultice.

Dr. Mann uses no bi-chloride, as he says it makes his nurses careless. "They swish a little bi-chloride through a dirty pitcher and tell him it is sterile."

Iodoform, however, is still used by many of the fraternity. It has a villainous odor, and is a fine culture media for germs. It is utterly useless under all circumstances, and is never of any value under any condition. Still, the profession are fond of it, and are loath to give

it up. Maurice Richardson of Boston never uses it. Kelly of Baltimore does.

Old Dr. Stewart of the Marine Hospital Service (my preceptor) had rather vague ideas of antisepsis. His method of disinfecting was to turn a teacupful of crude carbolic acid into a soup-plate filled with chloride of lime, and set it under the patient's bed.

If the wind was in the right direction, one could smell the hospital for a quarter of a mile, more or less.

This seems very absurd to-day. Still the conditions have not materially changed. One can smell either of our local hospitals about the same distance, only the odor is iodoform, not carbolic.

On the whole, I believe the conservative surgeon who can fearlessly perform the operation at hand, is greatly on the increase, and though nothing new or wonderful has been accomplished, a great deal has been done.

Conservative surgery, a greater accuracy in diagnosis, and a better knowledge of pathological anatomy, would limit unnecessary and harmful operations.

A surgeon should be a good adviser, as well as a good operator.

There is a mistaken idea in some quarters, that because a man can do an unusual and difficult operation successfully, he is a great surgeon. Far from it. He simply knows how to do one operation. To be a surgeon, he must learn a thousand more.

He must have actual practical experience, as well as theoretical knowledge, and be prepared for all emergencies and complications that may arise.

All this takes time, perhaps twenty years, for the making of an all-round surgeon, and in the end, a man may show more judgment by what he refuses to do, than by what he does.

I wish to acknowledge my indebtedness to Dr. George N. Bell of Hartford, for his assistance in preparing this report.

DISCUSSION.

In discussing the paper Dr. Johnson said we are all interested in the many wise sayings in the paper which has just been read. Dr. Cook is right in exposing some of the pet theories of the surgeons. There are, however, one or two good things in what has been read. One is regarding Iodoform. He has not used it in his practice for some years. Its use in surgery by some may be like the skunk around the barn; it makes a smell. We still hold to it. At St. Francis Hospital it used to be used a good deal. Now it is used but seldom. When we don't know what to do we use Iodoform. If the patient gets well we say Iodoform did it.

Another thing in the paper is the subject of the gall bladder. It is next to appendicitis or ranking with it. The operation can be done with success and give relief. We know a number of good old men and women who have been for years holding their hands over their gall-bladders and whom we have been giving the Carlsbad. In the future such cases will be operated on. To do an operation on the gall-bladder is easy: to do it on the common and cystic duct is difficult. But we may drain the gall-bladder. Out of eight cases he has closed up he has closed up the gall-bladder without drainage. From the last one he removed many stones. These he pushed along into the duct which latter he closed up, and the patient made a good recovery. It saves much time, the drainage prolonged convalescence to an undue degree. Mann takes out the gall-bladder or closes up the wound altogether; oftentimes there is a mistaken diagnosis of cancer of the liver and pylorus when the trouble is really due to gall-stones. He operated on a case which in Hartford had been called cancer and pronounced incurable. Several gall-stones were removed. There was extreme jaundice, and gall-stones will produce death as soon as cancer.

Dr. Wiggin was interested in what had been said

about tuberculosis of the peritoneum. His experience had been different. Tubercular pyosalpinx and suppurating diseases furnish the most brilliant results in operative surgery. Many of these cases are absolutely hopeless. The patients would have only a short time to live without an operation. Little risk is therefore to be taken. There is good recovery. One lady with a pus cavity was losing strength. Suppuration was going on. The consultant said the patient would die on the table and the statement was made to the family. She was operated on and recovered. The microscope showed that organisms were present. She left the hospital and went South. The fever subsided and she gained ninety pounds.

Dr. Carmalt said that his objections to Iodoform were less picturesque than those of Dr. Cook. They were founded upon tests made at the Sheffield Scientific School. These showed that Iodoform had no power to inhibit the growth of germs. Professors Frothingham and Pratt published these results six or seven years ago. Iodoform has 1-10 less power than Acetanilid. He agrees to all the objections which Dr. Cook has raised against Iodoform. It is not as good as Acetanilid.

Dr. Cook in closing the discussion agreed with Dr. Johnson. Operations on tubercular peritonitis are not successful. He doesn't believe it is worth while to remove the omentum.

REPORT ON PROGRESS OF SURGERY.

II.

Norton R. Hotchkiss, M.D.,

NEW HAVEN.

The writer has decided to limit the treatise of this paper to gynæcic surgery. While general surgery has made more or less rapid progress during the past year, particularly in head and chest surgery together with that of other viscera, the gynecologist has continually been improving and modifying methods which have been introduced within the past very few years. The so-called modern gynecology and gynecological operations should be known to, and appreciated by, every obstetrician. Those cases following parturition should never be lost sight of by the obstetrician until some relief has been given the suffering parturient and—later—gynecological subject. Most of these cases, if properly recognized at the time of the primary occurrence, would be easily remedied, but as there are often conditions present which at the time of the difficult obstetrical delivery may cause necessary delay in operative procedure; these cases, as well as others, should be constantly watched that the proper time for operative work and treatment may be carried out. Every obstetrical case should be followed three months later by an examination, which is to determine whether or not the proper conditions for restoration of health are present.

John C. Hurst discussed in the "International Medical Magazine" of March, 1901, the routine examination of women following confinement, particularly in reference to vaginal discharges; the condition of the peritoneum and pelvic floor; examination of the cervix by the fingers

and speculum position and involution of the uterus; and if any inflammatory conditions exist in the broad ligaments.

STERILITY.

It is strange that America should have followed the French history in reference to sterility. Along with the decreasing fecundity of the French nation, we are now beginning to realize practically the same condition. Only a few years ago the percentage of sterility in America was about two per cent.; to-day it is about twenty per cent.; this seems to be the average in the nationalities of American, German and Irish. It appears that this excessive increase of sterility is both moral and physical. It is inconceivable why so many physical causes incompatible with remedy should exist; were the causes such, we should expect a diminution of sterility with the modern advances in gynecology, analogous to the prolongation of life that has resulted from the progress in general medicine and surgery.

Sanger states that gonorrhea is the underlying cause of one-eighth of all gynecological cases.

PRURITUS VULVAE.

One of the most difficult diseases which we have to treat, and which is often not followed by good results, is this condition of pruritus vulvae. While many treatments seem to have had more or less successful results, the recent treatment of a four per cent. nitrate of silver solution daily applied to the affected parts seems to give more benefit than anything else we have found. This treatment should be accompanied with lysol or some other antiseptic. This treatment has been known to effect a cure within two weeks, even in severe cases of pruritus caused by diabetes mellitus.

DYSMENORRHEA.

We still have a great many cases of dysmenorrhea that have been unsuccessful in being treated; as a result

of this fact, experiments along that line are continually being followed. Schiff has made some interesting reports showing that certain conditions of injuries of the nasal septum have co-incidently developed dysmenorrhea. He reports in two hundred observations upon forty-seven subjects that in seventy-two per cent. cocaine applied to the nasal septum has controlled the pain of dysmenorrhea. Twelve patients were permanently relieved by the use of the cautery.

It is claimed that in neurotics dysmenorrhea is due in seventy-five per cent. to tetanic contraction of the circular muscles at the os internum, and in other sphincter muscles, twenty-five per cent. are anatomical and pathological.

W. H. Walling in "Am. Gynaeco. & Obstet. Journal," August, 1901, treats dysmenorrhea by intra-uterine electricity. If a stenosis is present, a strong negative galvanization is indicated; if the stenosis is a cicatrical stricture, mild galvanization is always indicated. The canal is enlarged by negative, and lessened by positive galvanization. A current-strength of five to twenty milliamperes may be used,—the former for five or more minutes, the latter for one or two minutes. After intra-uterine applications, the patient should be allowed to lie down for a while, and warm antiseptic douches given twice daily; such applications not made oftener than once every seven to ten days.

ENDOMETRITIS.

It is significant that a few years ago nitrate of silver applied to the endometrium was used as a treatment extensively by nearly all gynecologists; this treatment lapsed into obscurity for the reason that the caustic effect caused destruction of the uterine mucosa. Only recently J. Stirton advocates silver salts, particularly a silver nitrate deprived of its water to extent of crystalization, and solution delayed by the addition of some

other nitrate—preferably potash,—this combination being not caustic in its destructive effect upon the mucosa; being not more than a rapid oxidizer. He condemns the growing use of the curette. J. G. Roberts recommends the use of iodoform-glycerine emulsion in cases of purulent endometritis. Methylene blue has been used in the treatment of endometritis, uterine hemorrhage and leucorrhea, and with success.

G. W. Newton has devised a brush for the purpose of cleaning out the cervical canal if the contents are tenacious. It is an ordinary twisted wire brush containing bristles; the length of the brush section being about an inch and a half. It can be sterilized, and serves a useful purpose.

While curettage still stands in the lead in the treatment of endometritis, no matter of what form, we still have different methods of internal treatment.

E. W. Pere has devised a curette which is to be worn on the finger; used particularly in retained secundines. It can also be used for ordinary curetting purposes.

Antipyrin and salol have been used as styptics in hemorrhage during chronic inflammatory conditions; hemorrhage from polypi and submucous fibroids is not diminished, but sometimes increased. Equal parts are liquified by heating in a glass vessel, and applied by an intrauterine aplicator three or four times every two to four days.

UTERINE HEMORRHAGE.

C. M. Fulton advises, in inoperable cases, vaginal drainage by the use of vaginal suppositories of borated glycero-gelatine to which thymol-ichthyol or sulphate of zinc may be added as indicated. In menorrhagia, his custom is to begin the treatment four days before the menstrual period by ordering a hot douche before retiring; a suppository is inserted, followed by a douche the next morning; this is repeated daily until the menstrual flow appears.

Stypticin—technically cotarnine hydrochlorate,—a product from narcotina (an alkaloid obtained from opium), has been used very successfully by H. J. Bolt in the treatment of uterine hemorrhage in doses of three-quarters of a grain three times daily, excepting during menstruation, when the dose may be taken every two or three hours; two or three hypodermic injections at intervals of four to six hours of two to three grains dissolved in sterilized water have proven efficacious.

RETRO-DISPLACEMENTS OF THE UTERUS.

There is perhaps no subject in gynecology which has interested the profession so much as that of retro-displacements; so many different methods have been devised by different men that it has become a matter of importance for any surgeon to know what particular method is adapted to what particular case. Schucking criticizes all operations for retro-displacements, having abandoned all former operations. His procedure,—after opening the vesico-uterine pouch, the uterus is sharply anteflexed, the posterior adhesions being detached or separated; a covered needle devised by him is passed through the broad ligament just below the origin of the round ligament, and is carried around the posterior aspect of the uterus to emerge at a corresponding point in the left broad ligament. When this is done, the uterus is anteflexed and the surface at the angle of flection is curetted. The peritoneum becomes adherent and thus maintains the uterus in its normal position.

Emil Ries has devised a new operation for retro-displacements of the uterus; the technique is lithotomy position, anterior cervical lip held with a volsellum, uterus dilated, irrigated, curetted and again irrigated, but not packed. A convex incision with the convexity towards the exterior orifice is made in front of the cervix down to the uterus; the bladder pushed away until the fold of peritoneum of the vesico-uterine pouch can be pushed down, held by two artery forceps and incised between

the two,—opening the peritoneal cavity. The volsellum is pushed into the hollow of the sacrum bringing the fundus down into the vaginal incision where it is grasped with a volsellum and brought into the vagina; the vagina along the cervix is removed, the appendages brought down tight as necessity demands, and returned. The right round ligament is brought down, detached with a blunt instrument from the peritoneal fold, binding it to the broad ligament to about four c. m. from its point of insertion in the uterus; a catgut suture is passed through, then around it—the needle and thread held with a forceps; the other round ligament is similarly treated; a small pointed knife is pushed through the anterior uterine wall between the point of insertion of the round ligament; an artery forceps is passed through these incisions, grasping the needle and thread holding the opposite round ligament and draws them back to the center, and both ends of the thread clamped. The same procedure is repeated on the opposite side, so that the threads holding the two ligaments cross in the incision in the uterine wall midway between the uterine and peritoneal cavities. The uterus is returned, the volsellum still holding the fundus; traction on the two threads in opposite directions draws the round ligament into the incision until the uterus is well forward. The volsellum is removed, and the needle attached to the left round ligament is passed through the flaps in the right mouth of the incision and the stitches tied; the other side is similarly secured, thus fastening the ligaments and closing the incision. The peritoneal and vaginal incisions are closed by continuous catgut sutures.

TWO NEW METHODS OF OPERATING FOR RETRO-DISPLACEMENTS OF THE UTERUS.

The common Alexander incision having been made, the fat is separated with the fingers to avoid hemorrhage; surface fascia cut; fat again separated with fingers;

deep fascia cut—the ring perfectly obvious; the pillars being laid bare and standing out distinctly the fat of the ring can be seen bulging up between them, and we know that the ligament lies somewhere below it; the ligament is isolated and drawn out, the peritoneal reflection almost in view; the external ring is then snipped upwards with scissors for about one-half an inch; the loose fold of peritoneum which lies about the ligament should be grasped about one-third of an inch from its attachment, if possible, and snipped off with scissors. This gives one a direct opening into the peritoneal cavity, at the upper angle of which Alexander incises. This opening may admit one or two fingers, breaking up adhesions in Douglas' pouch, the tubes and the ovaries on either side can be drawn up through the openings and inspected, then returned, and the cuts in the peritoneum closed with fine catgut; the slip in the external ring closed with kangaroo tendon, and the operation completed as an ordinary Alexander operation.

Gillum's operation is adapted in all cases of retro-displacements where, for other reasons, a large abdominal incision is necessary, and where large pus tubes or cysts of the broad ligament are to be dealt with; also where myomectomy is required. After the preliminary operation of the myomectomy, or otherwise, has been performed, a ligature is passed under each round ligament about one inch from its uterine origin, and the ends temporarily secured with pressure forceps; the skin and facia are then pushed back from the cut edges of the fascia at the lower end of the incision for the space of about an inch; the fascia is then divided with the point of a knife at a point about one inch from the end of the median incision and one and a half inches above the pubes; a pair of sharp pointed pressure forceps, such as Kelly uses, is then thrust through this opening in the fascia on either side, and through the muscles and peritoneum, the finger being held on the inside to relieve the pressure of the

forceps; the forceps grasp the ligature under the round ligament and draw the ligature and the round ligament up through the opening in the peritoneum, muscles and fascia; a slack at the distal end of the ligament is secured to the outer surface of the fascia by three or four stitches of kangaroo tendon; this fastens the uterus by means of its round ligament to the abdominal wall at a point about two inches from each other, and in such a manner that about an inch of the proximal end of each ligament has been left inside the abdominal cavity; abdominal wound closed in usual way.

Stankiewitz believes that retro-flection should be treated, preferably, by pessaries during the child-bearing period, but offers no report of cures. As a surgical treatment, he claims the intra-vaginal shortening of the round ligament recommended by Bode and Wertheim, with some modifications, as being preferable to the Alexander operation in that, 1st, the avoidance of hernia; 2d, both ligaments may be shortened without a single incision; 3d, that the ligaments can invariably be found; 4th, the treatment is applicable to cases of adherent retroflection; 5th, diseased adnexa can be treated at the same time, and there is no visible scar nor subsequent pain.

MASSAGE.

Olshausan says that massage should not be used when enlarged tubes exist, excepting in emptying a hydrosalpinx in the uterus.

PROCIDENTIA UTERI.

Various methods have been adopted for overcoming this troublesome condition, the majority of which have been successful. A ventro-fixation of the uterus is to support the pelvic connective tissue by means of the uterus, which is wrong and inefficient; the best and most rational method is to draw up and attach the peri-uterine tissue and thus keep the uterus up by means of its natural supports: 1st, shorten the round ligament intra-

peritoneally, making one large loop of each ligament, and then stretch the loop to the parietal peritoneum a little above and internal to the interual inguinal ring; 2d, suture the infundibulo-pelvic edges of the broad ligaments forward to the parietal peritoneum, exterior to the internal inguinal rings as high as they can be drawn without resistance, suturing any available relaxed part of the broad ligament forward over or beside the round ligament loop; 3d, pass a suture through the base of each round ligament at its juction with the uterus and suture it to the peritoneum over and beside the bladder; 4th, if the peritoneum corresponding to the sacro-uterine ligaments is not drawn up and made somewhat taut by the new position of the uterus, or if the cervix sags far forward towards the vaginal entrance, make a short fold or tuck it in and suture it to the broad ligament beside the cervix, getting as broad a peritoneal opposition as possible; 5th, search for the remains of the urachus at the lower end of the abdominal incision; start a slit in the peritoneum an inch above the lower angle and one-half an inch on each side, and extend them downwards and outwards to the bladder wall; make a transverse incision on each side uniting the upper ends of the slits to the abdominal incision; separate the peritoneum between these slits, including as much connective tissue as possible, from the underlying fascia which then forms a partially divided flap of connective tissue and peritoneum with the urachus near its center; fold or twist these loosely in a sort of cord and attach it to the rectal fascia at the end of the incision and high enough to draw the bladder and anterior peritoneal wall well up, suspending the bladder somewhat after the manner described by Dorsen. The exterior sutures should catch hold of the newly formed vesical cord, or artificial urachus, and the lower one may even engage a few fibres of the vesical wall.

Bucurua reports sixteen cases with only one failure.

The operation practiced consisted in denuding an oval surface of the anterior vaginal wall as low as the meatus urinarius. The fundus uteri is drawn down through an opening in the anterior vaginal fornix and is sutured to the surface in question; then the pelvic floor is repaired. The advantages claimed are—prevention of cystocele and menstruation not interfered with.

Christiana shows, in a report, a success in eighty-seven per cent. by combining the operations of ventro-fixation with colpoperineorrhaphy.

J. Clarence Webster has adopted the following procedure in old women: The uterus is first extirpated, and the broad ligaments drawn down as far as possible and fastened in the fornix of the vagina; in order to gain the upward traction of these ligaments, extensive repair work is then carried out, and anterior colporrhaphy is done, removing an oval flap from the anterior wall; next an extensive colpoperineorrhaphy is performed posterially, diminishing the vagina as much as possible in its diameter in building up a new sacral segment of the pelvic floor. The suturing material used was formaline catgut for buried sutures, and superficial chromic catgut in the vaginal sutures.

CYSTOCELE.

Kreutzman, of San Francisco, makes a longitudinal incision over the cystocele, separating bladder from uterus—in fact, does fixation when the patient has passed the child-bearing period—removes sufficient mucosa, which, reunited, holds the viscus in place; suturing from side vaginal flaps directly off the uterus. Sutton, of Peoria, Ills., makes an incision around the cervix, extending to the large sulci forming the base of a triangle, the apex of which is at the meatus, the side of which takes in sufficient of the anterior wall, when the edges reunited will completely retain the super-imposed bladder; denudation made, and one flap amputated off the cervix, or repairs of the cervix, as the case may require,

being performed at the time of the first incision; a dissection of the tissues from the anterior surface of the cervix sufficient to allow the easy repression of the uterus; sutures introduced in front of the cervix may be continuous catgut or interrupted silk, as the surgeon desires; buried sutures not necessary; then the wound is closed; result,—a lengthening of the vaginal wall with the replacing of the cervix in the hollow of the sacrum.

Taulbee, of Kentucky, in his operation makes the usual preliminary preparations; the uterus grasped by volsellum and with blunt scissors dissection commenced anterially to the cervix; cul-de-sac entered by fingers; the everted viscus, first partially filled with sterile water, was pushed towards the normal position; dissection carried on, separating the reflected peritoneum from its attachment to the posterior surface—all bleeding being stopped by torsion or catgut; the dissection and stripping off of the peritoneum from the bladder accomplished with the fingers and blunt instrument; the reflection of serous coating was reached at its attachment, when the blunt scissors were again used to complete the opening through the attachment on either side of bladder,—which completes this part of the operation. The wound is then gently, but thoroughly packed with gauze; patient changed to dorsal position; hips elevated, and abdomen opened in linea alba; the distended bladder brought into view, grasped by dull fixation forceps and lifted slightly upwards and outwards; the counter openings on either side were now reached from above; two fine straight needles threaded with large silkworm-gut penetrating through muscular coat of viscus from above downwards, traversing a distance of one and one-half inches, three-quarters of an inch from the anterior median line, parallel to each other, and brought out below the lower angle of the abdominal incisions opposite each other; the four free ends of ligatures wrapped in gauze and held outside of wound by forceps; wound

cleansed by mopping with dry gauze; bladder again emptied by catheter and washed out, there being no injury to mucous lining of the organ; it is again distended by injections of fluid; the outer coating is next denuded in median line between the ligatures, the distance traversed by them changed by means of sharp semicircular Reverdin's ligature carrier, the free ends are thrust out through the abdominal wall—their exit made to correspond in point of position with their exit from bladder, and the ends again secured by locked forceps outside the sides of abdomen; abdominal wall closed; free ends of suspension ligatures on each side were drawn taut and fastened by tieing over firmly rolled bolsters of septic gauze and held down by adhesive strips. The wound was then dressed by the usual methods; bladder again emptied, and patient again placed in Sim's position; gauze packing removed and wound thoroughly cleansed; the abraded surfaces of peritoneum approximated by catgut, leaving a small opening connecting with space in front of bladder through which is left a small strip of gauze for drainage purposes; vagina packed with aspetic gauze, patient kept in recumbent position for three days. This operation is entirely original.

ATMOCAUSIS.

One of the distinctly new operations, particularly for the treatment of hemorrhage from the uterus, is that of applications of steam within the cavity of the uterus. Snegurieff, of Moscow, first introduced steam for the relief of hemorrhage in 1894; Kahn applied steam in hemorrhage of the uterus in 1896; Pincus in 1897 used it in putrid abortions; Schick in 1897 used hot water in place of steam intra-uterine; Hollande in 1898 devised an apparatus for the use of hot air instead of steam and claimed that by it he could get greater heat, measure it better, and apply it more precisely. The technique of an ordinary apparatus is simple: A fenestrated uterine

catheter is joined by a guttapurcha tube to a small boiler; the steam issuing fom it should be at 212 degrees F., the length of the application from one-half to two minutes—determined by the results desired.

Koslenko in experiments on dogs describes the result. With a pressure of naught atmosphere in the steam kettle, the temperature of the uterine cavity rose to 100 degrees and remained at that height for five or six minutes, when it slowly declined; when the pressure was raised to two atmospheres, it reached 115 degrees C., but fell in a few minutes; strong uterine contractions were observed. The uterine muscle, after a few minutes, became a pale, then grayish-red, and finally gray,—showing that necrosis had occurred; also showing that the destruction of tissue corresponds to the atmospheric pressure.

When intended to steam the uterine cavity, the uterine tube is introduced to within two c. m. of the fundus; a metal tube is then introduced and moved occasionally during the treatment to prevent the outflow of liquefied steam and blood;the uterus soon contracts, and the tube is gradually withdrawn. The temperature used is 100 degrees C. in the boiler of the instrument, which is controlled by a safety valve and by a stop-cock on the outside of the tube; it has been found that the steam enters the uterus at a temperature of about 78 degrees C. The application of the steam is from fifteen to twenty seconds in young women where no obliteration is desired, and from four to eight minutes if total obliteration is intended. Rest in bed for ten days is necessary; one vaginal irrigation after seven days if the serous flow becomes uncomfortable. The treatment should be repeated for four weeks.

PROLAPSE OF RECTUM.

Treatment of marked prolapse of rectum, together with hemorrhoids by Bovee: Hemorrhoids were first removed, then the abdomen was opened; both ovaries re-

moved and ventro fixation to the abdominal wall by four strong interrupted catgut sutures; the rectum was then drawn upwards until fairly tense and sutured to the cul-de-sac and posterior wall of the uterus, up to the abdominal wall by a running catgut suture; the retro-uterine pelvic cavity was thus divided into two equilateral spaces. Eight months later there had been no return of the prolapse. The object of the removal of ovaries was for the purpose of prevention of conception.

Another operation devised for the treatment of marked prolapse of the rectum is:—hemorrhoids first removed, then the abdomen opened by the usual median incision; the appendix removed and the uterus firmly fixed to the abdominal wall; the rectum is now drawn upwards until it is fairly tense, and so held by an assistant that it may be sutured to the cul-de-sac and posterior wall of the uterus up to the abdominal wall, which was done by a running catgut suture. This completely divides the retro-uterine-pelvic cavity into two equilateral ones. Operation devised by Bovee of Washington.

REMOVAL OF BLADDER.

Dr. Mann in his operation of removing the female urinary bladder for malignant disease, gives the technique as follows: The urethra was dilated to admit the index finger, and the bladder washed out with boric acid solution, a portion being left in the bladder; the genitals sterilized; the abdomen opened by an incision extending to the symphisis pubes—patient in Trendelenburg position—the peritoneum was cut from side to side across the fundus of the bladder and stripped from the bladder wall by the fingers; the bladder was separated from the front wall of the pelvis as far as the neck; the neck was tied and cut with scissors, the finger in the urethra being a guide. The incision was carried through, the anterior vaginal wall brought into view by traction upon the bladder; the incision was then continued around the

anterior vaginal wall so as to include the whole base of the bladder and cut out the ureters where they entered the bladder wall—a finger in the vagina guiding. The piece of vaginal wall removed was the size of a silver dollar; the ureter and urethra opened directly into the vagina, and the cut edge of the latter continued patulous and deeply lined in the vagina; hemorrhage was slight. After the removal of the bladder, and the uterus down to the cervix, the tubes and ovaries were removed; the peritoneal wounds made by removing the bladder and uterus were closed separately; there was plenty of peritoneal tissue to entirely cover the hole left by the bladder.

This is important in order to prevent leakage of urine into the peritoneal cavity. In case the ureters were involved in the cancer, the ovarian arteries should first be tied and the broad ligaments cut to the uterine cervix; a flap of peritoneum is then stripped from the cervix and the vaginal cul-de-sac opened. The peritoneal flap is separated from the anterior surface of the cervix, and the uterine arteries tied. The peritoneum over the bladder is cut traversely, and the bladder enucleated over the neck and tied and cut; the vagina is incised in front—carrying the incision around to meet the other opening.

VESICOVAGINAL FISTULAE.

Walcowitz reports eight cases successfully operated on by the following method: The cicatricial tissue around the opening is first dissected away, then the cervix uteri is freed and drawn downward through the opening to the peritoneal cavity, if it can be avoided. All cicatricial bands are cut until the uterus can be drawn down almost to the vulva. Hemorrhage is not profuse. A wide denudation of the vaginal mucosa is made around the edge of the fistula, the anterior surface of the cervix is completely denuded, and the raw surfaces are brought into contact by silk sutures. It is possible to suture the edges of the vesical mucosa separately. The vagina is

then tamponed with iodoform gauze. If the peritoneal cavity has been previously opened, a drain is introduced. In order to drain the bladder thoroughly, a suprapubic opening is made sufficiently large to admit a small rubber tube, which is sutured to the edge of the bladder wound; drainage is favored by allowing the patient to lie on her belly; another larger tube is then attached, which leads to a receptacle to prevent soiling the bed.

Treatment of vesicovaginal and recto-vaginal fistula high up in the vagina by Kelly: The steps in his operation are as follows: 1st, the patient having been placed in the knee-chest position, her body is properly supported, and her neck well protected from pressure by soft cushions; 2d, the vagina is thoroughly cleansed for the operation. (This may be done before taking the position). 3d, the vault is opened in the line of the transverse scar through into the peritoneum by making a small incision in the anatomical septum. As soon as this is done the air rushes in, and the viscera drop towards the diaphragm. 4th, the small opening is now extended as widely as possible from side to side stretching the vaginal vault and setting the bladder free; 5th, a large gauze pad with a stout thread attached is next thrust down into the peritoneum, and by pulling on this the bladder is crowded towards the vaginal outlet while the peritoneal cavity above is protected. It is important throughout to wipe out the cavity of the bladder from time to time, in order to avoid the escape of any of its contents into the peritoneum; 6th, the margins of the fundus are now stripped, separating the vagina from the bladder, or, if the operator prefers the other method, the fundus is denuded on all sides. To strip the margins, Kelly uses a short bladed thick knife sharpened on both edges and set in the handle at an angle of about 45 degrees; an ordinary scalpel or a bistoury cannot be used; 7th, when the edges are stripped and the bladder wall is set free, the bladder is sutured up separately by means of a row

of buried sutures of fine silk or of catgut, thus uniting the muscularis low. By this means the vesical edges are turned up into the cavity of the bladder, forming a little buttress (Sanger and others); the vaginal surface is then united with a row of fine and flexible silkworm-gut sutures; this row may be continued up on the peritoneal surface of the bladder, securing covering for the upper part of the fistula, which, under previous methods was likely to heal. There must be no dead space left between this and the row of buried sutures; the silk-worm sutures are cut off at about four c. m. from the knot; 8th, the fundus being now closed, the packing is withdrawn and then in order to get rid of the air in the peritoneum the cavity is filled through a tube with a normal saline solution which, as it rises to the level of the vagina, displaces the air; when the patient is turned over on to the dorsal posture all the water escapes; 9th, a little suturing at each angle and a drain of washed-out iodoform gauze (Sanger) in the middle and one in the vagina completes the operation and the dressing. It is best to keep a catheter in the urethra for from seven to nine days following the operation.

Dr. A. Lapthorne Smith describes his new operation which he divides into four parts: 1st, a transverse incision of the vagina in front of the cervix; 2d, the vagina is separated from the bladder with a few cuts of the scissors from one end of the fistula to the other; 3d, the tear in the bladder is caught with a catgut suture and held by an assistant, and then the muscular wall is brought together with continuous fine chromacized gut, extending back at least one-eighth of an inch on each side, taking care not to go beyond the muscle of the bladder, and, 4th, the vaginal incision is closed with interrupted silkworm-gut, passed through the vagina, then through the muscular wall of the bladder, and finally through the vagina. By the above method the line of sutures in the bladder is backed up by the vagina instead

of by sutures—as is the case in other operations; sewing of the mucous membrane is not necessary because the edges are brought together by the drawing of the muscular layers. The catheter remains in the bladder for five days.

Spasso Konkozky describes the following method of closing a fistula: Several sutures are passed between the vaginal and vesical mucosa; while traction is made upon these, a bistoury is introduced between the sutures and the vaginal mucous membrane and a flap is dissected off; the sutures are then threaded into the eye of a catheter and are drawn through the urethra and out at the meatus; the vesical flap is thus incased in the bladder, while the vaginal edges of the fistula are easily approximated, after which the temporary sutures are withdrawn per urethra.

GONORRHEAL CYSTITIS.

For a long time the custom of treating the acute stage of gonorrhea was by keeping the patient quiet and giving food and medicine tending to render the urine bland and unirritating, but now that in Protargal and Largin we possess two reliable preparations, there is no excuse for delaying treatment. The diet should be restricted and frequent hot sitz baths ordered; after irrigating the urethra with a one-half per cent. protargal solution, seventy-five c. c. of this fluid makes injection directly into the bladder through the urethra (without a catheter), and allowed to remain there until the next urination; after irrigating the vagina with the same solution a strip of gauze saturated with a five per cent. solution of protargal in glycerine and water is inserted into the vagina, filling it and protruding sufficiently to rest between the labia; this treatment to be repeated daily.

DRAINAGE OF BLADDER AND CYSTOSCOPIC EXAMINATIONS.

Dr. Kelly in cases where the pain is so severe that washing out cannot be easily accomplished, treats such

cases by placing the patient in a knee-chest position and locating the cystitis in the bladder through the cystoscope. He then thrusts in a narrow bladed, specially made knife set at an angle with the handle, and draws it downwards towards the urethra, leaving a free opening in the bladder for the escape of urine. He urges the importance of cystoscope examinations in every suspected case of cystitis.

TRACHELOPLASTY.

H. P. Newman has devised an operation to supplant that of amputation of the cervix; the advantages of his method are, 1st, quickness and ease of operation by a specially devised knife, the manner of making the flaps with more ease and certainty of execution as compared to ordinary methods of incising; 2d, clean, smooth cut surfaces obtained without haggling of tissue; 3d, the easy approximation of the flaps, and the avoidance of all hemorrhage by deep passing of the sutures and compressing of the flap; 4th, the accurate approximation of mucous membrane, thus avoiding granulated surfaces, formation of scar and constriction of the canal; 5th, the certainty of obtaining a permanent patulous canal, and a well-formed cervix with pronounced reduction of the hypoplastic uterus.

INVERSION OF THE UTERUS.

In 1872 Thomas devised a method of accomplishing reduction which has been very seldom followed; his method seemed to have fallen into unmerited discredit and it is strange that at this late day his operation should have been recently followed with successful results; the use of the Trendelenburg position has aided the results. His method was: Opening the abdomen and dilating the funnel with dilators and, with assistance from below, effecting a reduction.

PROCTECTOMY.

Resection of the Rectum through the Vagina as devised by Dequines and Norton, and since followed by others, seems to be an advantage over the old method of peritoneal proctectomy which is only applicable in carcinoma involving the lower half of the two portions of the rectum. This operation is described by Murphy in the "Philadelphia Medical Journal" of February 25th, 1901, and shows good results.

COLPORRHAPHY.

A few years ago incisions through the vagina were rarely made excepting posteriorly; to-day we have anterior colpotomy which is employed a great deal more frequently than posterior colpotomy. We now have the anterior transverse incision of Dunressen's, and another mesial one at right angles for an inch and a half or more through the anterior vaginal wall. With these different incisions now advised, operations by the vaginal route have become more frequent, and results have been much more satisfactory.

Dunressen has devised a new method of antero-lateral colpo-celiotomy, the advantages of which are as follows: 1st, the broad ligament being first divided before the peritoneal cavity is opened, it is possible to evacuate and unite extra-peritoneally; 2d, the subsequent extirpation of the adnexa is easier; 3d, the uterus can be drawn down to the vulva, rendering the tubes and ovaries more accessible; 4th, inflamed tissues can be brought down and sutured to the side of the vagina; 5th, drainage is more perfect than when the gauze is introduced through a posterior incision; 6th, the antero-lateral method permits more perfect hemostasis and thus renders total extirpation unnecessary.

ANGIOTRIPSY.

Some four or five years ago the angiotribe was brought into use, and for the advantages claimed by the instru-

ment it seems strange that the surgeons of to-day have not made more practical use of it; a number of modifications have been introduced since that time; these modifications correspoudiug to difference in size and bulkiness have made this instrument very valuable. The extent of its successful use has not been confined to gynecological work alone, but it has been used successfully iu other lines, as in cases of thyroidectomy, pcduuculated growths, elephantiasis of loose tissue, such as labium and scrotum, in hemorrhoidal extirpation of large glands, etc. Dr. Hugh M. Taylor states that his experience in angiotripsy (limited to some twenty-five to thirty supra-pubic sections) fully sustains the advantages claimed for the angiotribe.

Ratchiusky concludes that while complete hemostasis is possible with the use of the angiotribe, in some cases it is only temporary; in vaginal hysterectomies secondary hemorrhage is not infrequent. F. H. Davenport advocates the use of the angiotribe, claiming that there is practically no hemorrhage if the compressed tissues are not devitalized; that the effect of the instrument is nothing more thau a complete compression of the interstitial connective tissue with all its lymph spaces.

There has recently been devised au electro-thermic augiotribe, which instrument has the advantage of cautery and angiotripsy. It is claimed for this instrument an advantage over a simple augiotripsy, or a simple cautery.

SALPINGITIS.

There is a tendency on the part of some operators in cases of catarrhal salpingitis with thickened, distorted tubes to return to the method of curettment and prolonged drainage. It is rather interesting to observe this tendency, iuasmuch as it has been previously disconntenanced ou anatomical grounds.

Firth, in a discussion before the Leipzig Obstetrical

Society, called attention to the fact that the appendicular ovarian ligament described by Clado instead of being constant, is the exception. He believes that the frequent occurrence of appendicitis and a complication of disease in the right tube and ovary is due to the tendency of the appendix to descend into the pubes and to become adherent to the tube.

Krönig thought that when appendicitis and pyosalpinx combined, it was exceedingly difficult to discover the origin of the process. Morton's statistics show that it is less common than is ordinarily supposed—thirteen times in two hundred and seventy-six cases of salpingitis.

OVARIAN ORGANOTHERAPHY.

The use of ovarian extract, as reported by Krusen, is practically harmless; no benefit in amenorrhea or dysmenorrhea; best results in artificial menopause, no effect in natural menopause; uncertain in action—hence is not satisfactory.

LUMBAR COCAINIZATION.

Frank H. Field in an article comments upon local anesthesia with adverse criticism. He advises general anesthesia for the reason that local anesthesia necessitates rapid work, and a constant lack of thoroughness. An article by Wilmer Krusen in March, 1901, number of "American Gynecological & Obstetrical Journal," regarding anesthesia by simple cocainization, is very much valued.

While the technique of lumbar cocainization seems simple, it is not always easy to locate the point of the spinous process in very fat people, or in nervous people who stiffen the muscles. The use of the double needle prevents occlusion of the lumen on the instrument, for the inner needle can be removed. The inner, finer needle should project beyond the other for half an inch, and should only be just large enough for the fluid to flow through. Aspiration enables the operator to con-

trol the amount of fluid removed, and preserves the fluid for examination or for use as a solvent for the cocaine to be injected. A full minute should be allowed for the injection, and a concentrated solution or a deficient quantity produces no more unpleasant symptoms than the same does in a dilute solution, as the effect of the former hastens anesthesia. The extent and duration of the analgesia depend properly on the amount of cerebro-spinal fluid present in the individual case. A preliminary injection of cocaine at the seat of the proposed puncture is frequently used. In laparotomies there is more difficulty in retracting the edges of the abdominal wound than under general anesthesia. One of the best articles on spinal cocainization in surgery is that by G. R. Fowler, of New York, in "Medical Review of Reviews," April 25th, 1901. Tuffier had only one death in a series of two hundred cases.

TRANSVERSE ABDOMINAL SECTION.

Of late there has been introduced an incision which is transverse and slightly crescentic, just above the pubes and along the course of the Mons Veneris. This incision has, it is said, produced absolutely no scar. The operation is continued by lifting up at both angles the skin and subcutaneous tissues and then making the usual longitudinal incision through the muscles and peritoneum. It is also claimed that this incision will, to some extent prevent a hernia.

INTRODUCTION OF SALINE SOLUTIONS INTO THE PERITONEAL CAVITY.

F. F. Sampson states that the intra-peritoneal use of salt solutions is contra-indicated in patients having ascites is prima facie evidence of lowered powers of absorption; also contra-indicated in those cases in which sudden perforations of the hollow viscera (as from typhoid ulcer, gangrenous appendix, etc.,) or of an abscess producing a large amount of effete substances,—bacteria

and bacterial poisons to flood the peritoneal cavity; therefore to do anything to favor its continued absorption would be most irrational, yet this is the action for which peritoneal infusions of normal salt solutions are chiefly landed.

SUTURING WITHOUT KNOTS.

Dr. George M. Edebohls has practiced the method of suturing a wound in laparotomy without making even a single knot; he also uses this system of making as few knots as possible in all operative work. His method is an incision very much like the McBurny incision. He inserts the needle into the cut edge of the skin at the upper angle of the wound to be closed. It is first curved downward into the sub-cuticular structure, then upward to come out into the skin edge again,—a combination of intra-cuticular and sub-cuticular stitches is thus effected, which thus modifies Doctors Hall and Marcy's sutures. After passing the first loop he then goes through the deep fascia, then through the covering of the external oblique and then the internal oblique, transversalis and peritoneum into the peritoneal cavity. The needle end of the suture is now drawn up until but several inches remain on the outside; this end is held by an assistant. Through traction on the needle, both edges in the transversalis fascia and peritoneum are now brought together by a continuous suture, or by a purse-string, or by any other method of suturing one may choose to apply to this portion of the closure. The next layer (the aponeurosis of the internal oblique) is then united, and by a system of over-and-over stitches the edges of the different layers are brought together, eventually suturing the skin in the same manner, bringing out the last end of the thread at nearly where it first entered. By strapping these ends in bandaging, no knot need be tied. This system of suturing can best be applied with absorbable material, such as chromacised catgut.

HYSTERECTOMIES.

Byron Robinson advises a new method in non-malignant cases of pyosalpinx; the adhesions are to be broken up; the peritoneal sac punctured by drain and the contents of the sac removed. The method is as follows: The uterus is drawn distalward with a traction forceps and the anterior and posterior fornices incised; the uterine surface is freed from the bladder and rectum by the fingers; the greater vaginal fornices are not incised; about one-quarter of the lateral segment of the uterus from the fundus to the cervix is severed by scissors and the posterior and anterior edges of the uterine segment sutured together, including all exposed uterine tissue; the suturing can progress as the cutting is performed. He cuts with the scissors from the cervix to above the internal os on both sides; suture the surface with silkworm-gut; draw the fundus into the vagina, and sever the lateral uterine segment from fundus to cervix, continuing suturing until the cervical sutures are met. Peritoneum will cover all the remaining segment of the uterus; the oviducts and ovaries are not removed. The stitches are removed on the tenth day, by which time the non-removed uterine segments have become fixed by plastic adhesions to the vaginal vault and adjacent peritoneum. These adhesions are broken up at this time, freeing the intact uterine segment. This conservative procedure is radical enough to arrest the fixation of the uterus, while merely the center of the organ is lost—the ureter and bladder are perfectly safe.

A. A. Wordin describes the improved technique of Dayen's abdominal hysterectomy: 1st step, Trendelenburg position, abdomen opened and tumor drawn out above the pubes by a large fibroid screw; protection of intestines, etc., by compresses; 2d step, perforation of Douglas' pouch and seizure of the cervix,—vagina having previously been rendered aseptic and cul-de-sac pulled up by an assistant with a pair of long forceps and

sponge; perforations made with scissors extending on either side of the cervix; cervix seized by strong catch forceps and drawn well up; 3d, isolation of the cervix,—two cuts with the scissors laterally close to the uterine wall free the cervix from its relation to the lower part of each broad ligament, and being thus freed it is at once easily drawn further up and out; the anterior vaginal cul-de-sac now comes into view, and the cervix is separated from it by the fingers or by the scissors, strong traction being made; the right forefinger then separates the bladder with the greatest ease, using traction; 4th step, removal of the uterus; only the lateral vascular connections now remain to be simply and rapidly divided as follows: The left forefinger is passed above the superior border of the right broad ligament through the vesico-uterine peritoneum, and gently—but rapidly—strips off the right broad ligament, which the assistant then seizes; the surgeon then cuts between the adnexa and the uterus, thus entirely freeing the tumor on the right side; the opposite side treated in the same manner; 5th step, the arrest of hemorrhage, the ligaturing of the veins; 6th step, closure of the pelvic peritoneum (the table being horizontal); 7th step, closure of the abdomen.

CARCINOMA UTERI.

Within the past few years much controversy has taken place with reference to abdominal versus vaginal hysterotomies in cases of cervical and corporeal malignant disease. There seems to be an equal division in regard to the technique of operation. Pryor, in his technique on vaginal operations, removes all sloughing by the use of the curette and scissors; he then burns the cervix with a galvano cautery until it becomes a dull gray color. The vagina may be picked up an inch below the cervix and the uterus totally incised anteriorly around its circumference with scissors, instead of the Mackinrodt cautery method; he pushes up the bladder in front, and enters the peritoneum below, until the cervix can be

clamped together with the vaginal cuff which has been formed with Pean's blunt forceps. The dissection is continued until the peritoneal sac is entered; the uterus is now anteverted through the vagina, and the adnexa delivered. Forceps are applied to the ovarian artery on the left side and the tissues cut; the left ureter is then stripped away from the uterus, and then the uterine artery is secured. The uterus is now cut away on the left and swung out of the vagina. The same manœuvers are now directed towards the right side. Pryor uses forceps instead of ligatures always in vaginal hysterectomies. In cases of cancer of the corpus uteri, he does not remove a vaginal cover; the uterus is curetted, and by means of a probe-shaped electroid, the body of the uterus is cauterized. In vaginal hysterectomies Schuckardt has advised the use of a para-vaginal incision in order to gain free access to the uterus; he frees the peritoneal tissues, carrying the incision to one side and pulling the rectum to the opposite side. In this method he is able to do a more extensive operation in malignant disease, and is also able to operate immediately under the eye. J. C. Irish uses the abdominal route, by preference, in malignant disease. Mackinrodt states that during twenty years in which hysterectomy has been the accepted method of treatment, only ten per cent. have been cured, hence he advises a radical operation by the abdominal route. He makes a large crescentic abdominal incision from one iliac spine to the symphisis and upwards to the opposite spine. The insertions of the recti muscle are divided; the peritoneum, without incising it, is separated from the abdominal opening as high as the umbilicus. The abdominal muscles are separated from their pelvic attachments, making a large gaping wound. The peritoneum is now opened by a few transverse incisions and is reflected over to the anterior wall of the bladder; the uterus is drawn out; ovarian arteries ligated; the posterior edge of the peritoneum is now sutured behind the

uterus from the right side of the pelvis to the left, covering the sigmoid flection. The pelvic peritoneum is directed upwards, carrying with it the ureters, as high as the iliac veins, where the glands are found and removed with the surrounding fat and connective tissue. The ureter is then carefully packed; peritoneal openings are sutured; the bladder, rectum and vagina freed; the broad ligament and para-vaginal tissues are separated, the vagina is clamped and divided with cautery below the clamps. This method protects healthy tissue from cancerous tissue. The short flap of peritoneum attached to the bladder is sutured to the peri-posterior wall of the peritoneal cavity, and drawn per vaginam—the space between the bladder and abdominal wall—through the lower angle of the external wound. Extensive suppuration of the large cavity and bladder is to be expected.

The operative treatment of cancerous uterus by Bovee is a combination of those of Werder, Rice and Prior. The technique of his operation is, 1st, vaginal douche of corrosive sublimate of one to two thousand, followed by loose packing of the vagina by bichloride gauze; this is done by a nurse before anesthetizing; 2d, abdominal incision in Trendelenburg position; 3d, ligation of the ovarian veins at the wall of the pelvis and securing them at the uterine cornea with forceps or ligatures; 4th, depression of bladder from uterus and broad ligaments; 5th, partial dissection of the ureter from the iliac arteries to the bladder, and passing two silk loops around each, then ligating and severing the round ligaments at the pelvic wall; splitting the broad ligament, and ligating the uterine veins close to the origin of the uterine arteries; dividing broad ligaments at the outer ends; cutting away the uterosacral ligaments close to the pelvis, and continuing the dissection down outside the vagina near to the vulva; the glands and fat are dissected out from all exposed, denuded surfaces up to the iliac junction, and down to the bottom of the dissection as well as along

the lateral margins, and stitched posteriorly to the rectum; 6th, push the loosened structures down into and through the vulva, and pack above with sterile gauze; after this, suture the peritoneal covering of bladder to the rectum and posterior margins of peritoneum, then close the abdominal incision; 7th, place the patient in a lithotomy position, and, grasping the cervix with a volsella forceps, pull out the loosened structures, and by a circular incision through the vaginal wall meet the edge of the dissection from above. The end of the gauze packed in from above is pulled into the vulva opening for easy withdrawal about the fifth day.

CANCER OF THE CERVIX.

J. M. Baldy in "American Medicine," August 3d, 1901, states that cancer of the cervix is practically incurable, basing his statement on reports of results of treatment from all quarters of the world. The percentage of cures is less than five per cent.

In the treatment of inoperable carcinoma, I. C. Chase in "The Journal of American Association," has exploded the statements made by Levet and Guinard in "Nouvelles Remedies" as to the value of calcium carbide. He has found that acetylene gas generated by the calcium carbide has no anti-septic action; in fact, the various micro-organisms of putrefaction actually grow luxuriantly in an atmosphere of commercial acetylene gas.

In inoperable recurrent cancer, Beatson has introduced a method of treatment in such cases which deserves more thorough experiment. He has proven in several cases that a double oöphorectomy has caused a cessation of the recurrent malignant nodules, together with a total disappearance of the same. He reasons it that the spiral cancer cells are vaculated germinal cells corresponding with those found in the ovary. Cancerous growths seem to be due to epithelium taking on the characteristics of germinal epithelium; applying his method, he hopes to produce a retrograde metamorphosis. It is shown that cases

operated upon before the menopause will show the larger percentage of cures, although he has produced one cure in a woman of seventy years of age.

BISECTION OF UTERUS.

Fauran, of Paris, was the first to propose bisection of the uterus vertically, and the preliminary ligations of the uterus are necessary. The following are the varieties of bisection used by Kelly: 1st, in cases of fibroid tumors wedged in the peritoneum, or held down by peritoneal inflammatory disease; also in cases of large fibroid tumors filling the lower abdomen, a vertical section is performed; 2d, in pelvic inflammatory disease and in carcinoma of the cervix, vertical section of the anterior and posterior walls in the cervix or in the vaginal vault is done; 3d, where the fundus is adherent, section of the anterior wall of the uterus is first made, continuing the bisection down into the cervix and through the posterior surface of the uterus, from below upwards; 4th, in cases of dense adhesions of the fundus and of the posterior surface of the uterus a transverse division of the cervix is first made, followed by vertical section of the uterus, from below upwards; 5th, bisection of intraligamentary myomata; bisection of intraligamentary cysts; bisection of adherent ovarian cysts.

The advantages offered by the vaginal route are, 1st, the sacrum posterior bony wall of the pelvis is not disturbed; 2d, the field of operation is as extensive, and the anatomical parts as accessible as in the transsacral operations; 3d, the diseased tissues are more accessible for inspection, and the extent to which the operation may be carried in an upward direction is as great, if not greater, than by the sacral route; 4th, the peritoneum may be drained freely through the vagina; 5th, a perfect end-to-end approximation, either by sutures or by the use of the button, may be secured. The preferable method of uniting the two ends is by interrupted sutures of silk,

because as there is no peritoneum of the sphincteric segment, failure of union with the bottom is to be feared; 6th, the sphincter is retained and the peritoneal body is restored; there is diminished action of the levator ani muscle; and, 7th, when the operation is completed, the parts are practically in their normal positions.

OVARIAN GRAFTING.

A review of the literature of Ovarian Transplantation shows that transplantation of the ovaries, either homo or hetero, is possible, and that it is also possible that pregnancy will follow in a small number of cases: and that the ovaries beyond the process of ovulation have an important effect upon the development of the sexual organs—that may be due to some internal secretion, but not positively known. However, it does seem that ovarian transplantation has some effect upon preventing certain degeneration of the female. The large bulk of evidence tends to show that the whole, or a part, of the ovary should be left in all operations.

A case in which both tubes, and these were septic of long standing, were removed, was followed by pregnancy, (a small piece of one ovary had been transferred to the interior of the stump of the right oviduct), but was followed later by an abortion at three months; probably on account of persistent adhesions. She continued to menstruate, however, for about four years. Another case in a girl of twenty years with infantile uterus and a rudimentary adnexa who had never menstruated;—a portion of ovary from a woman thirty years old was grafted in the fundus of her uterus; the case was followed eight weeks later by fairly normal menstruation; personal appearance and symptoms of suppressed menstruation relieved. Another case twenty-two years old had ovarian cysts removed successively from both sides and at the second operation a portion of another patient's ovary was grafted in the left broad ligament; a year later she was menstruating regularly and easily.

Other cases have been followed with equally good results. This furnishes abundant proof that the ovarian tissue may be transplanted with continuance of its function, and even with the possibility of future pregnancy.

URETERO-VESICAL IMPLANTATION.

Dr. J. F. Baldwin, of Columbus, Ohio, reports three successful cases, the technique of which was very simple and consisted in locating the lower end of the injured ureter after laparotomy, and, with a pair of long forceps introduced into the bladder through the urethra, and after selecting a point in the bladder wall, push the forceps through the bladder wall and grasp the lower end of the ureter; then uniting the edges and ureter with nitrate of silver catgut. Posterior draining by Douglas' cul-de-sac; if tension exists, he suspends the bladder at some point to the stump of the broad ligament close to the point of implantation; this operation being a short one is to be preferred to the uretero-ureteral anastomosis, or other ureteral operations.

A NEW LEG HOLDING DEVICE,

By Dr. Mallet, of New York, consists of two parts: A pair of stout canvas stockings and a short shoulder strap; a ring is attached to the outside of each stocking and a short adjustable shoulder-strap is passed over the back of the neck from one shoulder to the other; this strap being attached to the ring in the stocking as necessary. The strap and stocking both can be sterilized.

STERILIZED ZINC OXIDE PLASTER.

There has recently been introduced sterilized zinc strips which have been used instead of sutures. Various surgeons of note have used these plasters with successful results. They have been used both in laparotomies and particularly in breast amputations; it is claimed, and abundantly proven for these plasters that they are without any skin irritations. They are one of the best achievements in the progress of modern surgery.

RECENT INVASIONS OF SURGERY INTO THE DOMAIN OF INTERNAL MEDICINE.

By William H. Carmalt, M.D.,

NEW HAVEN.

Within the last few years the Germans have established a Journal, with the title of "Das Grenzgebiet der Medicin und Chirurgie," which may be freely translated as "Common Fields in Medicine and Surgery." The establishment of this Journal shows the trend of modern medicine, speaking in a broad sense, which in many respects leads to operative work and illustrates the impossibility of drawing hard and fast lines between "internal medicine," as designated in the curricula of the schools, and surgery. This recognition of a common field can but broaden our conception of our profession and has the advantage of insisting upon accuracy of diagnosis, for being brought face to face with the question of an operative procedure, we feel all the more necessity of being accurate, as well as confident that we have exhausted all other means before proceeding to the crucial test of a "cutting operation;" the responsibility of the surgeon becomes more acute as he advises a surgical procedure—the carrying out of which is, in itself, a menace to life, and a failure to cure reacts upon his reputation.

Most surgical operations are undertaken for the removal of an organ or a part already diseased or injured beyond hope of recovery, its further presence being either immediately dangerous to life or becomes so through interference with some vital function. Within the last decade, however there have been two serious major operations proposed for therapeutic purposes, pure and simple; undertaken in cold blood as curative

procedures. I refer especially to the operation devised by Drummond in 1896, and carried out at his suggestion by Morison, in which it was proposed to cure ascites due to cirrhosis of the liver by establishing a collateral circulation through the abdominal parietes to take the place of the obstructed portal circulation caused by the interstitial hepatitis. Drummond observed that in those cases of cirrhosis of the liver in which ascites did not occur there were more or less adhesions between the surface of the liver and the abdominal parietes; and further that in a number of these cases there was an enlargement of dilation of the superficial veins of the abdominal wall. He reasoned that it might be in creating such adhesions artificially, or intentionally as it were, that he should avoid the occurrence of the condition of ascites, and should so far relieve his patient of a very uncomfortable—not to say distressing—symptom; one in fact that in many cases was the direct cause of death. With this object in view these gentlemen made an incision through the abdominal wall in the median line, drained the abdominal cavity of the accumulated fluid,—by that means bringing the parietes in contact with the viscera and by the simple process of rubbing the endothelium of both the liver and the abdominal wall with an aseptic dry sponge, cause adhesions together of these surfaces, and thus establish a collateral circulation. The patient was benefited; ascites did not return; the most distressing symptom was relieved. Others took up the subject, and more elaborate procedures were instituted to the same end. The omentum was used in different ways to form the collateral circulation; sometimes it was simply stitched to the abdominal wall, the surface (being somewhat roughened), and fixed in that position; in other cases it was turned up, reflected over the upper and anterior surface of the liver between the liver and diaphragm and fastened there.

A more elaborate procedure was instituted later, the author claiming more perfect results, in that a large more or less reversed L-shaped incision was made through the abdominal parietes. A long incision is made, reaching downwards from the edge of the costal cartilages along the outer border of the right rectus muscle, or a little beyond it some seven or eight inches, and then another from near the upper part of this incision directly inwards towards the median line dividing the rectus muscle entirely; these two incisions are carried down to the peritoneum and the resulting flap dissected off from this structure towards the median line in its whole extent; this being done, and all hemorrhage stilled, the peritoneum is laid open, the omentum brought out and stretched over the peritoneum between it and the flap of muscle and fascia and attached by a row of sutures loosely applied to the cut edge of the peritoneum; the free border of the omentum is then attached as firmly as may be to the abdominal flap; the wound is then united by the proper sutures in layers to make a firm abdominal union.

It is seen that all these procedures have, in common, simply the attempt to bring about a circulation between the free surface of the liver and the general systemic circulation by another route than the portal and hepatic veins. The operation has been followed by a certain considerable degree of success, in that in some instances there has been no return of the ascites and lives have been prolonged. In some cases there is reason to believe that the cirrhosis of the liver has been brought to a standstill, and in others that the hepatic functions have been entirely restored,—in other words, the patient cured. An explanation of this latter result has been given by Rolleston and Turner claiming that, 1st—by diminishing somewhat the flow of blood through the liver, it may allow that organ to more completely deal with what does pass through it, and thus reduce the

toxemic condition which is so important a factor in causing the ascites, and 2d—that the increased blood-supply to the surface of the liver so improves the nutrition thereof that the liver cells undergo a compensatory hypertrophy; the organ thus re-establishing its anti-toxic function, and the disease be cured. How accurately this describes what occurs, we are not, as yet, able to say; autopsies of these cases of cures have not been made, and we cannot speak confidently as to what has taken place.

All the cases operated upon, however, have not taken this favorable course; in fact, but a limited percentage have been cured; patients have died,—some as the immediate result of the operation, others at a later period, not having experienced any relief. The results of the post-mortem examinations have shown (as is a well-known fact in advanced cases of this disease) wide-spread disorganizing changes of other organs,—arterio-sclerosis, chronic nephritis, inflammation of the spleen, et cetera. As these conditions occur as concomitants or consequences of the disease of the liver, the view at once is presented to us that these secondary conditions were already too far advanced at the time of the operation to allow us to expect any other than an unfavorable termination. This termination should be charged to the operation having been postponed too long, rather than to the procedure itself; it would seem that we should endeavor to improve our means of diagnosis in order to recognize the disease at an earlier stage before the liver cells are so compressed and compromised by the chronic interstitial process that hope of their restoration cannot be entertained. There isn't time in the period allotted to the reading of the papers to-day to go extensively into the consideration of this question; my intention is simply to bring this procedure to the attention of the general practitioner, in order that he may un-

derstand that a person with cirrhosis of the liver has not necessarily his death warrant signed, and that if the condition is recognized early there is hope for relief by surgical means.

The second procedure referred to in the beginning of my paper is, it seems to me if the view of its advocates proves correct, of even greater importance than the one just described inasmuch as the disease itself is vastly more common. The principle involved is the same as the one just described, viz.: the relief of the obstructed circulation that occurs in chronic interstitial nephritis:—in the small contracted kidney of the pathologist,—a condition that is regarded as leading sooner or later, and usually fairly early, to a fatal termination. Dr. Edebohls, of New York, who has given this subject more investigation than any one else, has advocated a surgical procedure, which he designates decortication or decapsulation, energetically and is entitled to whatever credit is attached to it if it proves successful. It was no sudden inspiration, however, on his part, but logical deductions from a number of observations extending over a number of years by different men, supplemented by cases of his own in which it was noted that abnormal conditions existing before certain operations disappeared unexpectedly as the result apparently of the operation undertaken for another purpose.

The first recorded observation bearing upon this point I find quoted in the Trans. of the American Surgical Association for 1885 by Dr. Louis McLane Tiffany, of Baltimore, from the "Bull. de Therap. of 1881—101, p. B. 4 3," where a French surgeon whose name is not given, incised the fibrous capsule of the kidney and effected a cure of a nephritic colic. In 1889 Dr. Tiffany reported to the same Association another case similar in many respects and expressed himself as regarding the relief of the nephralgia as due to releasing tension from a large cicatrix in the capsule of the kidney caused by the absorption of a large gumma.

In 1896 Reginald Harison, of London, exposing the kidneys in suspected renal calculi, found the capsule so tightly swollen that he punctured it in several places for the direct purpose of relieving the tension and found that a previously existing albuminuria with casts was cured. He repeated the procedure in three instances with favorable results in two. These were the first cases in which the statement was made that chronic Bright's disease could be cured by relieving tension.

Prof. Israel, a German surgeon, advised incision of the kidneys for hematuria, renal colic and nephritis and carried them out with favorable results. Then came operations instituted for the purpose of fixing movable or floating kidneys to the abdominal parietes posteriorly, and in cases in which this operation was carried out on kidneys affected for several months with Bright's disease, as shown by examinations of the urine, it was found that the conditions indicating the disease of the kidneys in the course of weeks, or months, disappeared entirely and the patients recovered. In performing the operation for the relief of floating kidney, Dr. Edebohls, as detailed at length in the Annals of Surgery for February, 1902, stripped the kidney of its capsule to a considerable extent, and used the freed capsule to fasten the kidney to the abdominal wall. He asserted that the disease of the kidney, shown to exist previous to the operation, disappeared. He then proposed that the operation should be done on kidneys not floating, which were the seat of chronic Bright's disease as a therapeutic measure and carried it out in three instances—in two of which a temporary cure, at least, was achieved; whether permanent or not, time only can show; less than two years have elapsed since the first of these operations was undertaken.

In a paper read before the Association of Genito-Urinary Surgeons on April 29th of this year, Dr. Ramon Guiteras, of New York, discusses the subject on the same

lines as Edebohls, and—without venturing an opinion myself, not having done the operation on the living subject,—I must say I am deeply impressed with its possibilities. Two of Dr. Edebohls' cases were upon subjects who had had the operation of nephropexy performed previously, and he found a very profuse collateral circulation established between the denuded surface of the kidney and the surrounding parts; the quadratus lumborum muscle and the perirenal fat; that arterial circulation was towards the kidneys, and that the veins were correspondingly enlarged. We understand, of course, that the procedure is in the experimental stage, but it behooves us to be on the alert for something that will help us in the treatment of this very serious disease.

The operation in its initial steps does not need to be dwelt upon at length—it is the usual procedure for nephropexy—or for nephrotomy and allied operations. The kidney may be brought out upon the back, or the decortication may, with more difficulty, however, be made with the organ in the depths of the wound. This consists in making a small incision through the capsule on the convex surface and then introducing a small probe-pointed director through the opening, dividing the capsule upon it all along the convex surface and around each end nearly or quite to the pelvis, then very gently separating the capsule from the surface of the kidney throughout its whole extent, cut it away, replacing the kidney in its bed and closing the wound in the usual way by layers. I must refer those who care to study up the steps to the article in the Annals of Surgery above cited.

A point that has struck me as of extreme importance not alone in its bearing on the operative procedure, but as a factor in the course of the disease, is that Edebohls has found that Bright's disease may be unilateral, only one kidney be the seat of the disease. I would have liked to enlarge upon this feature, but I have already

encroached so much on the time of other speakers that I can only refer to the importance in every case, in the light of this knowledge, of catheterizing the ureters as a preliminary step to the operation, to ascertain if both kidneys be diseased, and if not, which one is to be operated upon.

A CASE OF EXTENSIVE RESECTION OF THE INTESTINE.

GEORGE R. HARRIS, M.D.,

NORWICH.

The removal of large portions of the intestines, with recovery of the patient, are becoming much more common than in former years, and when there is an abundance of time in which to prepare your patient, with plenty of assistance and good light, this operation is robbed of many of its difficulties; but when, on the other hand, the operation is performed in an emergency, after having brought your patient a long distance in an ambulance, he being more or less exhausted, with a violent peritonitis in progress, it is an entirely different thing.

These circumstances, together with the extreme length of the intestine removed, and the apparent complete recovery of my patient, is my reason for reporting this case. The History is as follows:

On September 11th, 1901, I was called, by Dr. Ashley, of Colchester, to Salem, Conn., about twelve miles from Norwich, to see a man who was said to be suffering with an obstruction of the bowels, possibly intussusception.

On arrival, found the doctor in attendance. Patient was Mr. B. L. P., aged 33, U. S., married, sculptor; a man weighing about one hundred and forty pounds; dark complexion, black hair, smooth face, fairly nourished, but with little fat and very muscular. He gave the following history:

Family history negative. Had the usual diseases of childhood. Typhoid fever eight years ago; perfectly well ever since, except for several years he has had, at times, attacks of severe pain in the abdomen.

In 1897, in Paris, had an attack which lasted about fifteen minutes, and was relieved by massage. Two

years later, in the middle of the night, had a similar attack which was again relieved by massage. Nearly a year after had another attack which was not as long, and it passed away on his keeping quiet in a reclining position. Last Summer had an attack which was relieved by Jamaica ginger and massage, but lasted about one-half hour. When these attacks have occurred they have been sudden in their onset, and immediately before and after them, he has been apparently in perfect health.

On September 10th, he played a hard game of golf in Norwich and then drove twelve miles to his home; retired that night feeling perfectely well, arose the next morning and prepared to go hunting. In a little while was taken with an exceedingly severe pain which centered in the umbilical region; took some brandy, returned to bed, massaged his abdomen thoroughly and in a short time was entirely free from pain and slept about one hour. On arising his pain commenced again, even more severe than before; massage was of no avail; had a large movement but pain was not diminished.

Dr. E. F. Ashley, of Colchester, was called at 9 A.M., and administered one-quarter grain of morphia sulphate hypodermatically, and repeated the dose at 9:30. Mr. P. gave the history of having eaten a number of half-ripe peaches the night before.

Upon examination of the abdomen the doctor found an area of extreme tenderness about the size of a hand, to the left and above the umbilicus. No tumor evident. The patient had vomited, but the vomited matter consisted only of fluid with mucus. Large enemata of hot water were given with no result; the fluid returning clear with the exception of some small particles of fecal matter and some mucus spotted with blood. Hot applications were made to the abdomen, but the pain still continued.

At 11 A.M., his temperature was 97.4; his pulse was normal.

I was called in consultation and arrived at about 3:30 P.M. On examination found the abdomen fairly soft, and with no special tender spots, except on pressure in the neighborhood of the umbilicus. Patient said there was some increased pain. On percussion could get nothing decisive, except over this tender area there seemed to be tympanitic resonance of high-pitched metallic quality.

Patient's pain, which was considerable, was referred to the umbilicus. He was now given several large enemata of hot water, but with absolutely no result, the water returning perfectly clear. It was now decided to do an exploratory operation, and there being no conveniences for such an operation at hand, he was sent to the Backus Hospital in Norwich, where he arrived about 1:30 A.M.

On his arrival at the Hospital the patient said that his pain was not nearly as severe as when I saw him at 5 P.M., also said that what pain he did have was in a new place, being to the right of median line and in the region of the appendix. He complained very strongly of a severe pain in his right shoulder; could account for this in no way except that in coming to the city he laid on his right side in the ambulance all the way, about twelve miles, and the road was very rough. His pulse, however, was considerably quicker and weaker, being 120, and his temperature had gone up to 100.6. His face had a dark flush, his eyes were very bright and sunken, and he was very nervous and thirsty. .

He was put on the table and the abdomen examined. It was now very hard and tense, with no specially tender points. Could get nothing definite on palpation or percussion, although there did seem to be some slight dullness in the extreme right upper iliac region. The tympanites had disappeared. The abdomen was thoroughly cleansed and, being influenced by the patient's statement as to the location of the pain together with the slight dullness found there, a small incision, sufficiently large to admit index finger, was made over the appendix.

As soon as the abdomen was opened there was a tremendous gush of blood stained serum, the stream rising fully ten inches from the surface of the wound and continuing for several seconds. A very large amount of fluid escaped. The fluid was serum, containing a large amount of blood and lymph, showing that an acute peritonitis was in progress.

On exploring with the index finger, found a large mass of intestines which were bound down in the right iliac region, and something entirely different from appendicitis; so the wound was closed and the abdomen reopened in the median line, when a very large mass of black and gangrenous intestines appeared. These, as stated above, were bound down in the right iliac fossa close to the caecum, which was drawn towards the median line. This mass was about seven inches in the transverse diameter and the coils of which it was composed ran for the most part transversely; a few, however, were parallel with the long diameter of the abdomen. The point of constriction was close to the posterior abdominal wall and to the caecum.

Some time was lost trying to uncoil the intestines, but this being found impossible, the constricting band, which was dense and heavy and about the size of a lead pencil, was divided and the intestines spread out in hot towels and allowed to remain for over twenty minutes. The band, in the meantime, was examined; it could be unrolled and stretched out, and appeared to be mesentery with inner border quite thickened and firm, and the rest of it membraneous.

The intestine was now examined and found to be ileum. The color had not improved; the gangrenous portions, commencing at the caecum and extending for a long distance up the ileum. The mesentery in many places was sloughing and entirely gone. There was one spot in intestine where a perforation had taken place, but do not think there was much extravasation.

The intestines were covered with lymph and some slight adhesions had taken place between coils. The ileum, having been previously clamped, was divided close to the spine, and above the ileum was divided one inch from the upper limit of the gangrene, an assistant holding the upper end.

The whole mass of gangrenous intestines, with adherent strips of mesentery was now removed from the abdomen. The abdomen was thoroughly flushed out with hot salt solution and preparations made for joining the intestines. The opening in caecum was closed, the edges being inverted and closed with a double row of Lembert sutures, one-half of a Murphy Button being first put into the caecum. This button was then pushed against the caecum on the other side of the caecum besides the appendix and an opening made, the button brought through and held by an assistant.

The end of the ileum was inverted and closed by a double row of Lembert sutures, the second half of the button having been previously placed in the bowel. This was brought through in same way as the other and the intestine was joined to the caecum by a lateral anastomosis. No additional sutures were required except a row in the mesentery.

The abdomen was now again thoroughly flushed out and closed; the different layers being closed separately, and wound dressed with wet bi-chloride dressing.

Patient stood operation very well considering the amount of intestine removed. At one time during the operation his pulse became weak and he was given a hypodermic of 1-30 grain strychnine sulphate and also a hypodermoclysis of salt solution beneath the breasts.

Patient was placed in bed and surrounded by hot-water bottles, and saline enema given, and ordered to be repeated every two hours. Pulse was 134, R. 22, T. 100. He was very restless on coming out of the ether and very

weak; vomited very often small quantities of dark brown fluid which continued throughout night.

Following day T. R. P. were as follows:

	T	R.	P.	
9 A.M.	100	154	22	
1 P.M.	100.2	150	14	day.
5 P.M.	101.6	128	42	
9 P.M.	100.8	146	32	
1 A.M.	100.8	130	36	night.
5 A.M.	99.2	128	36	

He vomited continually the same brownish green fluid. Enemata were expelled clear, no gas. Strychnia continued and heroin gr. 1½ every three hours was tried to quiet him and control vomiting, but no effect. Ingluvin gr. x. and bismuth subnitrate gr. xx. every hour were also tried with the same result.

2d Day—Same medication continued and in addition the stomach was washed out with saline solution and washing continued until return flow was perfectly clear. He was also given two nutritous enemata during the day, consisting of whites of two eggs, brandy one ounce, peptonized milk eight ounces, and these were retained.

T. R. P. second day were as follows:

	T.	R.	P.	
9 A.M.	99.4	124	32	
1 P.M.	99.4	128	32	day.
5 P.M.	100.8	126	28	
9 P.M.	99.4	124	26	
1 A.M.	99.4	126	28	night.
5 A.M.	99	98	20	

The lavage seemed to exercise a very favorable influence over the vomiting, the patient often going for over an hour without vomiting. The peptonized milk was put into the stomach by a tube after the lavage and was retained for an hour when vomiting commenced again. Slept one hour during the day. Previous to this time

he had not slept at all. Passed considerable gas per rectum and had two small stools, dark green in color, and containing small quantities of fecal matter.

3d Day—Hypodermic digitalis gr. 1-100 every four hours, alternating with strychnia. Lavage was continued. Peptonized milk eight ounces were given by tube. Patient did not vomit for two hours after lavage.

Time of operation about one hour; only two others, Dr. L. H. Bremmerman, House Surgeon, and Dr. N. P. Smith, who accompanied me to Salem and saw the patient there, besides myself touched the abdominal cavity.

The intestines were measured and found to be seven feet and ten inches in length.

On the eighth day, during the absence of the nurse, he attempted to sit up and reach a table near the bed. He did not reach the table, but was very much exhausted by his effort and his pulse, which had been between 98 and 100 went to 116, with marked irregularity, and it was a week before it got back to its former condition.

The patient complained considerably of the peptonized milk, saying that it made him sick and caused him to vomit. This was treated with soda bicarb., but with very little improvement. He was ordered Horlick's Malted Milk, and had no further trouble, and with this was able to take raw eggs daily. The patient was very fond of Malted Milk and drank large quantities of it together with milk and cream and never seemed to have any trouble with it. For several weeks it and its combinations constituted the principal part of his food.

From this time on the patient may be said to have made an uneventful recovery.

The Murphy Button was found in the rectum on the twenty-fourth day, and removed.

During the convalescence the patient had days when he would have attacks of sharp pain, like colic; these were always relieved by enemata.

His return to solid food was gradual, but when he left the Hospital he was eating almost anything he wished.

He had two large abscesses in the abdominal wound during convalescence; one at my first incision and the other at the opening in the median line. They were both large and evidently due to contact with the gangrenous intestines, which is an illustration of how much more readily sepsis is taken care of by the peritoneum than by other structures; for these abdominal wounds were thoroughly cleansed and the abscesses were not due to stitches.

The wounds finally closed and the patient left the Hospital in firstclass condition. He gained weight steadily after the first three weeks, and when he left the Hospital weighed more than when he entered.

He has a slight tendency to diarrhœa, having ordinarily one movement a day. His diet is general, but says he avoids eating "too much of green vegetables," thinking they may cause looseness of the bowels.

He played golf within two weeks of the time he left the Hospital and now feels as strong as ever.

Dr. W. T. Bull, of New York, saw this case in consultation the second day after the operation, and I am much indebted to him for his advice concerning the after treatment of the case.

In closing I will give a list of cases, most of which have been published several times; Dr. Charles H. Peck's case, however, has not been reported as yet, but he has kindly allowed me to mention it in my list.

1. Hahn.—32 in. ileum, 8 in. colon, male, thirty-eight years; recovery without disturbance of nutrition.

2. Canthorn.—(New York Medical Journal, 1895), resected 43 inches of small intestines from a man aged forty-nine for sarcoma of mesentery; ends united by Murphy's Button. Patient recovered from operation, but died four months later from obstruction brought about by Murphy's Button.

3. R. Budberg-Boeninghausen and W. Koch.—Male, sixty-eight years, very robust; 43½ in.; death on third day from peritonitis, which existed at time of operation.

4. R. Budberg-Boeninghausen and W. Koch.—Male, thirty-three years, 43½ in. ileum, for gangrene after incarceration; femoral hernia; recovery.

5. Trombetta.—In 1884 resected 43½ in. of small intestines in a woman aged forty; recovery (quoted by Luggi).

6. Budberg-Boeninghausen and Koch.—Male, forty-two years, 44 in.; flexure; gangrene after twisting; recovery.

7. Maston resected 44 in. for sarcoma of mesentry; death five months afterwards from perforation due to Murphy's Button.

8. Billroth.—Female, fifty-two years, 45 in. small intestines on account of fixation by the extirpation of a fibroma size of a child's head; death from collapse.

9. Troje.—46 in., female, twenty-five years; for four ring-like tubercular strictures; result fistula.

10. Elliott (Annals of Surgery, January, 1895), resected 4 ft. ¾ in. small intestines in a man aged twenty-five, for infarction due to thrombosis of the superior mesenteric veins. Patient was in good health two years afterwards.

11. Roux (Sem. Med., 1893), resected 4 ft. 1 in. of intestine for a lipoma; recovery

12. Budberg-Boeninghausen and Koch.—4 ft. 1 in. flexure; death from already existing peritonitis on the same day.

13. Budberg-Boeninghausen and Koch.—4 ft. 1 in. ileum; death on day of operation from already existing peritonitis.

14. Obalinski.—4 ft 2 in. ileum for gangrene; death in 24 hours.

15. Studgard.—4 ft. 3 in. jejunum for invagination; death five days after from peritonitis.

16. Schlange.—4 ft. 6 in. ileum; gangrene; recovery without disturbance.

17. Braun.—4 ft. 7 inches. small intestines on account of circumscribed peritonitis; death four months after operation.

18. Kosinski.—4 ft. 9 in. ileum; gangrene from hernia; death from collapse.

19. Muller.—Twelve-year-old boy; 5 ft. ileum; caecum and colon for invagination; death in seven days.

20. Kocher.—5 ft. 4 in. ileum; gangrene; recovery without disturbance.

21. Budberg-Boeninghausen and Koch—5 ft. 10 in. ileum, caecum with appendix and ascending colon; artificial anus formed; closed two and a half months afterwards; recovery without disturbance.

22. Wullstein.—5 ft. 10 in. ileum for strangulation; recovery without disturbance.

23. Schwalbach.—6 ft. 1 in. ileum; recovery.

24—Hinterstoisser.—6 ft 4 in. ileum and part of jejunum for incarceration; recovery without disturbance.

25.—Schlatter resected, in a man, 6 ft. 4 in. ileum for gangrene; recovery with some disturbance of digestion.

26. Koeberle.—6 ft. 10 in. small intestines for stricture; artificial anus closed after six weeks; recovery without disturbance.

27. Kocher.—6 ft. 1 in. for tearing of small intestines; recovery but subject to diarrhea if not careful of diet.

28. Dreeman.—7 ft. 2 in. ileum for gangrene; recovery, but slight diarrhea.

29. Shepherd.—Man, aged twenty-eight, 7 ft. 9 in. ileum; after operation thin stools, but increased forty pounds.

30. Harris.—7 ft. 10 in. gangrene of intestines, following internal strangulation with perforation and peritonitis; complete recovery.

31. Hayes.—8 ft. 4½ in. ileum for laceration of mesentery with crush of intestines. Diarrhea, etc., followed; developed chorea.

32. Peck.—8 ft. 5½ in; ruptnre of uterus, escape of intestines into pelvis; recovery.

33. Fantino.—Woman, aged 60; 10 ft. 4 in. ileum for gangrene from incarceration; recovery.

34. Ruggi.—Operation for old stricture of intestines. In relieving adhesions, mesentary was torn from length of intestines and resection was necessary.

35. Obalinski.—12 ft, 2 in. (practically the entire); death in 22 hours.

1—Hahn,	2	ft.	9	in.
2—Canthorn,	3	"	7	"
3—Budberg-Boeninghausen & W. Koch	3	"	7½	"
4—Budberg-Boeninghausen & W. Koch	3	"	7½	"
5—Trombetta,	3	"	7½	"
6—Budberg-Boeninghausen & W. Koch	3	"	8	"
7—Maston,	3	"	8	"
8—Billroth,	3	"	9	"
9—Troje,	3	"	10	"
10—Elliott,	4	"	¾	"
11—Roux,	4	"	1	"
12—Budberg-Boeninghausen & W. Koch	4	"	1	"
13—Budberg-Boeninghausen & W. Koch	4	"	1	"
14—Obalinski,	4	"	2	"
15—Studgard,	4	"	3	"
16—Schlange,	4	"	6	"
17—Braun,	4	"	7	"
18—Kosinski,	4	"	9	"
19—Muller,	5	"		
20—Kocher,	5	"	4	"

21—Budberg-Boeninghausen & W.Koch	5	"	10	"
22—Wullstein,	5	"	10	"
23—Schwalbach,	6	"	1	"
24—Hinterstoiser,	6	"	4	"
25—Schlatter,	6	"	4	"
26—Koeberle,	6	"	10	"
27—Kocher,	6	"	11	"
28—Dreesman,	7	"	2	"
29—Shepherd,	7	"	9	"
30—Harris,	7	"	10	"
31—Hayes,	8	"	4½	"
32—Peck,	8	"	5½	"
33—Fantino,	10	"	4	"
34—Ruggi,	10	"	9	"
36—Obalinski,	12	"	2	"

ACUTE OBSTRUCTION OF BOWEL.

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Few diseases or conditions at the present time require more care and skill both in the diagnosis and treatment than intestinal obstruction.

The limits of this paper will not permit me to go into detail, neither can I take up each of the forms and conditions that may produce obstruction, but I will endeavor to bring out some of the most important points regarding the more frequent forms which we are liable to encounter in our daily practice.

The acute obstructions are caused by mechanical lesions not associated with disease. Simple mechanical closure may be congenital. It may be caused by intussusception, volvulus, internal and external strangulation, kinks and flexures and the impaction of foreign bodies. The passive obstructions met with in peritonitis, in mesenteric embolism and thrombosis are due to intestinal paresis.

The commonest form of mechanical obstruction is that due to the various forms of external hernia which time will not allow me to discuss in this paper.

The next in frequency is intussusception, which represents about 35% of all forms of obstruction. The majority of cases occur in children.

Dr. L. Emmet Holt collected 385 cases of intussusception under three years of age. Three-fourths of all these cases occurred in the first two years of life, and one-half between the fourth and ninth months. In children it is nearly twice as common in males as in females, but in adults it is more frequent in women.

The most frequent seat of intussusception is at the

ileocaecal valve, where the small intestine is invaginated into the large, but it may be confined to the small intestine proper. In rare cases a double invagination may occur.

It is caused by irregular action of the muscular walls of the intestine. One part of the tube, by reason of irritation, becomes stiff and small by contraction of the circular muscular fibres, while the part immediately below is relaxed and into this the smaller and stiffened part telescopes. The mesentery is drawn in with the bowel. Gangrene may occur due to strangulation of the mesentery as it becomes crowded in with the invaginated gut. In some instances parts of the gangrenous intestine are passed by the rectum. It may be produced by anything that causes vigorous peristaltic action, such as a powerful cathartic, by constipation or diarrhea, or even sudden and severe jolting of the body.

The main symptoms are sudden and severe pain and vomiting, with indications of abdominal shock, tenesmus, especially when the tumor is low down toward the rectum, and bloody and mucus evacuations. A tumor may usually be felt on the left side along the sigmoid flexure or by rectal examination. The abdomen is not distended in the early stages of the disease, but when obstruction becomes established tympanitis is well marked. The pain is usually intermittent, colicky and excruciating during the attacks. The most marked symptom is the passing of blood and bloody mucus. The temperature may be normal or subnormal in the early stages of the attack, but usually rises in the first twenty-four to forty-eight hours.

Volvulus or twisting of a loop of the intestine occurs usually in the sigmoid flexure of the colon, although any portion of the intestine may be occluded by this accident.

An intestinal coil heavily loaded with feces, hanging by a long mesentery presents the most favorable condition for a twist. It is not uncomuon to find an enor-

mously lengethened coil in the form of a huge S stretching from the sigmoid flexure to the liver, thence into the pelvis.

The symptoms of volvulus are those of acute intestinal obstruction. Pain similar to colic is present from the start. Constipation is the rule and indicates the sigmoid colon as the seat of the lesion. If tenesmus is present it is an additional evidence that the colon is involved. Extreme distention of the abdomen occurs in a large proportion of cases. Vomiting is rarely present until late in the history of the case. When it appears early it suggests obstruction in the small intestine. The urine is diminished in a certain number of cases.

The course of the disease is violent and fatal if relief is not afforded by early operation. The diagnosis of volvulus cannot be made with certainty, as the symptoms may be confounded with intussusception. If the symptoms of acute obstruction develop suddenly, late in life, in a patient habitually constipated together with the detection of an ill-defined tumor of a distended and resistent intestinal coil and the absence of bloody stools volvulus may be suspected, but an absolute diagnosis can only be made by exploration.

Constriction by bands of cicatricial tissue resulting from acute and chronic peritonitis causes intestinal obstruction in a certain number of cases. This accident occurs chiefly in adults about equally in both sexes. They are frequently due to pelvic inflammations in women and to appendicitis and traumatic peritonitis in men. The bands vary in length and points of attachment, the lower jejuunm and ileum are involved in most cases.

The symptoms are in general those of acute obstruction of the small intestine. Pain is violent in the beginning and is usually referred to the part involved. Vomiting is an early and persistent symptom and is common in obstruction above the ileocaecal valve, is apt to be stercoraceous. Shock is more prominent in this form of oc-

clusion. The abdomen is not tympanitic as a rule, although the constricted loop may be greatly distended and may be recognized as a distinct tumor by palpation, percussion or by vaginal or rectal exploration. The diagnosis must be made from the presence of the symptoms above given together with the history of a former peritonitis.

These three conditions which I have described comprise the most frequent forms of obstruction.

Among other causes may be enumerated internal strangulation, which may be caused by constriction of the bowel through slits in the omentum and mesentery. The ileum is most frequently involved and the mesentery in the lower part of the organ is usually the point of constriction.

The symptoms are those of hernia of the small intestine with strangulation. Early operation is the only hope of relief.

Meckel's diverticulum, when it exists, represents the vitalline duct of the embryo in which the normal process of closure and obliteration has not taken place. When present it is attached to the last two or three feet of the ileum and may remain patulous and open at the umbilicus or more frequently it ends in a blind extremity which may be continued as a cord to the umbilicus.

There are no symptoms peculiar to this form of obstruction. The nature of the lesion can only be discovered by abnormal section, which is always indicated.

Acute obstructions result occasionally from the impaction of foreign bodies—gall-stones, enteroliths and from masses of round worms, the latter found usually in children. When a partial obstruction is present, a very small foreign body no larger than an orange seed may cause an acute obstruction.

Neoplasms, Sarcoma and Carcinoma, strictures both congenital and acquired, all may occasionally produce obstruction, but they are less common and cannot be

differentiated from other forms of obstruction, except by exploratory operation.

PROGNOSIS.

All forms of acute obstruction of the intestines are very serious and carry with them a high mortality, depending largely upon the time which elapses between the obstruction and the time medical or surgical treatment is instituted.

It is especially serious in those lesions attended by necrosis of the bowel wall and general peritonitis. The prognosis is more favorable in obstructions due to impactions, bands and internal strangulations than those due to intussusception, volvulus, embolism and thrombosis.

All forms of acute intestinal obstructions which have been relieved in the first few hours of an attack have a favorable prognosis, but as soon as the death of the bowel wall takes place and general infection or peritonitis develops, the mortality from any form of treatment is excessive, probably over 90% being fatal.

TREATMENT.

The first in importance is an early diagnosis. On it depends the success or failure of the case. In certain forms of obstruction, early medical treatment may be available, depending upon the time and nature of the obstruction.

In intussusception palliative measures including massage, rectal injections with the patient inverted, and inflation of the colon with air or gas.

In intussusception of children, if taken early, a few cases may be relieved by inflating the colon, holding the child by the feet, the head downwards over the shoulders of the physician who then should rise on his toes and drop suddenly on his heels. The jar may in a limited number of cases reduce the intussusception and should be tried in all cases which are seen early, before adhesions are formed.

Forced injections, however, beyond the ileocaecal valve, are never justifiable in view of the great danger of rupturing the intestines.

Inflation is preferable to injection, for the reason that it is more easy to determine whether reduction has been accomplished by air than by water.

Rupture of the bowel occurred only once in two hundred and twenty-five cases in children. An ordinary hand bellows may be used with a long catheter attached, introduced well up in the colon. The introduction of air should be gradual and its escape prevented by pressing the buttocks closely together. Manipulation of the tumor is advised while the air is being introduced. In intussusception and volvulus cathartics should never be used at any time.

After distending the colon gently massage may be practiced. If unsuccessful, little time should be wasted before arranging for surgical interference.

In the treatment of volvulus palliative measures are of no avail. By the time formidable symptoms of acute obstruction have become manifest, the intestine is fixed in its abnormal position. Injections and external manipulations accomplish nothing, but may do much harm.

Unfortunately owing to the delay before surgical relief can be applied in most instances, adhesions are formed and the constitutional depression is extreme, especially in old people, and consequently the mortality is excessive.

Palliative measures should never be tried for over a period of a few hours, when surgical interference should be instituted.

Owing to the rapid strides in surgery, the high mortality of the past will undoubtedly be greatly reduced in the future. Out of sixteen operations for intussusception done on the first and second day, 45% or nearly one-half recovered. In forty-four operations after the third

day, there were but seven recoveries. With our present knowledge of antiseptic surgery, little need be feared from the operation, and as the successes of the surgeon become more numerous, earlier surgical interference will be instituted and consequently the mortality much diminished.

When surgical interference is decided upon, it should be done under the most thorough and rigid antiseptic precautions. When the seat of the lesion is determined, the incision should be made directly over it. When in doubt as to the seat of the obstruction, or when it cannot be exactly determined, the linea alba should be selected. The caecum, ascending and descending colon, can be more directly approached from an incision in the lateral aspect of the abdomen over these viscera.

If the sigmoid flexure and upper portion of the rectum are involved the incision should be made parallel with Poupart's ligament and about two inches internal to the left anterior spine of the ileum.

Contrary to most authors who advise a small incision, I believe the incision should be sufficient to admit of thorough exploration. Small incisions are a detriment to the patient, as in these operations the time consumed is of the utmost importance.

Usually the bowel is found in a swollen, congested and soft condition, and therefore the incision should admit of the most delicate and careful handling of the intestines.

The patient should be placed upon the back, the head and shoulders slightly elevated in order to relax the abdominal muscles. Many times the modified Trendelenburg posture is advisable. All bleeding should be arrested before the parietal peritoneum is opened. The peritoneum should be punctured and divided on a dull pointed grooved director. The escape of the intestines or omentum through the opening should be prevented by placing a sterile mat over the viscera and pressing

them back into the peritoneal cavity. It is rarely possible in the condition in which the viscera will be found to determine which is the upward and downward direction of the bowel. It may be necessary to begin at the caecum and work upward. If some of the coils are found greatly distended, while others are collapsed, the collapsed loops should be passed carefully between the fingers up to the point where the bowel is distended. Here the obstruction will be found. At times the coils of bowel are so enormously distended that they seriously interfere with exploration. The gas should be evacuated by puncture and the bowel immediately closed by Lembert's sutures.

If intussusception is found, the invaginated portion should be brought into full view and careful traction employed in the effort at reduction.

If strangulation and necrosis exist, exsection of the necrosed portion should be made at once if the patient's condition justifies a prolonged operation. If not, the dead loop should be brought out of the abdominal incision, the necrosed portion cut away and a fecal fistula established.

When the constriction is caused by peritoneal bands, these should be ligated if necessary and divided. When a loop of intestine has become imprisoned in a slit in the mesentery or omentum, the slit should be enlarged, the loop released and the opening closed by catgut sutures.

If Meckel's diverticulum is excised the peritoneal coat should be turned in by Lembert's sutures in closing the stump.

When constriction is caused by peritoneal bands, so critical that a prolonged operation is contra-indicated, it is better practice to make a smaller abdominal incision, seize the first presenting loop of distended intestine, establish immediately an artificial anus. The alarming symptoms thus allayed, the occlusion can be dealt with at a subsequent operation.

I am able to report two cases that have come into my own experience, in both of which a peritoneal band was the cause of the obstruction.

Case I. J. H., aged twenty-five, was operated upon for appendicitis in July, 1899. The appendix was gangreneous and the wound healed by granulation, the patient being confined to bed about eight weeks. He apparently made good recovery and continued well about two months, when he was suddenly taken with violent pain in the right lumbar region, vomiting, stercoraceous in character, constipation, chills and rapid rise of temperature to 102 degrees. I saw him about twenty-four hours after the attack began. I tried to move the bowels and used stomach sedatives, but to no avail. After exhausting all means, I concluded there must be an obstruction and advised immediate operation which was accepted.

The incision was made parallel to and extending about three inches above the old incision. Here I found two bands of adhesions about three inches apart, which completely obliterated the small intestine. The bands were divided, search made for further obstruction which was not found, the abdominal wound closed without drainage. The patient made a rapid recovery. Unfortunately the case has left the city, therefore I am unable to present it.

Case II, which I am able to present to you to-day with a brief history furnised me by the hospital.

Albert H., aged fifteen, a resident of Portland, was attended by Dr. James Murphy, who gives the following history: Saw patient March 15th this year. Temperature 103 degrees. The case ran a typical typhoid which lasted six weeks and made a good recovery. The patient continued well until August 16th when he was taken with diarrhea which lasted two days and was followed by constipation. On August 19th while working, he was taken with severe pain and vomiting and symptoms of

acute obstruction. On the following day Dr. A. J. Campbell, of Middletown, was called to attend him. He tried all known methods to relieve the symptoms and move the bowels without avail, so sent the patient to the St. Francis Hospital for surgical treatment.

On admission to the hospital the patient was suffering little or no pain, obstinate constipation, frequent stercoraceous vomiting. During the night attempts were made to relieve the symptoms—all to no purpose. The following morning the patient was in a condition of collapse, abdomen distended, pulse 140 and thready, temperature 102 degrees and rapidly losing ground.

An operation was decided upon as the only possible chance; a slight quantity of ether administered, an incision made over the median line, sufficiently large to admit of exploration of the abdominal cavity.

On opening the abdomen, there was found an advanced stage of peritonitis, the bowels being badly swollen, both the intestines and peritoneum nearly black and covered with masses of blood, fibrin and exudate. No obstruction was found in the lower part of the abdomen.

The incision was then prolonged upward, when we were rewarded by finding with the finger, under the lower border of the stomach, a band of adhesions about one inch wide by one-half inch in thickness, extending across a loop of intestine and completely occluding its lumen. The band was ligated and incised. Nearby were found several loops of intestine matted together by the recent inflammation. These were carefully separated, the abdominal incision closed with drainage.

Primary union was secured with the exception of a superficial stitch abscess. The operation lasted forty minutes. The patient's condition seemed hopeless when he left the table. Restoratives were applied, the patient soon rallied, did not vomit after the operation, and made an uninterrupted recovery.

ON PERIRENAL, PERIHEPATIC AND PLEURAL ABSCESSES FOLLOWING APPENDICITIS.

By William H. Carmalt, M.D.,

NEW HAVEN.

I take the liberty of bringing to the attention of the Society a couple of cases on the somewhat trite subject of appendicitis, which are interesting by reason of the unusual positions in which the abscesses appeared, and as showing that we cannot always depend upon McBurney's point as a sure thing in diagnosis. The first case was the most complicated, and it was not until I had met the second that I was able to explain satisfactorily to myself, the unusual course which the pus took in the first, and in order to make it clear will report the last case, first. This occurred in a young man about seventeen years of age under the care of my friend, Dr. William J. Sheehan, of this city, who asked me to see it on account of the uncertainty which he felt by reason of the very unusual situation of the abscess, and the attendant symptoms had made it difficult to be absolutely sure of the diagnosis. There had been an antecedent history of an attack of appendicitis some weeks before which led him to think this was of a similar nature, but the symptomatology of this attack was not distinct, and it is not a safe rule to follow that because a man has appendicitis once, that every other abdominal ill must of necessity be appendicitis also. This young man was taken sick on April 17th of this year with sudden and severe pain in the epigastrium and he vomited once only; his bowels were loose, he had had frequent movements during the day, and he complained of pain in the right loin, extending upwards and backwards to the region of the right kidney; his pulse was 84, his tempera-

ture 102; his abdomen somewhat tender. He was watched carefully; anodynes were kept away from him, and unless disturbed he did not suffer much pain. His temperature, however, persisted high—100° to 102°—and his pulse ran slow; his spleen became enlarged, so it could be felt below the border of the ribs; but there was no pain or even tenderness at the McBurney point nor any where else about the right iliac fossa. His blood was examined twice by the Widal test with a negative result; the enlargement of the spleen suggesting malaria,—search was made for plasmodia, also negative. After he had been sick this way for some twelve days, the pain continuing in the loin more than anywhere else, a tumor was detected in this position. I saw the patient on the 29th of April; his axillary temperature was then varying between 100° and a fraction, and 102°; his pulse between 112 and 130, its tension was rather soft; he was having frequent urination, every three or four hours, and his bowels were moving three or four times a day; he was taking strychnine—1-30 of a grain every four hours hyperdermically; his countenance was somewhat pinched and anxious, his eyes a little sunken and he had marked emaciation. On examination of his abdomen it was fonnd slightly tense; no localized pain on pressure, no rigidity of walls, but there was a perceptible fullness in the right hypochondriac region, and a tenderness in his right loin, in which was also a soft spot just below the end of the twelfth rib; pressure upon it and the surrounding loin brought the fullness that could be seen in front more prominently to view, and an indistinct sense of fluctuation could be made out between the fingers placed over the tumor in front and behind in the loin. There was no doubt in either Dr. Sheehan's or my mind that there was a collection of pus deeply situated in his right loin, but there was a very considerable doubt as to its point of origin. The attack that he had had some months previously was,

unmistakably, appendicitis, but the diagnostic features of that disease were absent now. Typhoid fever and malaria had been eliminated by the examination of the blood; the location of the tumor and the frequent urination indicated a renal complication, and I, looking at the case for the first time, was in doubt whether or not he had a perinephritic abscess of renal origin; perinephritic it apparently was, but whether of renal or appendiceal origin was the question. The indications for operative interference were, however, unmistakable, and on the following day (the 30th of April), I operated, making the incision somewhat farther upwards and towards the flank than the usual incision for appendicitis; the fact being that I made the lower end of the incision to correspond with the line between the anterior superior process and the umbilicus. This brought the deeper portion of the wound well outwards toward the reflection of the peritoneum, and the opening in the abscess well on the side instead of in the groin. On opening the abscess, pus was found of the usual foul-smelling odor of appendiceal abscesses, extending up, apparently, behind the caecum. With some difficulty I was able to find the appendix, the tip ulcerated and firmly attached to the posterior wall of the caecum, from which it could not be separated without doing some injury to the wall. Continuing the search for the position of the appendix, I found it stretched out its entire length along the posterior wall of the caecum and ascending colon, which latter was very close to the abdominal wall. About one-third of the proximal portion appeared to be unaffected, lying outside of and beyond the abscess cavity; and this was all that seemed to have a mesentery. It was nearly four inches in length, had no bends or kinks in it—was simply stretched up behind the caecum with the distal extremity attached to it. The abscess itself extended still farther up towards the right kidney and had burrowed somewhat under the psoas muscle. The lower

end of the kidney could be felt distinctly at the upper part of the abscess, the wall of which appeared to be formed partially by the kidney. A counter-puncture was made in the loin, a drainage tube introduced, bringing it out of the wound in front of the lower end. It is not worth while to describe the subsequent course of the case, further than to say that on the second day after the operation there was a profuse fecal discharge coming out through the tube at both its anterior and posterior openings, caused undoubtedly by a rupture in the wall of the intestine at the situation where the tip of the appendix had been so firmly united to it. This fecal fistula closed spontaneously; the patient is now almost well.

The other case I owe to the courtesy of Dr. Barnum, of Kent, in whose care the patient had been for a month before I saw it. It was in a lad of twelve years of age who was taken sick while in school with violent pains in his abdomen, and vomiting. The pain soon localized itself in the right iliac region, in which there was a well-marked tumor on the first day that Dr. Barnum saw the patient—which was the 26th of February of this year—about a week after the beginning of the attack. The child continued sick, the tumor increased in size, and the doctor advised operative interference, but circumstances were unfavorable for its performance at the patient's home, and it was deferred. I saw him first on March 27th, just a month after the tumor in his abdomen was discovered. At that time his abdomen was tense throughout; he complained of pain everywhere on pressure over it; his pulse was about 160; his breathing anywhere between 40 and 70. A horribly fetid odor exhaled with his breath—so fetid as to make the room almost unbearable; he coughed on the slightest exertion; he could lie only on the right side with his legs drawn up. This extremely critical condition had been present only for the last twenty-four hours, although for the

previous seventy-two hours he had been getting decidedly worse. I could feel no tumor in his abdomen which could easily be explained from the rigidity of the abdominal wall. The examination of his chest brought on violent spasmodic coughing, so violent that I feared suffocation at the time; his lips became livid, and his condition looked dangerous. The examination was therefore unsatisfactory, but I made out dullness on both sides, and yet on the right side of the chest below, and still over the liver, the dullness disappeared and the percussion note was highly tympanitic; there was also entire absence of respiratory sounds over the dull and tympanitic areas, but they could be heard at the apex where there was resonance on percussion and the vocal resonance was exaggerated. It should have been stated that the child's temperature had varied considerably between 99° and 104°; his condition forbade any extensive operative procedure; it was not possible to give him an anesthetic. I did not feel positive as to the presence of pus in his right iliac region at the time, though the history did not allow me to doubt the correctness of Dr. Barnum's diagnosis. His respiration required immediate relief, however. I could not feel sure that he did not have a pyemic abscess in his lung, but the stench certainly suggested gangrene, and that there was fluid and air in the lower portion of his chest I was certain, and decided to evacuate this. I introduced a small exploring trocar in the mid-axillary line in the seventh intercostal space and withdrew a small quantity of pus emitting the same foul odor that was present in the breath which was that of appendiceal abscesses. Local anesthesia by the chloride of ethyl spray was produced and an incision with a bistoury sufficient to introduce a large drainage-tube. A large quantity of the same horribly smelling pus mixed with air or gas was evacuated, deluging the bed.

No further attempt to explore either chest or abdomen

was made at that time, but I advised if he should survive this, that a further operative exploration should be made later. Within twenty-four hours his temperature fell to nearly normal, and he immediately improved in all respects. In the course of about two weeks he was brought to the New Haven Hospital. His chest was discharging from the opening that I had made through the tube a considerable amount of pus, which, however, had lost its fetid odor within a few days after the operation, and the boy's general condition improved markedly. He was brought to the Hospital for the purpose of getting a better drainage, and for that purpose, on about April 20th, I excised a portion of the eighth rib. After removing the rib, and stilling all hemorrhage, the incision was carried through the soft parts beneath, expecting to enter into the pleural cavity, but instead came directly upon the upper surface of the diaphragm; I then endeavored to make a communication through this incision here with the cavity of the abscess in which the drainage-tube was situated, but found I could not until I had divided quite a thick layer of tissue which I took to be the thickened diaphragmatic pleura lifted up from the muscle.

This case I acknowledge was an enigma to me. I had never before known of an appendiceal abscess in the chest, and could not restrain the fear that it was metastatic; that the condition was really pyemic. The course of the temperature was suspicious of this condition, and I experienced a very decided relief upon hearing subsequently that the temperature had soon resumed the normal character. It was not until I met the second case, however, viz., the one herein first described, that I was able to explain, satisfactorily to myself, what had probably been the course of the pus. Never had I before found an appendix lying so directly posterior to the caecum in what I now regard as outside the peritoneal cavity in between the folds of the meso-colon. As we know, there

is occasionally no meso-colon, the caecum lies more in apposition with the abdominal wall—connected with it by loose connective tissue, the reflections of the peritoneum being fairly wide apart. When this is the case, the hepatic flexure of the colon is in immediate contact with the lower portion of the kidney, and it is possible for the pus to burrow into the para-nephritic space and simulate a perinephritic abscess. The further progress of the unevacuated pus in the direction of least resistance is under and behind the liver, and we have perihepatic and subphrenic abscesses; still unevacuated, it is possible, by burrowing, to enter either the thoracic or pleural cavities by different routes. It may perforate directly through the diaphragm to my mind the least likely of any; or it can insinuate itself underneath the ligamentous arches of the diaphragm as they pass over the psoas muscle, or again through alongside of the vena cava. The latter is situated so far forward above the vertebral column that it seems to me more likely that the route would be by way of the ligamentous arches above mentioned, and the way in which this lad lay in bed on his right side with his legs drawn up, with the psoas muscle therefore relaxed, favors this view.

I regard these two cases as fitting into each other like the articulations of a dissecting map. If one will compare the figure in the Reference Hand-Book of Medical Science, Vol. VI., Page 305, of the peritoneum by Dr. Frank Baker, of Washington, D. C., I think this explanation will prove satisfactory. This figure is a diagram illustrating the posterior wall of the abdomen viewed from in front with the viscera entirely removed showing the lines where the parietal layer of the peritoneum is reflected upon the viscera. In it one sees where the channels of loose connective tissue are to be traced up from the caecum to the hepatic flexure and the transverse colon, and knowing as we do that the kidney is sometimes but loosely attached to the abdominal wall, the route up to the diaphragm is but slightly obstructed.

Since I have begun the preparation of this paper, an abstract of a paper in the Revue de Chirurgie by Dr. Lapeyre, of Tours, on "Perihepatic and Pleural Complications of Appendicitis," has appeared in the Annals of Surgery of the present month, which he considers as taking place in a similar way to the one given above.

The course of the abscess after entering the thoracic cavity may be either sub-pleural—lifting the pleura from the diaphragm—or it may penetrate the pleural cavity and be a veritable empyema. The condition of things which I found at the second operation on the lad upon whom the excision of the eighth rib was made would favor either view. When the rib was removed, though it was the lower boundary of the intercostal space through which the pus had been evacuated three weeks before, I did not this time enter into a pus cavity, but came directly in contact with the upper surface of the diaphragm; and the situation of the pus at the time he entered the New Haven Hospital two weeks after the first operation was almost entirely in the anterior portion of his chest; practically there was no cavity—simply a sinus; nothing more came away in washing it out that would be expected from a sinus. At this time, two months from the first operation, the lad has gone home quite well.

DISCUSSION.

In discussing this paper, Dr. McKnight said it recalled a case which was under the care of Dr. Storrs, Dr. Wainwright and himself. In those times it was called perityphlitis. Dr. Storrs made repeated punctures, but no pus was found. The patient vomited up large quantities of pus and then his symptoms were better. They became worse, when he again coughed up another lot of pus with improvement of symptoms. After two or three years he died. Adhesions were found throughout the intestines and diaphragm. He always had thought it was inflammation of the diverticulum. It could hardly have come from the appendix.

UNUNITED FRACTURE OF THE TIBIA.

JOHN F. DOWLING, M.D.,

HARTFORD.

During my term of service at St. Francis Hospital, on September 14, 1901, Timothy S., aged 22, of Windsor Locks, was admitted, having been sent in by Dr. Joseph A. Coogan, to be treated for ununited fracture of the leg.

He gave the history of the injury as follows: About five weeks previous to entering the hospital, while playing a game of base-ball, he collided with an opposing player and was thrown violently to the ground. Being unable to continue the game, a physician was summoned, who found a fracture, and placed the leg in splints. The physician called every day or two until Dr. Coogan was consulted, and he advised going to the hospital at once.

The condition of the leg on entering the hospital was as follows: There was found an oblique fracture of the tibia, in the upper and middle thirds of the bone, about four inches in length. The fragments were overriding, the point of the upper one almost protruding through the skin. There was no union, the fragments being freely movable, the movements causing no pain nor discomfort. There was also an oblique fracture of the fibula about parallel to the fracture of the tibia; this was also ununited. The shortening by measurement and comparison with the right leg, was two and one-half inches.

A consultation of the staff was called, and it was advised trying extension and applying a plaster cast, before resorting to operative measures. I did not think favorably of this treatment for several reasons. The young man had already remained in bed nearly six weeks, and, naturally, was anxious to get on his feet. Simple extension and putting on a cast would mean five

or six weeks more, and in case of failure (and the chances are it would be), the operative measures would mean several more weeks.

The points against the above treatment are after extension and bringing the fragments in apposition and friction it would not be advisable to apply a cast at once on account of the danger of swelling and interference with the nutrition of the parts, and by simply applying a weight, and a posterior splint until the swelling subsided your work would go for naught. There would be absolutely nothing to keep the parts from assuming their abnormal position. Even with the cast applied at once the fragments would slip, on account of the powerful muscular contractions of the Hamstring muscles, especially the inner Hamstring on account of its attachment to the tibia, together with the muscles of the anterior and posterior tibio fibular regions.

While thinking the cast over and the choice between wiring or using the ivory or steel pins, the idea of using a screw was suggested to me by Dr. M. M. Johnson.

Acting on this suggestion, and with the approval of the staff, the young man was operated on September 30th, (the sixth day after entering the hospital), and six weeks after the accident.

The patient was prepared by shaving the entire leg and applying a green soap poultice the night before, followed by scrubbing and a bi-chloride dressing in the morning.

At 11 A.M. the patient was etherized and placed on the operating table. The parts were rubbed briskly to set up irritation and stimulate union.

A large shoe having a steel sole with hook attached was placed on the injured leg. A perineal strap was attached to the hook in the shoe running through a ring in the opposite wall. Gentle and steady traction was made until the fragments were in apposition as near as possible to their normal position.

An incision was then made about one and one-half inches in length down to the tibia, about the middle of the fracture. The bone was denuded of peritoneum, and the drill was then inserted, using the large drill, first, corresponding with the smooth part of the screw. After boring through the upper fragment the small drill was used, for the lower fragment, corresponding with the thread on the screw. The upper fragment was then counter-sunk to allow the head of the screw to drop a little below the bone.

The screw, an ordinary wrought iron screw, 1½ inches in length and 3-16 inches in diameter, silver plated, was placed in a position with a screw driver. The wound was closed with silk-worm gut and plain aseptic dressing used.

The leg was placed in a posterior splint, with a ten-pound weight attached, for ten days. At the expiration of that time, when the swelling subsided, a plaster cast the whole length of the leg was applied, and in two weeks the patient was allowed to get about on crutches. The stitches were removed before applying the plaster cast, and the wound had healed by primary union.

The advantage of using a screw instead of wiring was, in this case, great. First, simplicity and an almost bloodless operation, secured less danger of infection.

The advantage over steel or ivory pins is that steel pins are allowed to remain in position until union has taken place, then removed, thus leaving an open wound and danger of infection. The ivory pins are not removed after being placed in position.

But here again the screw has the advantage, for in driving the pin you may separate the fragments, and if the parts are brought in apposition, the pins, being smooth, will allow slipping, and separation of the fracture.

The idea of using the smaller drill for the under fragment, is to allow the thread of the screw to catch and

draw the fragment up, and when once inserted properly, there is no slipping or separating.

The only surgery in which I find this method described is "Wharton and Curtis."

I am indebted to my colleagues, Dr. Joseph E. Root and Dr. M. M. Johnson, for their valuable assistance, also to Dr. A. J. Wolff, for taking the "X-Rays," and developing the photographs.

On November 9th, the patient left the hospital with good union, and has been for some time working at his trade, that of spinner.

The left leg, the injured one, is about one-fourth of an inch shorter than the right leg, which necessitates a lift on the heel, and thus he walks with an almost imperceptable lameness.

OBITUARIES.

There was the Door to which I found no Key;
There was the Veil through which I might not see;
Some little talk awhile of ME and THEE,
There was and then no more of THEE and ME.

—The Rubáiyát.

EDWARD MOTT MOORE.

Edward Mott Moore, M. D., LL.D., died full of honor and of years at Rochester, N. Y., March 3, 1902 at the age of 88 years. Dr. Moore was born at Rahway, N. J., was graduated from the Medical Department of the University of Pennsylvania in the class of 1834, and served as resident physician at Blockley Hospital, Philaphia. At this time he became greatly interested in cardiac diseases, and recorded some valuable observations and experiments. He began the general practice of medicine at Rochester. He served as professor of surgery successively in the Medical School at Woodstock, Vt.; the Berkshire, Mass., Medical College; the Starling Medical College, Columbus, O., and the Buffalo Medical College. With the latter institution he was connected for twenty-five years. He was a member of the American Medical Association, and its president in 1890; one of the founders of the New York State Medical Society and also of the New York State Medical Association; he was also one of the founders of the American Surgical Association and president of the State Board of Health from its organization until 1855. The high esteem in which Dr. Moore was held, not only by his colleagues in the profession, but also by the members of the community in which he lived, is evinced by the concerted expression of appreciation which was given, both by the local medical societies with which he was connected, and also by the Chamber of Commerce of Rochester and the officers of the various institutions with which he was connected. Dr. Moore was valued by all who knew him as the true gentleman, the good counselor and the lovable citizen and friend.

—*The New York State Journal of Medicine.*

JERRY BURWELL, M. D., NEW HARTFORD,

J. Swett, M. D.,

NEW HARTFORD.

Dr. Jerry Burwell, who died Sept. 5th, 1901, was born to John Welch Burwell and Abigail Ellis on the second of May, 1817, at Barkhamsted, thus being one of the oldest, if not the oldest physician in Litchfield County.

His early days were spent on his father's farm and there is abundant evidence of his studious mind from the mere fact that we find him at the age of fifteen years teaching school in the village of Riverton.

Before he commenced the study of medicine, he was tutored in the private preparatory school of Professor Woodbury in West Hartland. Subsequently he spent a period of time with Dr. Athey of Litchfield, Conn. He graduated from the Berkshire Medical College of Pittsfield, Mass., in November, 1839.

Dr. Burwell began the practice of medicine at Burlington, in May, 1840, at the age of twenty-three years.

On February 26th, 1845, he married Helen A. Plumb of Burlington. Two daughters blessed his marriage, Helen Louisa, who died at the age of ten months, and Florence who is still living.

In October, 1847, Dr. Burwell removed to New Hartford, where he continued in the practice of his profession almost up to the day of his death. He served his town at various times as Town Clerk, representative to the Legislature, health-officer and medical examiner. The two latter offices he held up to a short time before his death.

During his long life of usefulness, extending over eighty-four years, he enjoyed a large practice, the love

and esteem of his many patients and the respect of all who knew him.

Dr. Burwell was a man of large heartedness, good judgment, full of kind cheer, a genial, cordial gentleman ever looking to do good while he might.

WILLIAM MILLER HUDSON, M.D., HARTFORD.

By Henry P. Stearns, M.D.,

HARTFORD.

I do not know what may be the custom in reference to class autograph books in Yale at the present time, but nine and forty years ago it was customary for each student of the graduating class to present every one of his classmates with a portrait and autograph, and generally with some sentiment, quotation, or anticipation for the future, added. On examination of my autograph book I find the youthful face of Hudson (one of the most youthful of his class), with his autograph, and the following sentence: "With great pleasure shall I ever remember him with whom I have so often discussed the great question of right and expediency." I very clearly recall even now the general tenor of those discussions, and also the fact that while we did not always agree in our views, our differences never for an hour interrupted our pleasant companionship; I, therefore, could with equal frankness have returned the sentiment of his last words before we left our Alma Mater.

And now, as he has gone before me, and we shall no more exchange greetings or discuss questions here, it gives me pleasure to recall these and other incidents of our college life, and to add that no cloud of misunderstanding ever rose between us during the thirty-five years while we were in after life living as neighbors. I think that a similar statement could be made in regard to his relations to his professional brethren in the city and throughout the State. The germs of his affable and courteous character which were so apparent in his college days, blossomed and bore generous fruit in his after years. His cordial greeting, his pleasant smile, and the

grasp of his hand, were but the natural expression of his character, which made him many friends.

As I have said, Dr. Hudson was one of the younger members of our college class, and while he attained to a fair standard of scholarship, yet he did not appear to aspire to the highest rank. He was always interested in out-door exercises, and I recall our expeditions during many a half holiday about the neighborhood of the city, to East and West Rocks, the shores of the bay, and in winter to Saltonstall Lake, when there was ice enough for skating there.

He was also much interested in boating, and he has often since referred to the fact that the contests between Harvard and Yale were instituted while we were students, (I think during our senior year), and that he had the pleasure of being present at the first one.

In my view these practices on his part were of special service to him, as they tended to invigorate a physical system which at that time was not mature, and did not appear to be very robust. His face was that of one who had not yet entirely passed from the period of adolescence.

I cannot refrain from referring to my last meeting with my beloved classmate. We had arranged beforehand to attend the Bi-centennial of Yale, and if possible to march together in the great procession. As it happened I did not go down on the train with him, but when I arrived by a later train he was at the station to greet me, and never relinquished his grasp until we had reached the Campus. He had been there before me and knew where to find what we specially desired to have. It is pleasant now to recall the enthusiasm so conspicuous in his face on that occasion, and his exclamation, when I suggested that I might not be equal to the torchlight parade in the evening, that he should go if he were the only one of the class there. He seemed transformed again into the eager and enthusiastic boy of our college days,

"When hope was young, and life itself were new."

He never became a prophet of evil. Hopes deferred, disappointments and trouble, which sooner or later come to all men, did not sour him.

I have ventured so far in referring to some of the habits and experiences of Dr. Hudson when a student which came under my own observation, as they may serve, perhaps, to foreshadow the nature and real character of the man more accurately than anything else I could say.

"The child is father of the man."

And after all, this is what every one desires to know about those who have gone before us. We care very little about how many public offices one may have held, except as this may indicate character. The supreme question relates to this. One may have had legions of patients, and yet have been nothing better than a quack or a deceiver. We look for higher elements of personality, honesty, manliness, love of truth for its own sake, benevolence and integrity. These are the possessions which, after all, make true wealth and are those which we prize most in our friends, living or dead, and we rejoice to believe that they characterized our departed confrere.

Dr. Hudson was born in Hartford, Connecticut, March 14th, 1833, and died at his residence on Elm Street, October 31st, 1901. He was the son of William and Anna (Miller) Hudson. His father was a brother of Barzillai Hudson, with whom he was associated many years in business on Main Street. His mother was the daughter of the Rev. William Fowler Miller, a graduate of Yale in the class of 1786, and the pastor of the Congregational Church in Bloomfield, Connecticut.

Dr. Hudson was an only son, and spent his early years in Hartford. He was one of the first class of students, numbering ten members, who completed a full course in the Public High School, in 1849. The High School building at that time was a comparatively small and unat-

tractive affair, and was located at the corner of Ann and Asylum Streets. No such formalities attended the graduation then as exist at the present time. The late Henry C. Robinson, of Hartford, and Julius Catlin, of New York, whose parents were at that time residents of Hartford, were of the class, and entered Yale College at the same time with Dr. Hudson in 1849, all of them graduating in 1853.

It appears that he had already decided upon his profession, as he went soon afterward to Philadelphia and entered the Jefferson Medical College, graduating as M.D., in 1855. He then went to Paris where he spent a part of two years, in the meantime taking private courses in surgery by such eminent instructors as Nelaton and Trousseau. Subsequently he spent some time in London in visiting hospitals and attending lectures.

Having thus laid broadly the foundation of his professional preparation, he returned home and began practice in New York City. He remained there until 1862, being connected during some portion of this period with the Northern Dispensary. By that time the Civil War was absorbing the attention of everybody; the army had become greatly increased, and there was a call for many surgeons. Dr. Hudson was appointed as an Acting Assistant Surgeon, U. S. A., and was soon assigned to hospital duty. His family in the meantime removed to Hartford. After the termination of his period of service in the army, the doctor himself returned to Hartford, making it a place of permanent residence. He remained in general practice until 1869. At this time, as he was quite independent of an income from this form of professional labor, he sought other and less exacting kinds of employment. This came to him by his appointment as Fish Commissioner, and soon after he entered the service of the State in this capacity. He occupied this position for twenty-five years, and during ten years of this period he was a member of the Shell Fish Commission.

During twenty years he was Stockholders' Auditor of the Consolidated Road. He was at one period Treasurer of the Colonial Club, and one of the Vice-Presidents of the Cercle Francaise. He served two years on the Board of Aldermen, and five years in the Common Council, of which he was for a time the President.

He was also a member of the City, County and State Medical Societies; and at the time of his death was Vice-President of the Hartford Medical Society.

Dr. Hudson had rarely, if ever, been seriously ill during his student and professional life, and had been in his usual health up to the commencement of the illness of which he died. He attended the exercises of the Bicentennial of Yale, to which he had looked forward with much interest, during three days, and was one of three members of his class who marched in the great parade.

Within a day or two after his return home from New Haven he began to complain of illness, and very soon took to his bed. But his disorder was not regarded as of a serious nature, and his family were not anxious in reference to its issue during the first few days. A change for the worse then occurred. The symptoms which had before been rather obscure, became more pronounced. The indications of peritonitis or appendicitis, which had existed only in a sub-acute form, if at all, became more evident; his strength began to fail, and his recovery became doubtful. Still his mind remained clear, and he continued cheerful and hopeful. Only a few hours before his death occurred he had taken food with a relish, and expressed his thought that the worst was passed and that he should be up and about again in a few days. He, however, gave no indications of returning strength, and about half an hour before death, observing that his daughter who was sitting beside him, seemed to be anxious, he looked at her for a moment, and then turning away, said: "Well, I may as well go now as at any time." This was his last word, and very shortly he quietly

ceased to breathe. The same calm, trustful, and hopeful spirit which had so characterized his life, remained to the close.

He "hath been an honorable gentleman; tricks he hath had in him which gentlemen have."

Dr. Hudson became a member of the First Church in Hartford in May, 1849, and his membership extended over more than half a century. He became a member of the Prudential Committee first in 1875; was re-elected and served till 1886. He was again elected in February, 1900, to serve the period of three years. His father, William Hudson, joined the church, April, 1829, and was a member at the time of his death in 1875. His uncle, Barzillai Hudson, was a member of the Prudential Committee from March, 1838, to the time of his death in March, 1871.

Dr. Hudson was married in May, 1858, to Miss Ellen Heiskell Bryan of Philadelphia. He leaves a widow and three children, one son and two daughters.

SIDNEY ROGERS BURNAP, M.D.,
WINDSOR LOCKS.

JOSEPH A. COOGAN, M.D.,

WINDSOR LOCKS.

Sidney Rogers Burnap was born in Root, N. Y., January 11, 1833.

Graduating in the class of '58 at Union College, he spent the two succeeding years as Principal of Ames Academy.

Matriculating at the College of Physicians and Surgeons in New York City, he received his Medical Diploma in the Spring of 1862.

In the Fall of that year he came to Windsor Locks, and well do I remember the advent of that young practitioner of forty years ago.

In manner, grave, dignified and courteous; in speech, calm, deliberate, cautious,—in action, energetic, assiduous, untiring.

These were the characteristics that followed him through life, combined with an honesty of intent, firmness of purpose and integrity of action, that made him one of the most successful practitioners in the State of Connecticut.

It has been my privilege during the past twenty-five years to come in contact with nearly every physician and surgeon in Hartford County, and I fail to remember a single instance in which the Individual and the Profession were so happily united.

As a student, critical and analytical, as a practioner, careful and painstaking, as a surgeon, brave without rashness, as a consultant, reticent not dictatorial, he garnered facts not fancies. Pithy of sentence and spar-

ing embellishments, his conclusions were as unerring as God's Gospels.

He possessed all the elements of success.

The personification of neatness, the cultivated mind of a scholar, he had a will which heroes alone possess.

As a surgeon for more than thirty years he performed all the minor operations and many of the major known to surgery.

With a well poised, well equipped, well balanced surgical hand he ventured often where Professors fear to tread.

Alone and unaided he surmounted every obstacle from Tracheotomy to Trephining.

As an Obstetrician, ready for any and all emergencies with unbounded self-confidence grafted on limitless experience, he kept apace of the best scientific minds of the obstetrical world. As a Physician he had few equals.

With the avidity of a student he perused the journals and periodicals of progressive medicine and kept in the vanguard of the profession.

He stood the mighty oak in practice uninfluenced by wealth or poverty, unrestrained by creed or nationality, undismayed by carping or criticism, undaunted knowing full well the rectitude of his actions and the sacredness of his calling.

His memory will be long lived for his life work deserves to live.

He contributed little or nothing to the printed literature of medicine.

The obligations of his profession and family circle consumed every moment of his busy life.

He sought no political office at the hands of his townspeople. Assessor, Fire Commissioner, School Committeeman and Selectman were all thrust upon him.

He prized and appreciated much more the gifts of this Association as Censor, Delegate, Fellow and President.

He was an authority on finance, on taxation, on investments, on insurance.

He never lost his love for the profession he adorned.

Thirty-eight years of labor in your vineyard, thirty-eight years of toil in our community,—he is fallen respected by all,—admired by those that fully recognized his abilities and loved by those that understood the motives that actuated and the principle that dominated his every act of life.

Picture him as he is portrayed in my memory forever and you see a cultivated gentleman, a profound scholar, a noble husband, a loving parent, an honorable, fearless, conscientious practitioner of medicine, your lamented Ex-President.

WALTER ZINK, M.D., BRANFORD.

By Henry Fleischner, M.D.,

NEW HAVEN.

Walter Zink was born in Nuerenberg, Bavaria, in 1841. He was educated in the Patrician School of his native city, and after passing the Gymnasium began and finished his medical studies at Wuerzburg, where he was promoted M.D. on the 21st of March, 1862. After serving one year on the staff of the Julius Hospital, he emigrated to America, reaching his future adoptive fatherland in 1863. This was the great battle year of the Civil War. He at once offered his services to the Union cause, and immediately received the appointment of assistant surgeon of the 127th Regiment, New York Volunteers. While on duty he received injuries which resulted in the loss of one eye. At the close of the war he was detailed as surgeon of an army hospital in New York State. At the end of this service he entered the College of Physicians and Surgeons in New York, studying medicine for two years. He then moved to Long Island, practicing in Winfield for five years. He was for a number of years Health Officer of Queens County. He then moved to Trenton, N. J., where he engaged in manufacturing business until 1876, when he made Branford his home and practiced medicine there until his death. He identified himself with his home town so thoroughly that he was repeatedly called upon to fill various offices of public trust, and he enjoyed the love and respect of his townsmen in an eminent degree. And he deserved all he got. One prominent characteristic of Doctor Zink was the intense strenuousness (it is now called) with which he did what he considered his duty, and whether at the bedside of his patient or on the justice seat, he was always

thorough. His was a rugged, truthful nature. He was indefatigable in his work. His manner was not that of the carpet physician. He was brusque, even to roughness, but it was his exterior alone that showed this trait. Those that knew him best knew that his was a child-like sympathetic, yes, a wonderfully human nature. In the memory of his town and this Society he will live for many years. After the war he married Caroline Augusta Milling. His widow and three children survive him.

JOHN THOMAS DOOLEY, M.D., MANCHESTER.

FRANCIS H. WHITON, M.D.,

MANCHESTER.

John Thomas Dooley, M.D., the only son of Mr. and Mrs. P. F. Dooley, was born in Cohoes, N. Y., in 1865. Dr. Dooley received his early education in St. Mary's College, Kansas. After leaving college some friends wished him to study for the priesthood, but on mature thought he decided upon medicine, and entered New York University, from which institution he graduated in March, 1887, the youngest member of his class. After taking his degree he entered the out-door department of Bellevue Hospital, remaining about two years.

A friend invited him to come to Manchester, where he opened an office and acquired a good practice, and entered upon what should have been a very brilliant career. But he soon tired of the hard work of a general practitioner and began to shun rather than to court patients, and for several days at a time his office would be closed to all callers. On being remonstrated with by a friend he declared that business had been irksome to him and exceedingly distasteful. On the death of his beloved mother he grew more moody, taciturn and exclusive, and often declared that he was not well and could not and would not study disease at the bedside. Having a regular income, he had no incentive to earn his bread by the sweat of his brow, and had not aspirations of the noble physician whose mission is to relieve suffering, avert disaster and retard decay. During the last five or six years, with the exception of a few families, his work was in his office.

In person Dr. Dooley was tall, with dark eyes and hair, and was of an attractive presence. Nature gave him a

bright mind and retentive memory. He read history and was a good conversationalist, and socially was liked much.

In politics Dr. Dooley was a Democrat until in 1896. During that memorable year he said to a friend: "I was born a Democrat and have always voted with the party. We have had free trade, free soup houses and free tramps, and now free silver; from this on I am a Protectionist to American industry."

In religion Dr. Dooley was a Roman Catholic but not a zealot.

About February 6th Dr. Dooley complained of a hard cold, which developed into pneumonia, complicated with a much enlarged liver, and proved fatal on the morning of February 15th, 1902. A short funeral service was held at St. Bridget's Church, where many people gathered to look for the last time upon the face of their beloved physician. Dr. Dooley's remains were taken to Windsor Mills, Canada, and laid to rest beside the mother he loved so well.

DONALD ROSE HINCKLEY, M.D., NEW HAVEN.

By R. S. Goodwin, Jr., M.D.,

NEW HAVEN.

Donald Rose Hinckley, the son of Henry Rose and Mary Wright Hinckley, was born in Northampton, Massachusetts, September 18th, 1869. He was a grandson of Dr. Benjamin Barritt, a well-known physician of Western Massachusetts.

Up to the age of thirteen years he attended a private school in Northampton. He then entered, for college preparation, New Church School at Waltham, Massachusetts. While at this school he decided to take up the study and practice of Medicine as his profession, and from that time on selected his courses of study, as far as possible, with this end in view. During one of his summer vacations he took a course in chemistry at Amherst College.

He entered Yale in the Academic Class of 1892. Among his classmates in college he was particularly noted for his loyalty to his friends, a man, the very soul of honor. He was a good musician and while in college played first violin on the college orchestra. He was also a sprinter of considerable ability, but, not having a liking for active participation in athletics, he never followed the sport extensively.

He entered the Harvard Medical School in the Fall of 1892, at once taking a high stand in his class. Maintaining a high standard of scholarship throughout the four years of his course he graduated second in his class. At the completion of his medical course in a competitive examination he won first place upon the house staff of the Boston City Hospital. After a year and a half in this

hospital he came to New Haven, where he opened an office at 35 College Street, on February 14th, 1898.

He died October 14th, 1901, having been in practice just three years and eight months. During the Summer of 1901, however, he was unable on account of poor health to do any work, and he spent much of his time at his parents' home in Northampton, and at Southwest Harbor, Maine. At the time of his death he held the position of assistant instructor in medical diagnosis in the Yale Medical School. He was also a member of the New Haven City Medical Association, the New Haven County Medical Association and the Graduates Club.

Besides his medical knowledge which was of a high order, he was exceptionally well read in English literature, and, possessing a retentive memory was able to quote with great accuracy from his favorite authors. He was a man of extremely modest disposition, just in his judgment of others, never expressing an opinion of another unless it could be a favorable one.

His practice was a select one, and he was very well liked by his patients and by those members of his profession with whom he came in contact. His ideals were high and had he lived he would have won for himself a foremost position in his profession.

EDWIN DWIGHT SWIFT, M.D., HAMDEN.

ROBERT BEARDSLEY GOODYEAR, M.D.,

NORTH HAVEN.

Edwin Dwight Swift, M. D., the third, and last surviving member of a family of six sons of Augustus Buel Swift and Rebecca Munson, was born in Cornwall, Litchfield County, Conn., May 8th, 1825.

He was of an honorable ancestry, his great grandfather, Maj. Gen. Heman Swift, was in the service during the Revolution as early as June 20, 1776, and a Colonel in July 1776, and remained in the Army until 1783. (See Prest. Dwight's Travels, 1822.)

Dr. Swift received his early education in the public schools of Cornwall, Conn., and Matriculated in 1845, at the Medical College of the University of the City of New York, his enrollment being indorsed by the late Dr. Valentine Mott.

He graduated in 1848, and immediately commenced the practice of Medicine in Hamden, where he continued in his profession for a period of fifty-three years, or until his final illness and death.

He was married in 1849 at New Haven, Conn., to Sarah Louisa Punderson, by whom three children were born; two died in infancy and the survivor, Edwin E. Swift, M. D., is in practice in New York City.

Dr. Swift's wife died in 1865. He was again married in 1869 to Julia M. Swift, who died in 1898.

During his extended service in Hamden he was for a term of years general superintendent of the public schools. He was also Town Health Officer for several years.

He was a member of the New Haven County Medical Society. He was a regular attendant at the Mt. Carmel Congregational Church, of which he was a member.

Dr. Swift was a Republican and interested in the affairs of the town, and the political questions of the times, but his professional work debarred him from accepting any public office. During the rebellion he was anxious to become a Surgeon in the field, but the continued ill health of his wife required his presence at home, where he always cared most conscientiously for the families of those who died in the war.

He was well known for his untiring patience and benevolence, and especially his kindness to the poor.

His home-life was beautiful in its character, and he was always a devoted husband, and a kind and indulgent parent. In personality he was tall and dignified, and courteous in his professional relations.

After two weeks of intense suffering from asthma, accompanying Bright's disease, on the 19th day of April, 1901, he passed from his earthly labors to his final reward.

—*From The New Haven County Medical Association*
Published by the Executive Committee.

APPENDIX.

REPORT OF THE DELEGATE TO THE RHODE ISLAND MEDICAL SOCIETY.

Dr. Allen of Moosup and myself were your delegates to the Rhode Island Medical Society at their annual meeting at Providence in June 1901.

Both delegates were present and after extending the greetings of the Connecticut Medical Society to the Rhode Island Medical Society, the subject of recognizing the license of one state board in other states was discussed, and we were assured that practically the Rhode Island Board did so.

There were but two papers and these were freely discussed, after which we adjourned to the banquet hall in the same building.

The attention and courtesy we received made us think that the Rhode Island Medical Society is as fine a body of men as it has ever been our lot to meet.

Respectfully,

W. S. Richards.

REPORT OF DELEGATE TO NEW HAMPSHIRE MEDICAL SOCIETY.

The meeting of the New Hampshire Medical Society was held in the beautiful hall of a club house on a quiet street at Concord, on May 15th and 16th.

There is something refreshing in the simplicity and practical business procedure of the sessions of the Society. The proceedings covered two days, the first day beginning with only four items of business, the balance of the day being devoted to papers. Early in the evening came the meeting of the "Councillors," who are equivalent to our "Fellows." "This meeting is designed to consider all questions relating to ethics, new business, and to attend to all applications for membership." After this brief business meeting there were two scholarly addresses on medical or allied topics.

The Councillors reconvened at 8:30 the following morning, and at a seasonable hour the reading of papers was resumed, the annual dinner taking place after noon of the second day, as was the custom of our society. The gratifying feature of this arrangement is the relatively large proportion of time devoted to the consideration of papers, and the comparatively brief time absorbed in the transaction of business, and even that at hours not interfering with the object for which the majority have come together.

The papers themselves were of a most practical kind, presenting for the most part the actual experience of village and country practitioners, with occasional contributions from specialists of the few cities of New Hampshire. The personnel of the society much resembles our own, as seen especially in the membership from

our smaller towns, general practitioners predominating, specialists being few.

Among the papers attracting attention and discussion were the following:

"Some Syphilitic Lesions seen in the Eye, Ear, Nose and Throat Practice," by Dr. Fritz of Manchester—the recital of a series of interesting cases falling to his care and in many cases to his diagnosis after escaping detection by others.

"The Spread and Restriction of Typhoid Fever," by Dr. Woodman of West Lebanon, gave quite fully the history of recurring epidemics of Typhoid on the bottom lands of the Connecticut River, recounting the very conditions common to the observation of country physicians dealing with primitive sanitary appliances and willful ignorance.

"Dilatation, Hypertrophy and Chronic Bright's Disease," Dr. Felt of Hillsboro, dealt interestingly and intelligently with the incipient conditions so frequently overlooked in diagnosis, and declared the increasing prevalence of heart disease, a fact corroborated by others in the discussion. An exceedingly bright paper, not by a specialist but by one who would be classed among the "country doctors."

While this passing allusion has been made to only three papers, it is interesting to note the general scope of the program, including chiefly the variety with which the general practitioner has to deal, contrasting possibly with a program of our own, based more upon hospital and specialized work, but the discussions showed the topics selected to be of practical, every-day interest to the majority of the men present. There was but little theorizing, there was but little from books, and yet the quoting of authorities showed familiarity with current literature. It seemed evident that many of these men

are carving their reputations by their own experience and self reliance.

The cordial hospitality with which your delegate was received marks a visit long to be remembered.

CHARLES D. ALTON, M.D.,
Hartford.

CONSTITUTION AND BY-LAWS OF THE AMERICAN MEDICAL ASSOCIATION.

STATE OF ILLINOIS, DEPARTMENT OF STATE.

JAMES A. ROSE, SECRETARY OF STATE.

To all to whom these presents shall come, Greeting:

Whereas, a certificate duly signed and acknowleged having been filed in the office of the Secretary of State on the 14th day of April, A.D., 1897, for the organization of the American Medical Association under and in accordance with the provisions of "An act concerning corporations" approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

Now, therefore, I, James A. Rose, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said American Medical Association is a legally organized corporation under the laws of this State.

In Testimony Whereof, I hereby set my hand and cause to be affixed the great seal of State. Done at the City of Springfield this fourteenth day of April in the year of our Lord, one thousand eight hundred and ninety-seven, and of the Independence of the United States the one hundred and twenty-first.

SEAL OF THE STATE OF ILLINOIS, Aug. 26, 1818.

JAMES A. ROSE,
Secretary of State.

STATE OF ILLINOIS,
COOK COUNTY. ss.

To James A. Rose, Secretary of State.

We, the undersigned, David W. Graham, James T. Priestley and Joseph Eastman, citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois entitled "An act concerning corporations," approved April 18, 1872, and all acts amendatory thereof, and for the purpose of such organization we here by state as follows, to wit.

1. The name of such corporation is American Medical Association.

2. The object for which it is formed is to promote the science and art of medicine.

3. The management of the aforesaid Medical Association shall be vested in a board of nine (9) Trustees, who are to be elected as the By-Laws direct.

4. The following persons are hereby selected as the Trustees to control and manage said corporation for the first year of its corporate existence, viz.: Alonzo Garcelon, G. C. Savage, I. N. Love, E. E. Montgomery, J. M. Mathews, C. A. L. Reed, David W. Graham, James T. Priestley and Joseph Eastman.

5. The location is in the City of Chicago in the County of Cook, State of Illinois.

(Signed.) DAVID W. GRAHAM,
JAMES TAGGART PRIESTLEY,
JOSEPH EASTMAN.

Ratified by the American Medical Association in General Meeting at St. Paul, Minn., June 6, A.D., 1901.

CHARLES A. L. REED, President. GEORGE H. SIMMONS, Secretary.

CONSTITUTION.

ARTICLE I.

TITLE OF THE ASSOCIATION.

The name and title of this organization shall be THE AMERICAN MEDICAL ASSOCIATION.

ARTICLE. II.

OBJECT OF THE ASSOCIATION.

The object of this Association shall be to federate into one compact organization the medical profession of the United States, for the purpose of fostering the growth and diffusion of medical knowledge, of promoting friendly intercourse among American physicians, of safeguarding the material interests of the medical profession, of elevating the standard of medical education, of securing the enactment and enforcement of medical laws, of enlightening and directing public opinion in regard to the broad problems of State medicine, and of representing to the world the practical accomplishments of scientific medicine.

ARTICLE III.

COMPOSITION OF THE ASSOCIATION.

Section 1. This Association shall consist of Permanent Members, Members by Invitation, Honorary Members, Associate Members and Delegates.

Sec. 2. Permanent Members.—Permanent Members shall consist of such members of the State societies, together with their affiliated local societies, entitled to representation in this Association as shall make application for admission in writing to the Treasurer, and accompany said application with a certificate of good standing signed by the President and Secretary of the society of which they are members, and the annual fee.

Sec. 3. Members by Invitation.—Members by Invitation shall consist of distinguished physicians of foreign countries who may be invited by the officers of Sections or of the Association. They shall hold their connection with this Association until the close of the annual session to which they are invited, and shall be entitled to participate in all of its affairs, as in the case of permanent members, but they shall not be assessed the annual dues.

Sec. 4. Honorary Members.—Honorary Members shall be physicians of foreign countries who have risen to pre-eminence in the profession of medicine.

Sec. 5. Associate Members.—Representative teachers and students of the allied sciences, not physicians, may become Associate Members by the vote of the House of Delegates.

Sec. 6. Delegates.—Delegates shall consist of such members of the affiliated state and territorial medical societies and of the medical service of the United States Army, of the United States Navy, and of the United States Marine-Hospital Service as shall be chosen in accordance with the provisions of the Constitution and By-Laws of the American Medical Association.

ARTICLE IV.

HOUSE OF DELEGATES.

Section 1. There shall be a House of Delegates which shall consist of (1) delegates elected by the permanently-organized state and territorial medical societies in affiliation with this Association; (2) delegates elected by each of the component scientific Sections of this Association; (3) one delegate each from the medical departments of the United States Army and United States Navy, and one from the United States Marine-Hospital Service.

Sec. 2. The total membership of the House of Delegates shall not exceed 150, and the delegates representing the affiliated state and territorial medical societies shall be apportioned among the several affiliated state and territorial medical organizations in direct ratio to their true membership.

ARTICLE V.

SECTIONS.

In order that its appropriate scientific work may be expeditiously and systematically performed this Associatin shall be divided into Sections, each of which shall be devoted to the encouragement and pursuit of knowledge in one of the recognized branches

into which the science and art of medicine are for convenience divided. New Sections may be organized from time to time as the necessity for their existence arises and when authorized by the House of Delegates.

ARTICLE VI.

BRANCHES.

The House of Delegates shall have authority to provide for and to create such branch organizations as may be deemed essential to the promotion of the welfare of the medical profession.

ARTICLE VII.

SESSIONS AND MEETINGS.

The Association shall hold an Annual Session, during which there shall be held daily a General Meeting, which shall be open to all registered members and delegates. The place and time for holding each Annual Session shall be determined for each next succeeding year by the House of Delegates.

ARTICLE VIII.

OFFICERS.

Section 1. The officers of this Association shall be a President, four Vice-Presidents, a Secretary, a Treasurer, and nine Trustees

Sec. 2. The officers of this Association shall be elected by the House of Delegates.

Sec. 3. Each officer, with the exception of the Secretary and the Trustees, shall hold office for one year, or until his successor is elected and installed. Three Trustees shall be elected annually by the House of Delegates for a term of three years.

Sec. 4. No member of the House of Delegates shall be eligible to any of the offices mentioned in the foregoing sections of this article.

ARTICLE IX.

FUNDS AND APPROPRIATIONS.

Funds for meeting its current expenses and awards from year to year shall be raised by the Association by an equal assessment of not more than ten dollars annually on each of the permanent members; by voluntary contributions for specific objects; and from the profits of its publications. Funds may be appropriated by the House of Delegates in accordance with the articles of incorporation for defraying the expenses of its annual meetings; for publication; for enabling standing committees to fulfill their respective duties, conduct their correspondence, and procure materials necessary for the completion of their stated annual reports; for the encouragement of scientific investigation by prizes and awards of merit; and for defraying the expenses incidental to specific investigation.

ARTICLE X.

REFERENDUM.

Section 1. The General Session shall have the right to discuss questions referred to it by the House of Delegates, and it may, by a two-thirds vote, order a general referendum on any question pending before the House of Delegates.

Sec. 2. The House of Delegates shall, upon a two-thirds vote of its own members or upon a two-thirds vote of the General Meeting, submit any question, either through The Journal or by mail, to the general membership for final vote; and if the persons voting shall comprise a majority of the members, the majority of such votes cast shall determine the question, and this vote shall be binding upon the House of Delegates.

ARTICLE XI.

AMENDMENTS.

The House of Delegates shall have authority to amend any article of this Constitution by a three-fourths vote of all the members composing the House of Delegates; provided, that such amendment shall have been proposed in open meeting of the House of Delegates one year previous to being acted upon, that it shall have been published at least three times in The Journal during the interim, and that it shall have been officially transmitted to each affiliated state and territorial society for consideration at its annual meeting.

Adopted at St. Paul, Minn., June 5, A.D., 1901.

CHARLES A. L. REED, President.
GEORGE H. SIMMONS, Secretary.

BY-LAWS.

CHAPTER I.

MEMBERSHIP.

Section 1. No permanent member shall take part in the proceedings of this Association, or of any of its Sections, until he has exhibited his credentials to the proper officer or committee, entered his name and address in full on the registration book, and paid his annual dues. He shall also indicate the Section to which he will officially attach himself.

Sec. 2. Permanent members who have complied with the foregoing regulations shall at all times be entitled to attend the General Meetings and sections, and to participate in the affairs of the Association, so long as they continue to conform to its regulations.

Sec. 3. No individual who shall be under sentence of expulsion or suspension from an affiliated society (whether a directly affiliated state or territorial society or an indirectly affiliated local society) of which he may have been a member, or whose name shall have been dropped from the rolls of the same, shall be received as a member or shall be allowed to continue as a member of this Association, until he shall have been relieved from said sentence or disability by such society; nor shall any person not a member of his local affiliated medical society, provided there be such a one, be eligible to membership or be allowed to continue as a member in the American Medical Association.

Sec. 4. Members may vote for Section officers only in that Section with which, upon registration, they have declared their intention of uniting.

Sec. 5. Any permanent member who shall fail to pay his annual dues for one year, unless absent from the country, shall be dropped from the roll of permanent members, after having been notified by the Secretary of the forfeiture of his membership.

Sec. 6. Honorary Members may be elected by the House of Delegates on the nomination of a Section, but not more than three Honorary Members shall be elected in any one year.

Sec. 7. Honorary and Associate Members shall have all the rights of membership except those of voting and holding office. They shall not be assessed for dues, nor shall they be entitled to receive The Journal free.

Sec. 8. The House of Delegates shall have authority to provide for membership under proper restriction from among the members of recognized medical societies of neighboring countries, pro-

vided that the right of representation in the House of Delegates shall be restricted to affiliated state and territorial medical societies in the United States.

CHAPTER II.

GENERAL MEETINGS.

The General Meetings shall include all registered members and delegates, who shall have equal rights to participate in discussions and to vote upon pending questions. Each General Meeting shall be presided over by the President, or, in his absence or disability, by one of the Vice-Presidents. Before it there shall be delivered upon the opening day of each annual meeting, the address by the President, whose recommendations shall thereupon go to the House of Delegates for action, and on each following meeting such addresses on scientific subjects as may be assigned to orators selected for the purpose. It shall have power to create committees or commissions for scientific work of special interest or importance, and to receive reports of the same, provided that any expense incurred in connection therewith by the Association must first be authorized by concurrent action of the House of Delegates and the Board of Trustees.

CHAPTER III.

HOUSE OF DELEGATES.

Section 1. The House of Delegates, as far as may be consistent with the Articles of Incorporation, shall be the legislative and fiscal body of the Association. Its sessions shall be open to the members of the Association, but, except upon invitation of the House of Delegates, they shall have no right to participate in its proceedings.

Sec. 2. Each state and territorial society entitled to representation shall have the privilege of sending to the House of Delegates one delegate for every 500 of its resident regular members, and one for any additional fraction of that number; but each affiliated state and territorial society shall be entitled to at least one delegate.

Sec. 3. The House of Delegates, once in every three years, shall appoint a committee of five on reapportionment, of which the President and Secretary shall be members. It shall be the duty of this committee to examine the membership lists of all affiliated state and territorial medical societies, and to determine therefrom the number of delegates to the Association to which each state or territory shall be entitled for the ensuing three years, beginning with the annual meeting next succeeding that at which the reapportionment is approved by the House of Delegates.

Sec. 4. Members of the House of Delegates shall be elected for a term of two years, and those state and territorial societies en-

titled to more than one representative are requested so to arrange such election that one-half of their delegates, as near as may be, shall be elected each year.

Sec. 5. In order that each state and territorial medical society may properly provide for a full delegate representation at each meeting of the Association, it shall have the authority to elect alternates, who, upon presentation of the proper credentials, shall be empowered to serve as delegates in the absence of the regularly-elected delegates. Provided, that in case of the absence of the regularly-appointed delegate or alternate, the permanent members from that affiliated society, who are present at that meeting, may select one of their number who shall represent that society, and provided further, that when only one permanent member is present from any affiliated society, that member may represent that society in case he is in other respects eligible to the office of delegate.

Sec. 6. No one shall serve as a member of the House of Delegates who has not been a permanent member of the American Medical Association for at least two years.

Sec. 7. Every Delegate from an affiliated state or territorial society, before being permitted to take part in the proceedings of the House of Delegates, must deposit with the Secretary, or other designated officer or committee, a certificate signed by the President and Secretary of the Society from which he receives his authority, stating that he has been regularly and legally elected a Delegate to the American Medical Association for a definitely stated term; and the delegates from the Sections shall present credentials signed by the Chairman and Secretary of the Section they represent. This certificate shall be subjected to review by the Judicial Council, and disputes as to credentials shall be investigated by the Judicial Council and determined by vote of the House of Delegates.

Sec. 8. The House of Delegates shall approve all memorials and resolutions of whatever character issued in the name of the American Medical Association before the same shall become effective.

Sec. 9. The House of Delegates shall present a summary of its proceedings to the last General Meeting of each annual session of the Association, or it shall publish the same in a bulletin to be issued each day during the annual session.

Sec. 10. A majority of the members composing the House of Delegates shall constitute a quorum for the transaction of business.

CHAPTER IV.

ELECTION AND INSTALLATION OF OFFICERS.

Section 1. All elections shall be by ballot.

Sec. 2. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes

on the morning of the last day of the annual session. Only those in attendance at the annual session at which the election occurs shall be eligible for election.

Sec. 3. The officers elected at each annual session of the Association shall be installed at the closing General Meeting.

CHAPTER V.

DUTIES OF OFFICERS.

Section 1. President.—The President shall preside at the General Meetings and over the House of Delegates, preserve order and decorum in debate, give a casting vote when necessary, and perform all the other duties that custom and parliamentary usage may require. In addition to those duties the President, on the morning of the first day of the annual session following his election, shall deliver before the General Meeting an address, not exceeding forty minutes in length, upon such matters as he may deem of importance to the Association. He shall discharge such other duties as the Association may impose on him from time to time. He may at any time make suggestions as he may deem for the best interests of the Association, either to the General Meeting or to the House of Delegates or to any standing or special committee of the Association, provided that said suggestions are submitted in writing. He shall not be eligible for re-election.

Sec. 2. Vice-Presidents.—The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place. In case of the death, resignation, or removal of the President, the vacancy shall be filled by the senior Vice-President, beginning with the first. They shall perform all other duties prescribed for that office.

Sec. 3. Secretary.—The Secretary shall keep in separate books the minutes of each day's proceedings of the General Meeting and of the House of Delegates, which minutes shall be read and presented for adoption by the respective bodies. He shall give due notice of the time and place of each next ensuing annual session; notify all members of committees of their appointment, and of the duties assigned to them; hold correspondence with other permanently-organized medical societies, both domestic and foreign; and carefully preserve the archives and unpublished transactions of the Association.

It shall be his duty to verify the credentials of members, to receive and announce all essays and memoirs voluntarily contributed, to determine the order in which such papers are to be read and considered, and to fix a definite hour each day for the general addresses before the Association. He shall prepare for publication the official program of each meeting. It shall be the duty of the Secretary to provide a special registration book for members of the House of Delegates, in which shall be recorded

the name of every delegate in attendance at each meeting, together with that of the society which he represents. It shall also be his duty to prepare a roll of the delegates attending each annual session to facilitate voting by roll-call.

The Editor of The Journal of the American Medical Association shall be Secretary of this Association.

Sec. 4. Treasurer.—The Treasurer shall have charge of the funds and property of the Association, and shall disburse its funds only on the order of the House of Delegates or of the Board of Trustees, properly attested. He shall give to the Board of Trustees bond for the safe-keeping and proper use and disposal of his trust, and through the same Board he shall present his accounts, duly authenticated, at every annual session of the House of Delegates.

Sec. 5. Board of Trustees.—The Board of Trustees shall consist of nine members, three of whom shall be elected annually by the House of Delegates to serve for three years. It shall be the duty of this Board to provide and superintend the publication and distribution of all such proceedings, transactions, and memoirs of the Association as may be ordered to be published, in such a manner as may be directed; and in doing this it shall have authority to appoint an editor and such assistants as it deems necessary, determine their salaries, and procure and control such materials as may be necessary for the accomplishment of the work assigned to it. Further, to facilitate its work, it shall be the duty of the secretaries of the Association and of the several Sections, during each annual session or as soon thereafter as practicable, to deliver to the Board, or such editor or agent as it shall appoint, all such records of proceedings, reports, addresses, papers, and other documents as may have been ordered for publication either by the General Meetings by the House of Delegates, or by the Sections. All money received by the Board of Trustees, or its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Association, and all orders on the Treasurer for disbursements of money in any way connected with the work of publication must be endorsed by the President of the Board of Trustees and countersigned by the Secretary thereof. All matters of the Association pertaining to the expenditure of money for other purposes shall be referred, during the annual session, to the Board of Trustees, who shall make a report on the same within twenty-four hours after the same are referred to them, and if the House of Delegates orders the expenditure of money in connection with said report, the payment shall be made by the Treasurer as provided above. It shall be the further duty of the said Board of Trustees to hold the official bond of the Treasurer for the faithful execution of his office, to annually audit and authenticate his accounts, and to present a statement of the same in its annual report to

the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association, under its control, with such suggestions as it may deem necessary. In the event of vacancy in the office of Treasurer, by death or otherwise, the Board of Trustees shall fill the vacancy ad interim.

Sec. 6. All business of each annual session shall be completed by the officers who have served through the session.

CHAPTER VI.

STANDING COMMITTEES.

The standing Committees shall be the following:

1. A Committee of Arrangements.
2. A Judicial Council.
3. A Committee on Medical Legislation.
4. A Committee on Nominations.
5. A Committee on Transportation.

And such other Committees as the House of Delegates from time to time may create.

CHAPTER VII.

DUTIES OF COMMITTEES.

Section 1. Committee of Arrangements.—The Committee of Arrangements shall be appointed by the President, and shall be composed of seven members residing in the place at which the Association is to hold its next annual session. It shall be required to provide: 1. A hall for the General Meetings. 2. Hall for the House of Delegates. 3. Halls for Sections. 4. Rooms for Committees. 5. Rooms for post-office and the force thereof. 6. Rooms for registration and the force thereof. To meet these expenses the Committee of Arrangements shall have the proceeds of the exhibition hall. This arrangement must be agreed to by the representative of the local committee inviting the Association, before a place for the meeting of the Association is selected by the House of Delegates.

Sec. 2. Judicial Council.—The Judicial Council shall be composed of nine members, three of whom shall be chosen annually by the House of Delegates to serve for three years. All questions of a personal character, including complaints, protests, and credentials, shall be referred at once, after the report of the Committee of Arrangements or other presentation, to the Judicial Council without discussion.

The said Council shall organize by choosing a Chairman and Secretary, shall keep a permanent record of its proceedings, and shall report its findings to the House of Delegates at the earliest practicable moment.

Sec. 3. Committee on Medical Legislation.—The Committee on Medical Legislation shall consist of one delegate from each state, to be appointed annually by the President of the Association. It shall be the duty of this Committee to represent before Congress and elsewhere the wishes of this Association in regard to pending medical and sanitary legislation. It shall be the duty of this Committee to consider and act upon all proposed national, state, or local legislation that in any respect bears upon the promotion and preservation of the public health, or upon the material or moral welfare of the medical profession. It shall have power to fill any vacancies that may occur in its membership, and to act ad interim when necessity arises.

The Committee on Legislation shall report to the House of Delegates at each annual session its proceedings during the previous year, and shall recommend such action in respect to pending legislation as it shall deem proper.

Sec. 4. Committee on Nominations.—The Committee on Nominations shall consist of nine members, not more than one from one state or territory, selected annually by the House of Delegates. It shall be the duty of this Committee, after consultations with the members of the Association, to hold one or more meetings at which the assignment of the offices of the Association for each ensuing year shall be carefully considered. The Committee shall then, on the morning of the third day of the annual session, report the result of its deliberations to the House of Delegates in the shape of a ticket providing one, two, or three names for each office, but not more than one candidate for each office shall be named from any one state or territory. Nothing in this section shall be construed to prevent additional nominations being made by the members of the House of Delegates.

Sec. 5. Transportation Committee.—The House of Delegates shall secure railroad rates for the annual session and publish the same in The Journal of the American Medical Association sufficiently early to enable all who desire to attend the annual session to obtain necessary information.

Sec. 6. The Standing Committees shall discharge all the duties imposed on them by the By-Laws and such other duties as the Association may from time to time direct.

Sec. 7. The members of the Standing Committees whose appointments are not otherwise provided for shall be selected and appointed by the President of the Association before the adjournment of the annual session.

Sec. 8. The Special Committees shall perform the duties for which they are created, and when the report of a special committee is received and acted on said committee shall cease to exist.

Sec. 9. All Special Committees shall be appointed by the officer presiding over the meeting at the time the Special Committee is directed to be constituted. No one appointed on a Special Committee, who fails to report at the meeting next succeeding the one at which he is appointed, shall be continued on such committee, unless a satisfactory excuse is offered.

Sec. 10. The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and such committees shall have the right to report to the House of Delegates in person, and to participate in the debate thereon pending the adoption of such report; but they shall not have the right to vote.

CHAPTER VIII.

TIME OF MEETINGS.

Section 1. The General Meetings of the American Medical Association shall be held at 11 a. m. and 7:30 p. m. of the first day of the annual session, and at 7:30 p. m. of the two subsequent days, and at 12, noon, of the concluding day.

Sec. 2. The various Sections of the Association shall hold their first meeting of each annual session at 2 p. m. of the first day, and on subsequent days of the annual session they shall meet from 9 a. m. to 12, noon, and from 2:30 p. m. to 6 p. m. until their respective programs are completed, or as the Sections themselves may otherwise order; provided, that no Section meeting shall be appointed in conflict with the General Meetings.

Sec. 3. The House of Delegates shall hold its first meeting of each annual session at 2 p. m. of the first day, and on subsequent days at such time as may be necessary to complete its business, provided that it shall not meet at hours that will conflict with the General Meetings of the Association.

CHAPTER IX.

SECTIONS.

Section 1. The American Medical Association shall be divided into the following Sections:

1. Practice of Medicine.
2. Surgery and Anatomy.
3. Obstetrics and Gynecology.
4. Ophthalmology.
5. Laryngology, Otology and Rhinology.
6. Diseases of Children.
7. Materia Medica, Pharmacy and Therapeutics.
8. Physiology and Pathology.
9. Stomatology.

10. Nervous and Mental Diseases.

11. Cutaneous Medicine and Surgery.

12. Hygiene and Sanitary Science.

Sec. 2. Each Section shall be composed of such members as have complied with Sections 1, 2, 3 and 4 of Chapter I of these By-Laws.

Sec. 3. Officers of Sections.—The officers of each Section shall be a Chairman, a Secretary, and an Executive Committee. The latter shall consist of the last three retiring chairmen. At the commencement of the afternoon meeting of the third day of each annual session, each Section shall elect its own officers to serve for the ensuing year, their duties to commence with the close of the annual session at which they are elected and to continue until their successors are elected and qualify. Each Section shall elect annually two representatives to the House of Delegates. In each Section a nominating committee of three members shall be elected by open ballot on the first day to make nominations for section officers.

Sec. 4. Addresses in Sections.—The Chairman of each Section shall prepare an address on recent advances in the branches belonging to his Section, including such suggestions in regard to improvements or methods of work as he may deem important, and present the same to the Section over which he presides on the first day of its annual session. The reading of such addresses shall occupy not more than twenty minutes.

Sec. 5. Papers Before Sections.—It shall be the duty of every member of the Association who proposes to present a paper or report before a Section to forward either the paper or an abstract indicative of its contents, and its length, to the Secretary of such Section at least one month before the annual session at which the paper or report is to be presented. This abstract shall contain not less than fifty nor more than two hundred words.

It shall also be the duty of the Secretary of each Section to arrange such papers in the order in which they shall be read, after which he shall send such information to the Secretary of the Association at least twenty-eight days before the annual session for publication in the official program for the use of all members attending the annual session.

Sec. 6. Length of Papers and Discussions.—No paper, the reading of which occupies more than twenty minutes, shall be read before any Section. Authors of longer papers, however, may read abstracts before a Section within the allotted twenty minutes. Such papers shall be referred by the Section to the Executive Committee of the Section or to a sub-committee specially appointed for their examination. Such committee shall be allowed twenty days for such examination; at the end of which time they

shall forward the papers to the Board of Trustees or to the Editor, with such recommendations as they may deem proper. No member shall address a Section more than once upon the same subject, nor speak longer than five minutes without the approval of the Section.

All papers presented directly to the Association, and other matters, may, at the discretion of the Association, be referred to the various Sections for their consideration and report.

Sec. 7. Publication of Papers and Reports.—No report or other paper shall be entitled to publication in the Journal of the American Medical Association, unless it be approved by each member of the Executive Committee of the Section before which it is read.

Authors of papers are required to return their proofs within two weeks after their reception.

Every paper received by the Association and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association.

The Board of Trustees shall have full discretionary power to omit from the Journal of the American Medical Association, in part or in whole, any paper that may be referred to it by any of the Sections, unless specially instructed to the contrary by vote of the House of Delegates.

No report or other paper shall be presented to this Association, or any one of its Sections, unless it be so prepared that it can be put at once into the hands of the Secretary to be transmitted to the Board of Trustees.

No paper shall be printed as having been read before this Association unless it has actually been read by its author, or unless for special reasons when the author has been present and prepared to read the paper, the Association or Section to which it is presented shall unanimously vote to have it read by title. All other papers shall be treated by the Board of Trustees and Editor as volunteer papers.

Reprints and transactions of Sections, including its list of members, its rules of order, its list of officers, as now published, shall be paid for out of the funds of the Association and furnished free to members of the Association.

CHAPTER X.

ADDRESSES.

The House of Delegates shall elect annually, three members to deliver addresses in the General Meetings of the next ensuing annual session—one on some topic or topics relating to general medicine, one relating to general surgery, and one relating to state medicine. None of these addresses shall exceed thirty minutes in its delivery.

CHAPTER XI.

DELEGATES TO FOREIGN MEDICAL SOCIETIES.

The President shall be authorized to appoint annually delegates to represent this Association at the meetings of such scientific bodies in foreign countries as are affiliated with this Association, whose appointment is not otherwise provided for.

CHAPTER XII.

RULES OF ORDER.

Section 1. This Association shall be governed by the rules prescribed in "Roberts' Rules of Order."

Sec. 2. The Previous Question.—When the previous question is demanded, it shall take at least ten members to second it; and when the main question is put under force of the previous question and negatived, the question shall remain under consideration as if the previous question had not been enforced.

Sec. 3. No one shall be permitted to address the Association until he shall have announced his name and residence, which shall be distinctly repeated by the chair; but no member, except an officer of the Association, or an appointed orator, or an officer of a committee presenting a report, shall be permitted to address the General Meetings from the platform. Remarks shall be limited to five minutes.

Sec. 4. No new business shall be introduced at the General Meeting of the Association on the last day of the annual session except by unanimous consent.

CHAPTER XIII.

ORDER OF BUSINESS.

Section 1. General Meetings.—The order of business of the General Meetings at the annual sessions of the American Medical Association shall at all times be subject to the vote of three-fourths of all the members in attendance; and, until permanently altered, except when for a time suspended, it shall be as follows:

1. The calling of the meeting to order by the President elected the preceding year, or, in his absence, by one of the Vice-Presidents.
2. Reading and adopting the minutes.
3. The report of the Committee of Arrangements.
4. The reception of "members by invitation."
5. Reports of Standing Committees in the order named in the By-Laws.
6. The annual address of the President.
7. The reception of the reports of all Special Committees and voluntary communications, and their reference to the appropriate Sections or committees.

8. The reading and consideration of the reports of the Committees on Prize Essays, and of the Chairmen of Sections.
9. Resolutions introducing new business.
10. Reports from the several Sections.
11. Unfinished and miscellaneous business.
12. Report of the House of Delegates.
13. Adjournment.

Sec. 2. The Opening General Meeting.—The opening meeting shall be for the addresses of welcome, and the responses thereto, for the report of the Committee of Arrangements, and other exercises pertaining to the opening of the General Meeting, and for such other business as may be provided. At this Meeting the President shall deliver his annual address, which shall be referred to the House of Delegates for action.

Sec. 3. The Closing General Meeting.—The closing meeting shall be devoted to such exercises as may be provided, to the report of the House of Delegates, to the announcement of the election of officers, and to their installation.

Sec. 4. House of Delegates:—

1. Call to order by the President.
2. Reading and adopting the minutes.
3. Reports of officers.
4. Reports of committees.
5. Consideration of the recommendations contained in the President's address.
6. Consideration of memorials, resolutions or other business referred from the General Meetings.
7. Consideration of memorials, resolutions or other business referred from the Sections.
8. Consideration of memorials, resolutions or other business referred from the State Societies.
9. Unfinished business.
10. New business.

Sec. 5. Sections.—Each Section shall have authority to arrange its own order of business.

CHAPTER XIV.

AMENDMENTS.

The House of Delegates shall have power to frame By-Laws for its own government and for the government of the Association, and to amend the same; provided, that the proposed amendment shall be submitted in writing and lie over one year before it is acted upon; and provided, further, that it shall receive the affirmative vote of three-fourths of the Delegates voting.

CHAPTER XV.

These By-Laws shall be in effect and force after the close of the annual meeting of 1901; provided, that the Sections shall elect delegates during the session for 1901; and provided, further, that nothing in these By-Laws shall be construed to repeal the rules of the Association governing the relation of members to each other and to the Association.

Adopted at St. Paul, Minn., June 5, A.D., 1901.

CHARLES A. L. REED, President. GEORGE H. SIMMONS, Secretary.

The undersigned Committee to Engross the Constitution and By-Laws hereby certifies that the foregoing copy, after verbal revision, has been carefully compared with the original as adopted at St. Paul, Minn., June 5, 1901, and found to be correct.

J. N. McCORMACK,
P. MAXWELL FOSHAY,
GEORGE H. SIMMONS,
Committee.

MEMBERS OF THE SOCIETY.

HONORARY MEMBERS.

ANDREW JACOB FULLER,	Bath, Me.
ARTHUR WARD,	Newark N. J.
ADRIAN THEO. WOODWARD,	Brandon, Vt.
WILLIAM McCOLLOM,	Brooklyn, N. Y
AGRIPPA NELSON BELL,	Brooklyn, N. Y.
JOHN SHAW BILLINGS, U. S. A.,	New York City.
THOMAS ADDIS EMMETT,	New York City.
WILLIAM HENRY WELCH,	Baltimore, Md.
ROBERT FULTON WEIR,	New York City.
SIR JOSEPH LISTER,	London, Eng.
EDWARD G. JANEWAY,	New York City.
HON. CHARLES E. GROSS,	Hartford.
DAVID WEBSTER,	New York City.
SIR JAMES GRANT,	Ottawa, Can.
HENRY O. MARCY,	Boston, Mass.
T. MITCHELL PRUDDEN,	New York City.
WILLIAM W. KEEN,	Philadelphia.
T. GAILLARD THOMAS,	New York City.
JAMES W. McLANE,	New York City.
FREDERICK HOLME WIGGIN,	New York City.
SENECA D. POWELL,	New York City.
J. W. S. GOULEY,	New York City.

ACTIVE MEMBERS.

The names of those who have been Presidents are in capitals.

HARTFORD COUNTY.

NATHAN MAYER, M.D., Hartford, President.
HOWARD O. ALLEN, M D., Broad Brook, Vice President.
WILLIAM G. CRAIG, M.D., Hartford, Clerk.
County Reporter—WALTER R. STEINER, M.D.,
Censors—PHILO W. STREET, M.D., CHARLES D. ALTON, M.D.,
JOSEPH H. KILBOURN, M.D.

Annual Meeting Third Wednesday in April. Semi-Annual Meeting Third Wednesday in October.

HARTFORD:

GURDON W. RUSSELL, No. 207 Farmington Avenue.
HENRY P. STEARNS, No. 190 Retreat Avenue.
Horace S. Fuller, No. 95 Trumbull Street.
John O'Flaherty, No. 406 Main Street.
Nathan Mayer, No. 904 Main Street.
David Crary, No. 926 Main Street.
John B. Lewis, No. 56 Prospect Street.
Daniel T. Bromley, No. 121 Pearl Street.
Gustavus P. Davis, No. 56 Prospect Street.
Charles E. Froelich, No. 103 Pratt Street.
Harmon G. Howe, No. 137 High Street.
William T. Bacon, No. 75 Pratt Street.
William W. Knight, No. 96 Trumbull Street.
Thomas D. Crothers, No. 50 Fairfield Avenue.
George L. Parmele, No. 65 Pratt Street.
Ellen H. Gladwin, No. 705 Asylum Avenue.
Samuel B. St. John, No. 68 Pratt Street.
George R. Shepherd, No. 32 Farmington Avenue.
Frederick S. Crossfield, No. 75 Pratt Street.
Marcus M. Johnson, No. 92 Pearl Street.
William D. Morgan, No. 49 Pearl Street.
John F. Axtelle, No. 635 Main Street.
George K. Welch, No. 103 Pratt Street.
Phineas H. Ingalls, No. 112 High Street.
Edward K. Root, No. 49 Pearl Street.
Luther A. Davison, No. 11 Pratt Street.
John Howard, No. 119 Trumbull Street.
Charles D. Alton, No. 86 Farmington Avenue.
Oliver C. Smith, No. 44 High Street.
Joseph E. Root, No. 67 Pearl Street.
William Porter, Jr., No. 391 Allyn Street.
Frederick T. Simpson, No. 122 High Street.
George R. Miller, No. 189 High Street.
Charles C. Beach, No. 53 Trumbull Street.
Gideon C. Segur, No. 67 Farmington Avenue.

George C. Bailey, No. 65 Church Street.
Alva E. Abrams, No. 78 High Street.
Charles E. Taft, No. 2 Garden Street.
Thomas F. Kane, No. 517 Main Street.
Arthur J. Wolff, No. 1 Spring Street.
Ansel G. Cook, No. 391 Allyn Street.
Edwin A. Down, No. 703 Asylum Street.
Daniel F. Sullivan, No. 64 Church Street.
Joseph H. Cahill, No. 51 Church Street.
Everett J. McKnight, No. 110 High street.
Benjamin S. Barrows, No. 78 High Street.
Michael A. Bailey, No. 65 Church Street.
George N. Bell, No. 44 High Street.
Frank L. Waite, No. 68 Pratt Street.
Charles S. Stern, No. 904 Main Street.
Oliver K. Isham, No. 211 High Street.
Franklin L. Lawton, No. 295 Main Street.
John H. Rose, No. 75 Pratt Street.
John B. Waters, No. 103 Trumbull Street.
Joseph B. Hall, No. 75 Pratt Street.
Edward O. Elmer, No. 813 Park Street.
Janet M. Weir, No. 43 May Street.
John F. Dowling, No. 1244 Main Street.
Philip D. Bunce, No. 98 High Street.
Homer L. Law, No. 100 Washington Street.
Wilton E. Dickerman, No. 53 Trumbull Street.
John B. Boucher, No. 25 Charter Oak Avenue.
Levi B. Cochran, No. 43 Farmington Avenue.
James H. Naylor, No. 153 Main Street.
Charles P. Botsford, No. 1393 Main Street.
James H. Standish, No. 378 Windsor Avenue.
Michael H. Gill, No. 397 Capitol Avenue.
John B. McCook, No. 390 Main Street.
John W. Felty, No. 310 Windsor Avenue.
George E. Sleeper, No. 1333 Main Street.
Frank B. Look, No. 104 Church Street.
Frank S. Snow, No. 98 High Street.
Howard F. Smith, No. 926 Main Street.
Thomas W. Chester, No. 110 High Street.
Joseph A. Kilbourn, No. 771 Park Street.
Philip P. Carlon, No. 21 1-2 Church Street.
William G. Craig, No. 75 Pratt Street.
William S. Reoch, No. 70 Church Street.
Thomas B. Enders, No. 3 Highland Street.
Charles A. Goodrich, No. 5 Haynes Street.
Alfred M. Rowley, No. 2 Congress Street.
Irving DeL. Blanchard, No. 241 Main Street.
Emil G. Reinert, No. 553 Main Street.
Arthur D. Hayes, No. 18 Spring Street.
Herman A. Tyler, Jr., No. 641 Main Street.
Frederick L. McKee, No. 153 Ashley Street.
Charles W. Page, No. 82 Gillette Street.
Edward E. Lampson, No. 53 Trumbull Street.
William M. Weaver, No. 337 Albany Avenue.
E. Terry Smith, No. 75 Pratt Street.
William H. Fitzgerald, No. 904 Main Street.
Emma J. Thompson, No. 105 Trumbull Street.
Patrick J. Ryan, No. 318 Park Street.
Walter R. Steiner, No. 4 Trinity Street.

AVON:

John L. North.

BERLIN:

Robert E. Ensign.
Charles A. Gillin.

East Berlin:
George W. Lawrence.

Bristol:
John J. Wilson.
William W. Horton.
Arthur S. Brackett.
William M. Curtiss.

Canton—Collinsville:
George F. Lewis.
Ida R. Gridley-Case.
William H. Crowley.
Paul Plummer.

East Hartford:
Edward H. Griswold.
Thomas S. O'Connell.
Walter G. Murphy.

Burnside:
Franklin H. Mayberry.

East Windsor—Broad Brook:
Howard O. Allen.

Warehouse Point:
Michael J. Kelly.
George E. Porter.

Enfield:
Rial Strickland.

Thompsonville:
Edward F. Parsons.
George T. Finch.
Henry G. Varno.
Thomas F. Reardon.

Hazardville:
Simon W. Houghton.

Granby:
Rollin B. Chatfield.

Farmington:
Franklin Wheeler.
Charles Carrington.
John B. Griggs.

Glastonbury:
*Henry C. Bunce.
Charles G. Rankin.
William S. Kingsbury.

South Glastonbury:
Henry M. Rising.
Harry B. Rising.

Manchester:
Francis H. Whiton.
Calvin Weidner.

South Manchester:
William R. Tinker.
Thomas H. Weldon.

New Britain:
*George Clary.
Edwin B. Lyon.
Jay S. Stone.
Erastus P. Swasey.
Michael J. Cohoian.
George J. Holmes.
Lawrence M. Cremin.
Wilbur P. Bunnell.
Samuel W. Irving.
Robert M. Clark.
Hermann Strosser.
Arvid Anderson.
Harris L. Paige.
Kenneth E. Kellogg.

Plainville:
John N. Bull.
Theodore G. Wright.

Rocky Hill:
*Rufus W. Griswold.

Simsbury—Tariffville:
Charles M Wooster.

Southington:
Willard G. Steadman.
William R. Miller.

South Windsor:
Mary S. Tudor.
Henry A. Deane.

Suffield:
Jarvis K. Mason.
Matthew T. Newton.
Philo W. Street.

West Suffield:
William E. Caldwell.

Wethersfield:
Edward G. Fox.
Arthur W. Howard.

Windsor:
*Samuel A. Wilson.
Newton S. Bell.

Windsor Locks:
Joseph A. Coogan.
William J. Coyle.
Myron P. Robinson.

*Exempted from taxation.

NEW HAVEN COUNTY.

FRANK B. TUTTLE, M.D., Naugatuck, President.
JOSEPH H. TOWNSEND, M.D., New Haven, Vice President.
EDWARD S. MOULTON, M.D., New Haven, Clerk.
County Reporter—W. V. WILSON, M.D., West Haven.
Censors—J. W. SEAVER, M.D., C. E. MUNGER, M.D.,
O. T. OSBORNE, M.D.

Annual Meeting, third Thursday in April; semi-annual, third Thursday in October.

NEW HAVEN:

S. G. Hubbard, No. 23 College Street.
C. A. LINDSLEY, No. 15 Elm Street.
John Nicoll, No. 96 Broadway.
T. H. Bishop, No. 215 Church Street.
FRANCIS BACON, No. 32 High Street.
W. L. Bradley, No. 426 Orange Street.
A. E. Winchell, No. 60 Pearl Street.
Robert S. Ives, No. 339 Temple Street.
Evelyn L. Bissell, No. 308 Crown Street.
Arthur Ruickoldt, No. 71 Olive Street.
Walter Judson, No. 1145 Chapel Street.
Frederick Bellosa, No. 209 Orange Street.
S. D. Gilbert, No. 27 Wall Street.
S. H. Chapman, No. 193 Church Street.
J. P. C. Foster, No. 109 College Street.
W. H. Carmalt, No. 87 Elm Street.
T. H. Russell, No. 137 Elm Street.
F. H. Whittemore, No. 13 Elm Street.
C. P. Lindsley, No. 37 Elm Street.
H. Fleischner, No. 928 Grand Avenue.
M. Mailhouse, No. 151 Meadow Street.
M. C. O'Connor, No. 882 State Street.
Charles E. Park, No. 132 Olive Street.
F. E. Beckwith, No. 139 Church street.
Gustavus Eliot, No. 209 Church Street.
J. E. Stetson, No. 106 High Street.
J. F. Luby, No. 667 Grand Avenue.
William W. Hawkes, No. 35 High Street.
Frank H. Wheeler, No. 221 Crown Street.
Herbert E. Smith, Medical College.
Benjamin L. Lambert, No. 358 Howard Avenue.
F. W. Wright, No. 48 Pearl Street.
Edward K. Roberts, No. 244 Grand Avenue.
Oliver T. Osborne, No. 252 York Street.
Lucy C. Peckham, No. 141 Green Street.
William G. Daggett, No. 189 Church Street.
Louis S. DeForest, No. 335 Orange Street.
Henry L. Swain, No. 232 York Street.
Mary B. Moody, Sherland Avenue, cor. E. Grand Avenue.
G. F. Converse, No. 1 Whalley Avenue.
J. H. Townsend, No. 39 College Street.
T. M. Cahill, No. 60 Edwards Street.
C. J. Foote, No. 26 Elm Street.
Marvin Smith, No. 73 Pearl Street.
S. J. Maher, No. 212 Orange Street.
Jay W. Seaver, No. 25 Lynwood Street.
Louis B. Bishop, No. 356 Orange Street.
H. W. Ring, No. 46 Elm Street.
W. C. Welch, No. 44 College Street.
A. O. Baribault, No. 528 Chapel Street.

Rollin McNeil, No. 149 Bradley Street.
Edward M. McCabe, No. 224 Orange Street.
James M. Reilly, No. 337 Cedar Street.
Clarence E. Skinner, No. 67 Grove Street.
N. R. Hotchkiss, No. 150 Shelton Avenue.
Benjamin A. Cheney, No. 40 Elm Street.
Charles A. Tuttle, No. 129 Whalley Avenue.
Harry B. Ferris, No. 118 York Street.
Edmund S. Thomson, No. 352 Grand Avenue.
Henry F. Klenke, No. 730 Grand Avenue.
Leonard W. Bacon, Jr., No. 294 Elm Street.
Paul S. Robinson, No. 164 Grand Avenue.
Arthur N. Alling, No. 199 York Street.
R. A. McDonnell, No. 1142 Chapel Street.
E. P. Pitman, No. 52 Sylvan Avenue.
James A. Moore, No. 223 Grand Avenue.
Isaac N. Porter, No. 198 Dixwell Avenue.
Ernest H. Arnold, No. 46 York Square.
Robert E. Peck, No. 56 Howe Street.
Daniel A. Jones, No. 746 Chapel Street.
William C. Wurtenberg, No. 42 Elm Street.
Chauncey S. Lamb, No. 470 Howard Avenue.
*Edward S. Moulton, No. 223 York Street.
Frederick N. Sperry, No. 76 Wooster Street.
William F. Verdi, No. 172 St. John Street.
Charles J. Bartlett, Medical College.
Morris D. Slattery, No. 352 Howard Avenue.
Ward H. Sanford, No. 63 Edwards Street.
William M. Kenna, No. 145 Olive Street.
Ambrose K. Brennan, No. 177 Olive Street.
Ralph S. Goodwin, Jr., No. 1179 Chapel Street.
Leonard C. Sanford, No. 216 Crown Street.
Willis H. Crowe, No. 106 Whalley Avenue.
Archibald McNeil, No. 51 Livingstone Street.
Charles H. Robbins, No. 329 Grand Avenue.
Louis M. Gompertz, No. 39 Wooster Place.
Alfred G. Nadler, No. 122 Olive Street.
T. E. Beard, Jr., No. 163 Wooster Street.
William Sprenger, No. 366 George Street.
Joseph B. Monahan, No. 228 Congress Avenue.
Frederick C. Bishop, No. 1223 Chapel Street.
James H. J. Flynn, No. 426 Howard Avenue.
Frank A. Kirby, No. 235 Dixwell Avenue.
William J. Sheehan, No. 383 Howard Avenue.
John F. Sullivan, No. 304 Exchange Street.
John S. Ely, No. 51 Trumbull Street.
Maximilian L. Loeb, No. 9 Park Street.
Edward F. McIntosh, No. 192 York Street.
Nicola Mariani, No. 119 Olive Street.
Samuel M. Hammond, No. 105 College Street.
George I. Hemingway, No. 86 Broadway.
Bernard E. Henrahan, No. 603 Dixwell Avenue.
James S. Maher, No. 215 Orange Street.
Percy D. Littlejohn, No. 312 Elm Street.
A. W. Marsh, No. 1012 Whalley Avenue.
William N. Winne, No. 1002 Whalley Avenue.
William S. Barnes, No. 332 Howard Avenue.
Irwin Granniss, No. 64 Edgewood Avenue.
Clarence L. Kilbourn, No. 202 Blatchley Avenue.
Theodore D. Pallman, No. 494 Winthrop Avenue.
Gilbert T. McMaster, No. 6 High Street.
Henry H. Smith, No. 43 Elm Street.

*Exempted from taxation.

Julia E. Teele, No. 153 Franklin Street.
Harry L. Welch, No. 44 College Street.
Willard F. Allen, No. 108 Dixwell Avenue.
Otto G. Ramsay, No. 28 Elm Street.
Thomas G. Sloan, No. 42 College Street.

ANSONIA :
Louis E. Cooper.
Louis H. Wilmot.
Paul Norwood.

BRANFORD :
C. W. Gaylord.
A. J. Tenny.
George H. Townsend.

DERBY :
F. N. Loomis.
Elmer T. Sharpe.
Edward A. Haire.
Royal W. Pinney.
Paul B. Kennedy.

EAST HAVEN :
Charles W. Holbrook.

GUILFORD :
George H. Beebe.

HAMDEN—Mt. Carmel :
George H. Joslin.

MADISON :
*D. M. Webb.

MERIDEN :
*Asa H. Churchill.
C. H. S. Davis.
N. Nickerson.
A. W. Tracy.
E. T. Bradstreet.
J. D. Eggleston.
Edward W. Smith.
O. J. D. Hughes.
Ava H. Fenn.
E. W. Pierce.
S. D. Otis.
F. P. Griswold.
E. D. Hall.
H. W. Delesdernier.
H. A. Meeks.
William Galvin.
J. W. H. La Pointe.
Joseph A. Cooke.

MILFORD :
E. B. Heady.
E. C. Beach.
A. L. Tuttle.

NAUGATUCK :
~~Frank B. Tuttle.~~
Thomas M. Bull.
Frederick Spring.
James W. Robbins.
William J. Delaney.
Edwin H. Johnson.
Frank J. Tuttle.
John J. Carroll.

NORTH HAVEN :
R. B. Goodyear.

ORANGE—West Haven:
J. F. Barnett.
William V. Wilson.
Durell Shepard.
Charles D. Phelps.

OXFORD:
*Lewis Barnes.

SEYMOUR :
Frank A. Benedict.
Elias W. Davis.

WALLINGFORD :
J. D. McGaughey.
C. H. Atwater.
William S. Russell.
William P. Wilson.
Caroline North.

WATERBURY :
Edward L. Griggs.
F. E. Castle.
E. W. McDonald.
Walter L. Barber.
C. W. S. Frost.
Charles S. Rodman.
J. M. Benedict.
Thomas L. Axtelle.
Carl E. Munger.
Bernard A. O'Hara.
John F. Hayes.
Caroline R. Conkey.
Augustin A. Crane.
Patrick T. O'Connor.
John D. Freney.
Charles A. Hamilton.
George O. Robbins.
Isaac P. Fiske.
Charles H. Brown.
Edward W. Goodenough.
Myron L. Cooley.
Frederick G. Graves.
John R. Poore.
James L. Moriarty.
George W. Russell.
Daniel L. Maloney.
Thomas J. Kilmartin.
Ernest D. Chipman.
Charles A. Monagan.
Henry G. Anderson.
Henry E. Hungerford.
Charles A. Ryder.
Harry E. Ballard.
Judson A. Pomeroy.
Thomas J. Lally.
Patrick J. Dwyer.

Waterville:
Joseph S. Holroyd.

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*Exempted from taxation.

NEW LONDON COUNTY

NEWTON P. SMITH, M.D., Norwich, President.
FREDERICK H DART, M.D., Niantic, Vice President.
MORTON E. FOX, M.D., Montville, Clerk.
Censors—L. S. PADDOCK, M.D., WILLIAM WITTER, M.D.,
F. N. BRAMAN, M.D.

Annual Meeting, first Thursday in April; **semi-annual, first Thursday in October.**

COLCHESTER:
James T. Mitchell.
Raymond R. Gandy.

EAST LYME—Niantic:
Frederick H. Dart.
Edward C. Chipman.

GRISWOLD—Jewett City:
George H. Jennings.

GROTON:
Edmund P. Douglass.
Frank W. Hewes.

MONTVILLE—Uncasville:
*Morton E. Fox.

NEW LONDON:
Abiel W. Nelson.
FRANCIS N. BRAMAN.
John G. Stanton.
Charles B. Graves.
Hiram B. Thomson.
Harold H. Heyer.
Carlisle F. Ferrin.
Thomas W. Rogers.
J. Clifton Taylor.
Griswold Bragaw.
Patrick J. Cassidy.
Harry M. Lee.
Emanuel A. Hinkle.

NORWICH:
Lewis S. Paddock.
William Witter.
William S. C. Perkins.
Patrick Cassidy.
LEONARD B. ALMY.
Anthony Peck.
Julian LaPierre.
Edward P. Brewer.
Newton P. Smith.
Witter K. Tingley.
William T. Browne.
George R. Harris.
Rush W. Kimball.
James J. Donahue.
Harvey E. Higgins.
Samuel Lathrop.

Taftville:
George Thompson.

Yantic:
Herbert H. Howe.

STONINGTON:
Charles E. Brayton.
Norman L. Drake.

Mystic:
Frank A. Coates.

Old Mystic:
*Albert T. Chapman.
William H. Gray.

WATERFORD:
George M. Minor.

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FAIRFIELD COUNTY.

NATHANIEL E. WORDIN, M.D., Bridgeport, President.
WILLIAM B. COGSWELL, M.D., Stratford, Vice President.
GEORGE S. FORD, M.D., Bridgeport, Clerk.
County Reporter—H. F. BROWNLEE, M.D., Danbury.
Censors—W. E. RICE, M.D., L. T. DAY, M.D.,
F. P. CLARK, M.D.

Annual Meeting, second Tuesday in April, at Bridgeport; **semi-annual in October.**

BRIDGEPORT:
Andrew J. Smith, No. 191 Barnum Avenue.
GEORGE L. PORTER, No. 372 State Street.
Robert Lauder, No. 310 Fairfield Avenue.

*Exempted from taxation.

Curtis H. Bill, No. 411 State Street.
N. E. Wordin, No. 274 Fairfield Avenue.
F. M. Wilson, Nos. 834-836 Myrtle Avenue.
T. F. Martin, No. 289 Golden Hill Street.
F. B. Downs, No. 906 Lafayette Street.
J. W. Wright, Nos. 808-810-812 Myrtle Avenue.
A. W. Lyons, 991 Broad Street.
*A. A. Holmes, No. 991 Broad Street.
Charles C. Godfrey, No. 340 State Street.
S. M. Garlick, No. 474 State Street.
Henry Blodget, No. 477 State Street.
J. C. Lynch, No. 408 State Street.
C. C. Hoyt, No. 1289 State Street.
G. W. Osborn, No. 888 Broad Street.
J. R. Topping, No. 295 East Main Street.
B. F. White, No. 390 State Street.
Jacob May, No. 124 Courtland Street.
F. C. Graves, No. 561 State Street.
G. B. Cowell, No. 502 East Washington Avenue.
George E. Ober, No. 355 East Main Street.
B. DeF. Sheedy, No. 426 State Street.
D. C. DeWolfe, No. 509 Fairfield Avenue.
Harry S. Miles, No. 417 State Street.
Charles L. Banks, No. 560 State Street.
Fessenden L. Day, No. 477 State Street.
Edward Fitzgerald, No. 526 East Washington Avenue.
*George S. Ford, No. 313 State Street.
Robert G. Leverty, No. 570 Washington Avenue.
Frank M. Tukey, No. 429 State Street.
William W. Gray, No. 346 West Avenue.
James D. Gold, No. 866 Lafayette Street.
Reuben A. Lockhart, No. 18 North Washington Avenue.
Harriet A. Thompson, No. 695 Warren Street.
Frederick J. Adams, No. 327 Fairfield Avenue.
W. J. A. O'Hara, No. 361 Barnum Avenue.
David M. Trecartin, No. 542 State Street.
G. Stanley Heft, No. 356 State Street.
Harry W. Fleck, No. 421 State Street.
Thomas L. Ellis, No. 332 West Avenue.
Charles R. Townsend, No. 346 State Street.
Herbert E. Smyth, No. 27 Courtland Street.
Harry R. Bennett, No. 947 State Street.
J. Murray Johnson, No. 469 State Street.
Elmer F. Blank, No. 489 East Main Street.
Charles S. Goodwin, No. 426 State Street.
George M. DeLisser, No. 508 Noble Avenue.
Irving L. Nettleton, No. 385 Noble Avenue.
Richard W. Ivers, No. 348 State Street.
Frederick S. Wakefield, No. 311 State Street.
Edwards M. Smith, 340 State Street.
Frank L. Smith, No. 2178 Main Street.
David B. Wason, 659 Noble Avenue.
Thomas F. Stanton, No. 374 State Street.
Robert E. Perdue, No. 408 State Street.

BETHEL:
A. E. Barber.
George DeWitt Wight.
Homer F. Moore.

BROOKFIELD:
Junius F. Smith.

DANBURY:
F. P. Clark.
E. A. Stratton.
W. S. Watson.
D. Chester Brown.
H. F. Brownlee.

*Exempted from taxation.

John H. Benedict.
Nathaniel Selleck.
George E. Lemmer.
*Charles F. Craig, U. S. A.
John A. Wade.
William F. Gordon.
W. H. Kiernan.
William T. Bronson.

DARIEN :
George H. Noxon.

Noroton :
M. W. Robinson.

FAIRFIELD :
W. H. Donaldson.

Greenfield Hill:
M. V. B. Dunham.

Southport:
Joseph L. Hetzel.

GREENWICH :
Frank Terry Brooks.
Fritz C. Hyde.

Cos Cob:
Kirk W. Holmes.

HUNTINGTON—Shelton :
GOULD A. SHELTON.
William S. Randall.
Francis J. Nettleton.

MONROE—Stepney :
SETH HILL.

NEW CANAAN :
Clarence H. Scoville.

NEWTOWN—Sandy Hook :
James W. Gordon.

NORWALK :
James G. Gregory.
R. L. Higgins.
S. H. Huntington.
William J. Tracy.

South Norwalk:
A. N. Clark.
C. G. Bohannan.
Lauren M. Allen.
Henry C. Sherer.
Jean Dumortier.
Wright B. Bean.

East Norwalk:
Frederick B. Baker.

REDDING :
Ernest H. Smith.

RIDGEFIELD:
Russell W. Lowe.
Howard P. Mansfield.

STAMFORD:
A. M. Hurlbut.
Samuel Pierson.
A. N. Phillips.
*C. R. Hexamer. U. S. A.
P. P. Van Vleet.
F. Schavoir.
Wm. A. R. Treadway.
F. J. Rogers.
Rosavelle G. Philip.
James A. Meek.
George Sherrill.
Watson E. Rice.
Frank M. Tiffany.
Daniel A. Hanrahan.
Myre J. Brooks.
Leonard W. Munson.
George R. Hertzberg.

STRATFORD :
W. B. Cogswell.
G. F. Lewis.

WESTON—Lyon's Plains :
F. Gorham.

WESTPORT :
George B. Bouton.
F. Powers.
Loren T. Day.
F. D. Ruland.
*L. H. Wheeler. U. S. A.
J. M. Nolan.

WILTON :
A. B. Gorham.

South Wilton:
Edward Everett Smith.

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WINDHAM COUNTY.

FRANK H. COOPS, M.D., Danielson, President.
HENRY R. LOWE, M.D., Putnam, Vice President.
JAMES L. GARDNER, M.D., Central Village, Clerk.
County Reporter—T. R. PARKER, M.D., Willimantic.
Censors—LOWELL HOLBROOK, M.D., OMAR LARUE, M.D.,
F. E. GUILD, M.D.

BROOKLYN—Wauregan:
A. H. Tanner.

CHAPLIN :
Charles M. Knight.

*Exempted from taxation.

DANIELSON:
RIENZI ROBINSON.
W. H. Judson.
C. J. Le Clair.
Frank H. Coops.
James R. Shannon.

HAMPTON:
Amos Avery.

KILLINGLY:
Ashael E. Darling.
Henry L. Hammond.

East Killingly:
Charles E. Hill.

MOOSUP:
Charles N. Allen.
W. W. Adams.
Frederick E. Rainville.

Central Village.
*James L. Gardner.

POMFRET:
S. B. Overlock.

PUTNAM:
John B. Kent.
F. A. Morrell.
Omar LaRue.
Lewis O. Morasse.
Warren W. Foster.
Henry R. Lowe.

THOMPSON:
*LOWELL HOLBROOK.

North Grosvenor Dale:
J. F. McIntosh.

WINDHAM:
F. E. Guild.

WILLIMANTIC:
Frederick Rogers.
T. MORTON HILLS.
C. J. Fox.
T. R. Parker.
John Weldon.
R. C. White.
George W. May.
Laura H. Hills.
Joseph A. Girouard.

WOODSTOCK—East Woodstock:
Charles C. Gildersleeve.

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LITCHFIELD COUNTY.

JEROME S. BISSELL, M.D., Torrington, President.
DAVID R. ROGER, M.D., Woodbury, Vice President.
ALBERT E. COBB, M.D., Falls Village, Clerk.
County Reporter—WILLIAM S. RICHARDS, M.D., West Winsted.
Censors—J. H. NORTH, M.D., W S. RICHARDS, M.D.,
J. C. KENDALL, M.D.

Annual Meeting, fourth Tuesday in April; semi-annual, second Tuesday in October.

BETHLEHEM:
Etta May Hadley-Judd.

CANAAN—Falls Village:
*Albert E. Cobb.

GOSHEN:
J. H. North.
Noah S. Wadhams.

KENT:
W. M. Barnum.

LITCHFIELD:
C. O. Belden.
J. T. Sedgwick.
John L. Buel.
W. S. MacLaren.
Charles N. Warner.

Bantam:
Albert L. Schuyler.

NEW HARTFORD:
Josiah Swett.

NEW MILFORD:
George E. Staub.

NORFOLK:
John C. Kendall.
I. L. Hamant.
Lucius D. Bulkley.
Frederick S. Dennis.

NORTH CANAAN—Canaan:
Charles W. Camp.
Frank H. Lee.
William T. Owens.

PLYMOUTH—Terryville:
William P. Swett.
W. W. Wellington.

*Exempted from taxation.

SALISBURY :
Philip H. Sellew.

Lakeville:
William Bissell.
George H. Knight.
William B. Bissell.

SHARON :
Clarence W. Bassett.

THOMASTON :
RALPH S. GOODWIN.
George D. Ferguson.
T. G. O'Connell.

TORRINGTON :
William L. Platt.
Thatcher S. Hanchett.
Elias Pratt.
J. W. Johnson.
Jerome S. Bissell.
James D. Hayes.
Abram J. Barker.
Charles H. Carlin.
*Sanford H. Wadhams.
H. D. Moore.
Michael R. Laden.

WASHINGTON :
ORLANDO BROWN.
William J. Ford.

New Preston:
Robert A. Marcy.

WATERTOWN :
Ernest K. Loveland.

WINCHESTER—Winsted :
Edward L. Pratt.
William S. Hulbert.
Salmon J. Howd.

West Winsted:
Edward H. Welch.
William S. Richards.

WOODBURY :
David R. Rodger.

Hotchkissville :
Egbert L. Smith.

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MIDDLESEX COUNTY.

FRANK E. POTTER, M.D., Portland, President.

CHARLES H. HUBBARD, M.D., Essex, Vice President.

FRANK K. HALLOCK, M.D., Cromwell, Clerk.

County Reporter—JOHN E. LOVELAND, M.D., Middletown.

Censors—S. W. TURNER, M.D., GEORGE W. BURKE, M.D., M. C. HAZEN, M.D.

Annual Meeting, second Thursday in April; semi-annual, second Thursday in October.

CHATHAM—Middle Haddam :
George N. Lawson.

East Hampton:
Albert Field.

CHESTRE :
*Sylvester W. Turner.
Fred. Sumner Smith.

CLINTON :
Herbert S. Reynolds.

CROMWELL :
*Frank K. Hallock.
Charles E. Bush.
Clara M. DeHart.

DURHAM :
Earl Mathewson.

EAST HADDAM :
M. W. Plumstead.

ESSEX :
Charles H. Hubbard.

HADDAM :
Miner C. Hazen.

Higganum :
Russel Hulbert.

KILLINGWORTH :
Edward P. Nichols.

MIDDLETOWN :
*George W. Burke.
FRANCIS D. EDGERTON.
Wm. E. Fisher.
Charles E. Stanley.
James M. Keniston.
Henry S. Noble.
Michael D. Murphy.
John E. Bailey.
Arthur J. Campbell.
Arthur B. Coleburn.
J. Francis Calef.
John E. Loveland.
Kate C. Mead.
Lewis Maitland.
Daniel A. Nolan.
Roger C. Downey.
Allen Ross Defendorf.

*Exempted from taxation.

John H. Mountain.
Charles B. Young.
Jessie W. Fisher.

OLD SAYBROOK:
JOHN H. GRANNISS.
William D. Spencer.
Calista V. Luther.

PORTLAND:
Cushman A. Sears.
Frank E. Potter.
James Murphy.

SAYBROOK—Deep River:
*Edwin Bidwell.
Howard T. French.

Westbrook:
Thomas B. Bloomfield.

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TOLLAND COUNTY.

ELI P. FLINT, M.D., Rockville, President.
ALONZO L. HURD, M.D., Somers, Vice President.
EDWIN T. DAVIS, M.D., Ellington, Clerk.
County Reporter—C. B. NEWTON, M.D., Stafford Springs.
Censors—T. F. ROCKWELL, M.D., WILLIAM C. HAVEN, M.D., A. R. GOODRICH, M.D.

Annual Meeting, third Tuesday in April; semi-annual, third Tuesday in October.

BOLTON:
*CHAS. F. SUMNER.

COVENTRY:
William C. Haven.

South Coventry:
W. L. Higgins.
Clarence E. Simonds.

ELLINGTON:
*E. T. Davis.

MANSFIELD—Mansfield Depot:
F. E. Johnson.

ROCKVILLE:
Frederick Gilnack.
T. F. Rockwell.
E. P. Flint.
T. F. O'Laughlin.
Ernest O. Winship.

SOMERS:
Alonzo L. Hurd.

STAFFORD—Stafford Springs:
C. B. NEWTON.
F. L. Smith.
Frank B. Newton.

VERNON:
*A. R. GOODRICH.

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*Exempted from taxation.

ALPHABETICAL LIST

OF THE

MEMBERS OF THE CONNECTICUT MEDICAL SOCIETY,

With Date and Place of Graduation, and Post-Office Address.

In preparing this list the Secretary has followed the list in the Proceedings of 1892, made with great care and labor by Dr. J. B. Lewis for the Centennial year. It may be relied upon as being correct.

Name.	Medical Graduation.	P. O. Address.
Abrams, Alva Elnathan,	Albany, '81,	Hartford.
Adams, Frederick Joseph,	Univ. N. Y., '95,	Bridgeport.
Adams, William Waldo,	Bellevue, '91,	Moosup.
Allen, Charles Noah,	Univ. Vt., '81,	Moosup.
Allen, Howard Oliver,	Univ. N. Y., '79,	Broad Brook.
Allen, Lauren Melville,	P. & S., N. Y., '80,	So. Norwalk.
Allen, Millard Fillmore,	Med. Chi., Phil., '95,	New Haven.
Alling, Arthur Nathaniel, B.A.,	P. & S., N. Y., '91,	New Haven.
Almy, Leonard Ballou, B.A., '72,	Bellevue, '76,	Norwich.
Alton Charles De Lancey,	Bellevue, '75,	Hartford.
Anderson, Arvid,	Univ. Mich., '93,	New Britain.
Anderson, Henry Gray,	P. & S., N. Y., '89,	Waterbury.
Arnold, Ernest Hermann,	Yale, '94,	New Haven.
Atwater, Caleb Huntington,	P. & S., N. Y., '71,	Wallingford.
Avery, Amos,	L. I. Hosp. Coll., '99,	Hampton..
Axtelle, John Franklin,	L. I. Hosp. Coll., '71,	Hartford.
Axtelle, Thomas Lincoln,	Bellevue, '81,	Waterbury.
Bacon, Francis,	Yale, '53,	New Haven.
Bacon, Leonard Woolsey, Jr.,	Yale, '92,	New Haven.
Bacon, William Turner, B.A., Yale, '68, M.A., '71,	Univ. N. Y., '71,	Hartford.
Bailey, George Cornelius,	Univ. N. Y., '86,	Hartford.
Bailey, John Elmore,	P. & S., N. Y., '85,	Middletown.
Bailey, Michael Angelo,	P. & S., Balt., '93,	Hartford.
Ballard, Harry Emory,	Univ. Vt., '93,	Waterbury.
Baker, Frederick Birdseye,	Univ. Md., '88,	E. Norwalk.
Banks, Charles Lincoln,	P. & S., N. Y., '91,	Bridgeport.
Barber, Alvin Elizur,	Berkshire, '54,	Bethel.
Barber, Walter Lewis,	Bellevue, '73,	Waterbury.
Baribault, Arthur Octave,	Vict. Med. Col., '89,	New Haven.
Barnes, Lewis, B.A., M.A., '47,	Buffalo Univ., '50,	Oxford.
Barnes, William Samuel, Ph.B., Yale, '95,	Yale, '97,	New Haven.
Barnett, John Frederick,	Yale, '69,	West Haven.
Barnum, Walter Milo,	P. & S., N. Y., '83,	Kent.
Barrows, Benj. Safford, Ph.B., '83,	Univ. N. Y., '87,	Hartford.
Bartlett, Charles Joseph, B.A., Yale, '92; M.A., Yale, '94,	Yale, '95,	New Haven.

Name.	Medical Graduation.	P. O. Address.
Bassett, Clarence Wheeler,	Univ. N. Y., '82,	Sharon.
Beach, Charles Coffing,	P. & S., N. Y., '82,	Hartford.
Beach, Edward Charles,	Yale, '88,	Milford.
Bean, Wright Butler,	P. & S., N. Y., '95,	South Norwalk.
Beard, Theodore Edward, Jr.,	Yale, '97,	New Haven.
Beckwith, Frank Edwin, M.A., '81,	P. & S., N. Y., '71,	New Haven.
Beebe, George Hoxie,	Univ. N. Y., '78,	Guilford.
Belden, Charles Ogilvie,	P. & S., N. Y., '82,	Litchfield.
Bell, George Newton,	Yale, '92,	Hartford.
Bell, Newton Stephen,	Univ. Vt., '64,	Windsor.
Bellosa, Frederick,	Yale, '72,	New Haven.
Benedict, Frank Allen,	P. & S., N. Y., '87,	Seymour.
Benedict, John Howe,	Conn. Med. Soc., '58,	Danbury.
Benedict, John Mitchell,	Univ. N. Y., '82,	Waterbury.
Bennett, Harry Raymond,	Univ. Vt., '96,	Bridgeport.
Bidwell, Edwin,	Yale, '47,	Deep River.
Bill, Curtis Harvey,	Univ. N. Y., '59,	Bridgeport.
Bishop, Frederick Courtney, B.A., Yale, '92,	Yale, '95,	New Haven.
Bishop, Louis Bennett, B.A., '86,	Yale, '88,	New Haven.
Bishop, Timothy Huggins,	Yale, '60,	New Haven.
Bissell, Evelyn Lyman,	Yale, '60,	New Haven.
Bissell, Jerome Samuel,	Yale, '94,	Torrington.
Bissell, William, B.A., Yale, '53,	Yale, '56,	Lakeville.
Bissell, William Bascom, A.B., Yale, '88,	P. & S., N. Y., '92,	Lakeville.
Blanchard, Irving DeLoss,	Yale, '97,	Hartford.
Blank, Elmer Francis,	Starling, '97,	Bridgeport.
Blodget, Henry, A.B., Yale, '75,	Bellevue, '81,	Bridgeport.
Bloomfield, Thomas Blanch,	P. & S., N. Y., '76,	Westbrook.
Bohannan, Charles Gordon,	Univ. N. Y., '78,	South Norwalk.
Botsford, Charles Porter,	Yale, '94,	Hartford.
Boucher, John Bernard,	P. & S., Balt., '94,	Hartford.
Bouton, George Beriah,	Y., '56; N. Y. M., '56,	Westport.
Brackett, Arthur Stone,	Jefferson, '95,	Bristol.
Bradley, William Lockwood, B.A., '60,	Yale, '64,	New Haven.
Bradstreet, Edward Thomas, B.A., '74,	P. & S., N. Y., '77,	Meriden.
Braman, Francis Nelson,	Bellevue, '66,	New London.
Brayton, Charles Erskine,	P. & S., N. Y., '73,	Stonington.
Bragaw, Griswold,	Bellevue, '97,	New London.
Brennan, Ambrose Kirk,	Yale, '93,	New Haven.
Brewer, Edward Pliny, Ph.D.,	Dartmouth, '79,	Norwich.
Bromley, Daniel Tyler,	Yale, '67,	Hartford.
Bronson, William Thaddeus,	Univ. N. Y., '98,	Danbury.
Brooks, Frank Terry, B.A., Yale, '90,	P. & S., '93,	Greenwich.
Brooks, Myre Joel,	Yale, '67,	Stamford.
Brown, Charles Henry,	Univ. N. Y., '93,	Waterbury.
Brown, David Chester,	Yale, '84,	Danbury.
Brown, Orlando,	Yale, '51,	Washington.
Browne, William Tyler, Ph.B., '78,	Harvard, '82,	Norwich.
Brownlee, Harris Fenton,	P. & S., N. Y., '88,	Danbury.
Bulkley, Lucius Duncan, M.A.,	P. & S., N. Y., '69,	Norfolk.
Buel, John Laidlaw,	P. & S., N. Y., '88,	Litchfield.
Bull, John Norris,	P. & S., N. Y., '78,	Plainville.
Bull, Thomas Marcus,	P. & S., N. Y., '87,	Naugatuck.
Bunce, Henry Clinton,	Yale, '50,	Glastonbury.

Name.	Medical Graduation.	P. O. Address.
Bunce, Philip Dibble, A.B., Yale, '88,	P. & S., N. Y., '91,	Hartford.
Bunnell, Wilbur Pitkin,	Univ. N. Y., '62,	New Britain.
Burke, George Whiting, B.A., '39, M.A., '42, Wesleyan,	Yale, '43,	Middletown.
Bush, Charles Ellsworth,	Yale, '94,	Cromwell.
Cahill, Joseph Henry,	Balt. Univ., '92,	Hartford.
Cahill, Thomas Matthew,	Yale, '88,	New Haven.
Caldwell, William Elry,	Balt. Med. Col., '95,	West Suffield.
Calef, Jeremiah Francis, B.A., '77,	Yale, '80,	Middletown.
Camp, Charles Welford,	Univ. N. Y., '74,	Canaan.
Campbell, Arthur Joseph,	P. & S., Balt., '85,	Middletown.
Carlin, Charles Henry,	Univ. Mich., '96,	Torrington.
Carlon, Philip Patrick,	Univ. N. Y., '90,	Hartford.
Carmalt, William Henry, M.A., '81,	P. & S., N. Y., '61,	New Haven.
Carrington, Charles,	P. & S., N. Y., '60,	Farmington.
Carroll, John James,	Dartmouth, '97,	Naugatauck.
Case, Ida R. Gridley, B.A., Wes. Univ., '86; M.A., Wes., '88,	P. & S., Boston, '89,	Collinsville.
Cassidy, Patrick,	Univ. Vt., '65,	Norwich.
Cassidy, Patrick John, B.A., Yale, '94,	Johns Hopkins, '98,	New London.
Castle, Frank Edwin,	Yale, '70,	Waterbury.
Chapman, Albert Taylor,	P. & S., N. Y., '64,	Old Mystic.
Chapman, Sherman Hartwell, B.A., '53, M.A., '66,	P. & S., N. Y., '69,	New Haven.
Chatfield, Rollin Blackman,	Yale, '93,	Granby.
Cheney, Benjamin Austin, B.A., '88,	Yale, 90,	New Haven.
Chester, Thomas Weston, B.A., Rutgers, '92, M.A., '95,	P. & S., N. Y., '95,	Hartford.
Chipman, Edward Clifford,	P. & S., N. Y., '91,	Niantic.
Chipman, Ernest Dwight,	Yale, '97,	Waterbury.
Churchill, Asa Hopkins,	Yale, '57,	Meriden.
Clark, Arthur Norman,	P. & S., N. Y., '83,	South Norwalk.
Clark, Franklin Pierce,	P. & S., N. Y., '76,	Danbury.
Clark, Robert Moses,	Univ. Pa., '91,	New Britain.
Clary, George, A.B., '52, Dartmouth,	Yale, '57,	New Britain.
Coates, Franklin Avery, A.B., '72; A.M., '75,	P. & S., N. Y., '75,	Mystic.
Cobb, Alfred Edward,	Yale, '98,	Falls Village.
Cochran, Levi Bennett,	Univ. Pa., '93,	Hartford.
Cogswell, William Badger,	Bellevue, '81,	Stratford.
Coholan, Michael James,	Univ. N. Y., '65,	New Britain.
Coleburn, Arthur Burr,	P. & S., N. Y., '90,	Middletown.
Conkey, Caroline Root,	W. Med., N. Y., '81,	Waterbury.
Converse, George Frederick,	Yale, '87,	New Haven.
Coogan, Joseph Albert,	Bellevue, '76,	Windsor Locks.
Cook, Ansel Granville,	P. & S., N. Y., '87,	Hartford.
Cooke, Joseph Anthony,	Yale, '97,	Meriden.
Cooley, Myron Lynus,	Buffalo, '86,	Waterbury.
Cooper, Louis Edward, Ph.B., '84,	Yale, '86,	Ansonia.
Coops, Frank Harvey,	P. & S., Balt., '96,	Danielson.
Cowell, George B.,	P. & S., N. Y., '88,	Bridgeport.
Coyle, William Joseph,	Buffalo Med. Col., '85,	Windsor Locks.
Craig, Charles Franklin,	Yale, '94,	Danbury.
Craig, William Gibson,	Jefferson, '92,	Hartford.

Name.	Medical Graduation.	P. O. Address.
Crane, Augustin Averill, B.A., '85,	Yale, '87,	Waterbury.
Crary, David,	Yale, '69,	Hartford.
Crossfield, Frederick Solon,	Bellevue, '78,	Hartford.
Crothers, Thomas Davison,	Albany, '65,	Hartford.
Crowe, Willis Hanford,	P. & S., N. Y., '95,	New Haven.
Crowley, William Holmes,	Buffalo Med. Col., '90,	Collinsville.
Curtiss, William Martin Stanley,	Balt. Univ. S. M., '93,	Bristol.
Daggett, William Gibbons, B.A., '80,	Univ. P., '84,	New Haven.
Darling, Ashael Ebenezer,	Harvard, '72,	Killingly.
Dart, Frederick Howard,	P. & S., N. Y., '84,	Niantic.
Davis, Charles Henry Stanley,	Univ. N. Y., '66,	Meriden.
Davis, Edwin Taylor,	Univ. Vt., '88,	Ellington.
Davis, Elias Wyman, B.A., Yale, '89,	Yale, '92,	Seymour.
Davis, Gustav Pierpont, B.A., '66,	P. & S., N. Y., '69,	Hartford.
Davison, Luther Augustus,	Univ. N. Y., '82,	Hartford
Day, Fessenden Lorenzo, B.A.,	Bellevue, '93,	Bridgeport.
Day, Loren True,	Yale, '80,	Westport.
Deane, Henry Augustus,	Dartmouth, '68,	South Windsor.
Defendorf, Allen Ross, B.A., Yale, '94,	Yale, '96,	Middletown.
DeForest, Louis Shepard, B.A., '79; M.A., '91,	Univ. Jena., '85,	New Haven.
DeHart, Clara Madana,	Woman's Med. Coll., N. Y. Inf., '94,	Cromwell.
Delaney, William Joseph,	McGill Univ., '87,	Naugatuck.
Delesdernier, Horace William,	Univ. Vt., '85,	Meriden,
DeLisser, Glenwood Medcalf,	Wash. Univ., '97,	Bridgeport.
Dennis, Frederic Shepard, B.A., Yale, '72; M.R.C.S.,	Bellevue, '74,	Norfolk.
DeWolfe, Daniel Charles,	Univ. Vt., '86,	Bridgeport.
Dickerman, Wilton Elias, B.A., Amherst, '90,	Yale, 93,	Hartford.
Donahue, James Joseph,	P. & S., Balt., '96,	Norwich.
Donaldson, William Henry,	Univ. N. Y., '81,	Fairfield.
Douglass, Edmund Peaslee,	Univ. N. Y., '89,	Groton.
Dowling, John Francis,	L. I. Hosp. Coll., '90,	Hartford.
Down, Edwin Augustus,	P. & S., N. Y., '87,	Hartford.
Downey, Roger Charles,	Univ. Vt., '92,	Middletown.
Downs, Frederick Bradley,	Univ. N. Y., '78,	Bridgeport.
Drake, Norman Lucie,	Univ. N. Y., '91,	Stonington.
Dumortier, Jean,	Univ. Ghent, Belg., '89,	South Norwalk.
Dunham, Martin Van Buren,	Harvard, '67,	Greenfield Hill.
Dwyer, Patrick James, A.B., Fordham, '94,	Univ., N. Y., '97,	Waterbury.
Edgerton, Francis Daniels, A.M., '61,	Univ. Vt., '61, P. & S., N. Y., '64,	Middletown.
Eggleston, Jeremiah Dewey,	P. & S., N. Y., '79,	Meriden.
Eliot, Gustavus, B.A., '77; A.M., '82,	P. & S., N. Y., '80,	New Haven.
Ellis, Thomas Long, B.A., Yale, '94,	Yale, '96,	Bridgeport.
Elmer, Oliver Edward,	P. & S., Balt., '94,	Hartford.
Ely, John Slade, Ph.B., Yale, '81, M.A., Columbia, '97,	P. & S., N. Y., '86,	New Haven.
Enders, Thomas Burnham,	P. & S., N. Y., '91,	Hartford.

Name.	Medical Graduation.	P. O. Address.
Ensign, Robert Eleazer,	Albany, '57,	Berlin.
Felty, John Wellington, A.M., Emporia, '97,	Jefferson, '84,	Hartford.
Fenn, Ava Hamlin,	P. & S., Balt., '86,	Meriden.
Ferguson, George Dean,	Univ. N. Y., '79,	Thomaston.
Ferrin, Carlsie Franklin, B.A., Univ. Vt., 91,	P. & S., N. Y., '95,	New London.
Ferris, Harry Burr, B.A., '87,	Yale, '90,	New Haven.
Field, Albert,	L. I. Coll. Hosp., '67,	E. Hampton.
Finch, George Terwilliger, Hobart, B.A., '75, M.A., '78,	Bellevue, '77,	Thompsonville.
Fisher, Jessie Weston,	Woman's Med. Col., of Penna., '93,	Middletown.
Fisher, William Edwin,	Univ. Pa., '76,	Middletown.
Fiske, Isaac Parsons,	Univ. N. Y., '75,	Waterbury.
Fitzgerald, Edward,	P. & S., Balt., '84,	Bridgeport.
Fitzgerald, William,	Univ. Vt., '95,	Hartford.
Fleck, Harry Willard,	Univ. Pa., '96,	Bridgeport.
Fleischner, Henry,	Yale, '78,	New Haven.
Flint, Eli Percival,	Yale, '79,	Rockville.
Flynn, James Henry Joseph,	Yale, '95,	New Haven.
Foote, Charles Jenkins, B.A., '83,	Harvard, '87,	New Haven.
Ford, George Skiff,	Bellevue, '93,	Bridgeport.
Foster, John Pierpont Codrington, B.A., '69,	Yale, '75,	New Haven.
Foster, Warren Woodend,	Harvard, '82,	Wash'ton, D. C.
Fox, Charles James,	Univ. N. Y., '76,	Willimantic.
Fox, Edward Gager,	Univ. N. Y., '83,	Wethersfield.
Fox, Morton Earl,	L. I. Hosp., Coll., '93,	Uncasville.
French, Howard Truman,	P. & S., N. Y., '91,	Deep River.
Freney, John Daniel,	L. I. Coll. Hosp., '93,	Waterbury.
Froelich, Charles Edward, M.A., Copenhagen, '64,	Copenhagen, '70,	Hartford.
Frost, Charles Warren Selah,	P. & S., N. Y., '80,	Waterbury.
Fuller, Horace Smith, Amherst, B.A., '58; A.M., '61,	P. & S., N. Y., '65,	Hartford.
Galvin, William,	Univ. Vt., '92,	Meriden.
Gandy, Raymond Reeves,	Univ. Pa., '99,	Colchester
Gardner, James Lester,	Univ. Vt., '81,	Central Village.
Garlick, Samuel Middleton, B.A., Dart., '74,	Harvard, '77,	Bridgeport.
Gaylord, Charles Woodward, B.A.,	Yale, '72,	Branford.
Gilbert, Samuel Dutton, B.A., Yale, '69,	Yale, '71,	New Haven.
Gildersleeve, Charles Childs,	Yale, '96,	E. Woodstock.
Gill, Michael Henry,	Yale, '96,	Hartford.
Gillin, Charles Adelbert,	Univ. N. Y., '83,	Berlin.
Gilnack, Frederick,	P. & S., N. Y., '67,	Rockville.
Girouard, Joseph Arthur,	Balt. Med. Coll., '99,	Willimantic.
Gladwin, Ellen Hammond,	W. Med., N. Y., '72,	Hartford.
Godfrey, Charles Cartlidge,	Dartmouth, '83,	Bridgeport.
Gold, James Douglass, Ph.B.,	P. & S., '91,	Bridgeport.
Gompertz, Louis Michael,	Yale, '96,	New Haven.
Goodenough, Edward Winchester, B.A., Yale, '87,	Yale, '93,	Waterbury.
Goodrich, Alfred Russell,	Berkshire, '46,	Vernon.
Goodrich, Charles Augustus, B.S., Mass. Ag. Col., '93,	P. & S., N. Y., '96,	Hartford.
Goodwin, Charles Sumner,	Univ. N. Y., '96,	Bridgeport.
Goodwin, Ralph Schuyler,	P. & S., N. Y., '66,	Thomaston.
Goodwin, Ralph Schuyler, Jr., Ph.B., Yale, '90,	P. & S., N. Y., '93,	New Haven.

Name.	Medical Graduation.	P. O. Address.
Goodyear, Robert Beardsley,	Yale, '68,	North Haven.
Gordon, James William,	Bellevue, '88,	Sandy Hook.
Gordon, William Francis,	L. I. Hosp. Coll., '96,	Danbury.
Gorham, Andrew Bennett,	Yale, '79,	Wilton.
Gorham, Frank,	Yale, '76,	Lyon's Plain.
Granniss, John Henry,	Yale, '68,	Old Saybrook.
Granniss, Irwin,	Yale, '96,	New Haven.
Graves, Charles Burr, B.A., '82,	Harvard, 86,	New London.
Graves, Frederick Chauncey,	Univ. N. Y., '88,	Bridgeport.
Graves, Frederick George,	Yale, '92,	Waterbury.
Gray, William Henry,	P. & S., N. Y., '89,	Old Mystic.
Gray, William Wetmore, B.S., Dickinson, '85,	Bellevue, '90,	Bridgeport.
Gregory, James Glynn, B.A., '65,	P. & S., N. Y., '68,	Norwalk.
Griggs, Edward Luther,	L. I. Hosp. Coll., '64,	Waterbury.
Griggs, John Bagg,	Yale, '97,	Farmington.
Griswold, Edward Hammond,	Univ. N. Y., '78,	E. Hartford.
Griswold, Frederick Pratt,	P. & S., N. Y., '76,	Meriden.
Griswold, Rufus White,	P. & S., N. Y., '54,	Rocky Hill.
Guild, Frank Eugene,	L. I. Hosp. Coll., '85,	Windham.
Hadley-Judd, Etta May,	Women's Med. Coll., Phila., '95,	Bethlehem.
Haire, Edward Aloysius,	Univ. Balt., '98,	Derby.
Hall, Edward Dormenio,	Harvard, '73,	Meriden.
Hall, Joseph Barnard,	Yale, '92,	Hartford.
Hallock, Frank Kirkwood, A.B., A.M., '82,	P. &. S., N. Y., '85,	Cromwell.
Hamant, Irving Louis,	L. I. Hosp. Coll., '90,	Norfolk.
Hamilton, Charles Allen,	Univ. Vt., '86,	Waterbury.
Hammond, Henry Louis, Ph.B., '64,	Harvard, '66,	Killingly.
Hammond, Samuel Mowbray, Ph.B., Yale, '93,	Yale, '96,	New Haven.
Hanchett, Thatcher Swift,	Bellevue, '64,	Torrington.
Hanrahan, Daniel Aloysius,	Bellevue, '95,	Stamford.
Harris, George Robert,	P. & S., N. Y., '85,	Norwich.
Hart, Charles Remington,	P. & S., N. Y., '59,	Bethel.
Haven, William Chadbourne,	Univ. N. Y., '77,	Coventry.
Hawkes, Wm. Whitney, B.A., Yale, '79,	Yale, '81,	New Haven.
Hayes, Arthur Douglass,	Dartmouth, '96,	Hartford.
Hayes, James Dermot, B.S., Man. Coll., N. Y.,	Univ. N. Y., '94,	Torrington.
Hayes, John Frances,	Univ. N. Y., '79,	Waterbury.
Hazen, Miner Comstock,	Univ. Mich., '55,	Haddam.
Heady, Elias Buel,	Yale, '72,	Milford.
Heft, G. Stanley,	Univ. Vt., '95,	Bridgeport.
Hemingway, George Isaac,	Univ. Vt., '97,	New Haven.
Henrahan, Bernard Eliot,	Jefferson, '97,	New Haven.
Hertzberg, George Robert,	Dartmouth, '99,	Stamford.
Hetzel, Joseph Linn,	Bellevue, '91,	Southport.
Hewes, Frank William,	Univ. Vt., '94,	Groton.
Heyer, Harold Hankinson,	Univ. N. Y., '87,	New London.
Hexamer, Carl Reisig, B.S., '83,	P. & S., N. Y., '86,	Stamford.
Higgins, Harry Eugene,	Univ. N. Y., '96,	Norwich.
Higgins, Royal Lacey,	Bellevue, '67,	Norwalk.
Higgins, William Lincoln,	Univ. N. Y., '90,	So. Coventry.
Hill, Charles Edwin, B.A., '76,	Harvard, '79,	E. Killingly.
Hill, Seth,	Yale, '66,	Stepney.
Hills, Laura Heath,	W. Med. Coll., Pa.,	Willimantic.
Hills, Thomas Morton,	Yale, '63,	Willimantic.
Hinkle, Emanuel Alexander,	Cornell, '99,	New London.

Name.	Medical Graduation.	P. O. Address.
Holbrook, Charles Werden, M.A., Amherst, '93,	Yale, '96,	East Haven.
Holbrook, Lowell,	Univ. N. Y., '49,	Thompson.
Holmes, Arthur Almond,	Harvard, '65,	Bridgeport.
Holmes, George James,	Albany, '82,	New Britain.
Holmes, Kirk Wilder,	L. I. Hosp. Coll., '95,	Cos Cob.
Holroyd, Joseph Scripture,	P. & S., N. Y., '95,	Waterville.
Horton, William Wickham,	Univ. N. Y., '79,	Bristol.
Hotchkiss, Norton Royce,	Univ. Md., '91,	New Haven.
Houghton, Simon Willard,	Bellevue, '79,	Hazardville.
Howard, Arthur Wayland,	Univ. N. Y., '90,	Wethersfield.
Howard, John,	Dartmouth, '81,	Hartford.
Howd, Salmon Jennings,	Jefferson, '83,	Winsted.
Howe, Harmon George,	Univ. Vt., '73, P. & S., N. Y., '75,	Hartford.
Howe, Herbert H.,	Univ. Vt., '80,	Yantic.
Hoyt, Curtis Clark,	P. & S., N. Y., '87,	Bridgeport.
Hubbard, Charles Henry,	Yale, '60,	Essex.
Hubbard, Stephen Grosvenor, M.A., '60,	Dartmouth, '43,	New Haven.
Hughes, Oliver John Davis, Ph.D., Univ. Heidelburg, '71, M.S., London,	L. I. Hosp. Coll., '75,	Meriden.
Hulbert, William Sharon,	Univ. N. Y., '80,	Winsted.
Hulbert, Russell,	Yale, '98,	Higganum.
Hungerford, Henry Edward,	Yale, '98,	Waterbury.
Huntington, Samuel Henry,	Yale, '76,	Norwalk.
Hurd, Alonzo L., B.S., Me., '82,	Univ. Vt., '91,	Somers.
Hurlbut, Augustin Moen, B.A., '76,	P. & S., N. Y., '79,	Stamford.
Hyde, Fritz Carleton,	Ann Arbor, '00,	Greenwich.
Ingalls, Phineas Henry, A.B., '77; A.M., Bowdoin, '85,	P. & S., N. Y., '80,	Hartford.
Irving, Samuel Wellington,	Yale, '91,	New Britain.
Isham, Oliver Kingsley,	Univ. N. Y., '88,	Hartford.
Ivers, Richard William,	Balt. Med. Coll., '95,	Bridgeport.
Ives, Robert Shoemaker, B.A., '64, M.A.,	Yale, '66,	New Haven.
Jennings, George Herman,	L. I. Hosp. Coll., '75,	Jewett City.
Johnson, Edwin Hines,	Univ. Vt., '88,	Naugatuck.
Johnson, Frederick Eugene,	Univ. N. Y., '69,	Mansfield.
Johnson, John Murray,	L. I. Hosp. Coll., '95,	Bridgeport.
Johnson, John William,	P. & S., Balt., '93,	Torrington.
Johnson, Marcus Morton, Ph.B., Brown, '70,	Univ. N. Y., '77,	Hartford.
Jones, Daniel Albion, B.A., Yale, '84; D.M.D., Harvard, '89,	Yale, '92,	New Haven.
Joslin, George Harvey,	Univ. Vt., '87,	Mt. Carmel.
Judson, Walter, B.A., '64; M.A., '97,	P. & S., N. Y., '70,	New Haven.
Judson, William Henry,	Jefferson, '78,	Danielson.
Kane, Thomas Francis,	Bellevue, '87,	Hartford.
Kellogg, Evernghim Kenneth,	P. & S., N. Y., '98,	New Britain.
Kelly, Michael J.,	Balt. Med. Coll., '97,	Warehouse P'nt.
Kendall, John Calvin, B.A., '70,	P. & S., N. Y., '75,	Norfolk.
Keniston, James Mortimer,	Harvard, '71,	Middletown.
Kenna, William Matthew, Ph.B., Yale, '90,	Yale, '92,	New Haven.
Kennedy, Paul B.,	Bellevue, '96,	Derby.

Name.	Medical Graduation.	P. O. Address.
Kent, John Bryden,	Harvard, '60,	Putnam.
Klernan, Walter Henry,	Trinity, Toronto, '97,	Danbury.
Kllbourn, Clarence Leishman,	Yale, '97,	New Haven.
Kilbourn, Joseph Austin,	P. & S., Balt., '97,	Hartford.
Kimball, Rush Wilmot, A.B., '87, Williams,	L. I. Hosp. Coll., '90,	Norwich.
Kingsbury, William Sanford,	Yale, '96,	Glastonbury.
Kirby, Frank Alonzo,	Columb. Univ. Wash., D. C., '95,	New Haven.
Klenke, Henry Frederick,	Univ. N. Y., '92,	New Haven.
Knight, Charles Milo,	Louisville, '93,	Chaplin.
Knight, George Henry, A.M., Yale, '98,	P. & S., N. Y., '86,	Lakeville.
Knight, William Ward,	Univ. N. Y., '76,	Hartford.
Laden, Michael Richard,	Unlv. Balt., '98,	Torrington.
Lally, Thomas John,	Albany, '99,	Waterbury.
Lamb, Chauncey Stafford,	Buffalo, '93,	New Haven.
Lambert, Benjamin Lott,	Univ. N. Y., '83,	New Haven.
Lampson, Edward Rutledge,	P. & S., N. Y., '96, A.B., Trinity,	Hartford.
LaPierre, Julian,	Bellevue, 71,	Norwich.
LaPoint, John William Henry,	Lavalle Univ., Montreal, '92,	Meriden.
LaRue, Omer,	Vlct., Montreal, '71,	Putnam.
Lathrop, Samuel,	P. & S., N. Y., '00,	Norwich.
Lauder, Robert, M.A.,	Yale, '71,	Bridgeport.
Law, Homer Lycurgus,	Jefferson, '69,	Hartford.
Lawrence, George Washington,	Yale, '90,	East Berlin.
Lawson, George Newton, B.A., '90,	Yale, '92,	M. Haddam.
Lawton, Franklin Lyman, Ph.B., Yale, '90,	Yale, '93,	Hartford.
LeClair, Charles Joseph,	Victoria, '87,	Danielson.
Lee, Frank Herbert,	Albany, '88,	Canaan.
Lee, Harry Moore,	Columbia, '98,	New London.
Lemmer, George Edward,	Bellevue, '85,	Danbury.
Leverty, Robert Gordon,	Unlv. N. Y., '95,	Bridgeport.
Lewis, George Francis, B.A., '64,	Yale, '65,	Collinsville.
Lewis, George Frederick, B.A., '77,	Yale, '84,	Stratford.
Lewis, John Benjamin,	Univ. N. Y., '53,	Hartford.
Lindsley, Charles Augustus, B.A., Trinity, '49; M.A.,	Yale, '52,	New Haven.
Lindsley, Chas. Purdy, Ph.B., '75,	Yale, '78,	New Haven.
Littlejohn, Percy Duncan,	Yale, '97,	New Haven.
Lockhart, Reuben Arthur,	Yale, '91,	Bridgeport.
Loeb, Maximilian Lawrence,	Yale, '97,	New Haven.
Look, Frank Byron,	Bowdoln, '84,	Hartford.
Loomis, Francis Newton, B.A., '81,	Yale, '83,	Derby.
Loveland, Ernest Kilburn,	Yale, '97,	Watertown.
Loveland, John Elijah, A.B., '89,	Harvard, '92,	Middletown.
Lowe, Henry Russell,	Dartmouth, '82,	Woodst'k Vall'y.
Lowe, Russell Walter,	Univ. N. Y., '89,	Ridgefield.
Luby, John Francis, Ph.B., '76,	P. & S., N. Y., '78,	New Haven.
Luther, Calista Vinton,	Wom. Coll., Penn., '85,	Saybrook.
Lynch, John Charles,	Unlv. N. Y., '86,	Bridgeport.
Lyon, Edwin Bradbury,	Berkshire, '62,	New Britain.
Lyons, Andrew Wolff,	Columbus, '76,	Bridgeport.
MacLaren, William Stevenson,	P. & S., N. Y., '89,	Litchfield.

Name.	Medical Graduation.	P. O. Address.
Maher, James Stephen, Ph.B., Yale, '92,	Yale, '96,	New Haven.
Maher, Stephen John,	Yale, '87,	New Haven.
Mailhouse, Max, Ph.B., '76,	Yale, '78,	New Haven.
Maitland, Lewis,	Univ. Pa., '95,	Middletown.
Maloney, Daniel Joseph,	Univ. N. Y., '96,	Waterbury.
Mansfield, Howard Parker,	L. I. Hosp. Coll., '93,	Ridgefield.
Marcy, Robert Adrian,	Univ. N. Y., '82,	New Preston.
Mariani, Nicola,	Univ. Naples, '93,	New Haven.
Marsh, Arthur Washburn,	Univ. Vt., '82,	New Haven.
Martin, Thomas Francis,	Univ. N. Y., '82,	Bridgeport.
Mason, Jarvis King, Yale, B.A., '55; M.A., '59,	Harvard, '61,	Suffield.
Mathewson, Earl,	P. & S., N. Y., '79,	Durham.
May, George William,	Milwaukee, '95,	Willimantic.
May, Jacob Rush,	Chicago, '76,	Bridgeport.
Mayberry, Franklin Hayden,	Univ. Vt., '85,	Burnside.
Mayer, Nathan,	Cincinnati, '57,	Hartford.
McCabe, Edward Michael, B.A., '84,	Yale, '87,	New Haven.
McCook, John Butler,	P. & S., N. Y., '94,	Hartford.
McDonald, Edward Walsh,	Univ. N. Y., '71,	Waterbury.
McDonnell, Ralph Augustine, B.A., '90,	Yale, '92,	New Haven.
McGaughey, James David,	Jefferson, '70,	Wallingford.
McIntosh, Edward Francis,	Yale, '97,	New Haven.
McIntosh, James Fabien,	Victoria, '87,	N. Grosvenordale.
McKee, Frederick Lyman,	P. & S., N. Y., '99,	Hartford.
McKnight, Everett James, B.A., Yale, '76,	P. & S., N. Y., '79,	Hartford.
McMaster, Gilbert Totten,	Jefferson, '98,	New Haven.
McNeil, Archibald,	Dartmouth, '96,	New Haven.
McNeil, Rollin,	Yale, '62,	New Haven.
Mead, Kate Campbell,	Wom. Med. Coll., Phil., '88,	Middletown.
Meek, James Albert,	McGill Univ., '75,	Stamford.
Meeks, Harold Albert,	Bellevue, '90,	Meriden.
Miles, Harry Shillingford, Ph.G., N. Y., '88,	P. & S., N. Y., '91,	Bridgeport.
Miller, George Root,	P. & S., N. Y., '88,	Hartford.
Miller, William Radley,	Albany, '98,	Southington.
Minor, George Maynard,	L. I. Hosp. Coll., '85,	Waterford.
Mitchell, James Thomas,	Univ. N. Y., '91,	Colchester.
Monagan, Charles Andrew, B.S., Trinity, '93,	Univ. Pa., '98,	Waterbury.
Monahan, Joseph Bernard,	Dartmouth, '94,	New Haven.
Moody, Mary Blair,	Buffalo, '76,	New Haven.
Moore, Homer Franklin,	Wash. Univ., Mo., '98,	Bethel.
Moore, Howard Doolittle,	Bellevue, '97,	Torrington.
Moore, James Albert, B.A., Yale, '92,	Yale, '94,	New Haven.
Morasse, Lewis Ovid,	Univ. Vict., '84,	Putnam.
Morgan, William Dennison, A.B., Trinity, '72,	P. & S., N. Y., '76,	Hartford.
Moriarty, James Ligouri,	Harvard '96,	Waterbury.
Morrell, Frederick Augustus, B.A., Oberlin, '91; M.A.,	L. I. Hosp. Coll., '85,	Putnam.
Moulton, Edward Seymour, B.A., Oberlin, '91; M.A.,	Yale, '94,	New Haven.
Mountain, John Henry,	Jefferson, '96	Middletown.
Munger, Carl Eugene, Ph.B., '80,	P. & S., N. Y., '83,	Waterbury.
Munson, Leonard Walter,	Georgetown Univ., '96,	Stamford.

Name.	Medical Graduation.	P. O. Address.
Murphy, James,	Univ. Pa., '95,	Portland.
Murphy, Michael Daniel,	Bellevue, '84,	Middletown.
Murphy, Walter Graham,	Albany Med. Coll., '90,	E. Hartford.
Nadler, Alfred Goldstein, B.A., Yale, '93,	Yale, '96,	New Haven.
Naylor, James Henry,	Univ. Vt., '95,	Hartford.
Nelson, Abiel Ward,	Harvard, '61,	New London.
Nettleton, Irving LaField,	L. I. Coll. Hosp., '98,	Bridgeport.
Newton, Cyrus Brownlie,	Yale, '56,	Stafford Springs.
Newton, Frank Brownlie,	Univ. Vt., '99,	Stafford Springs.
Newton, Matthew Turner,	Yale, '51,	Suffield.
Nichols, Edward Payson, A.B., '48; A.M., '51,	P. & S., N. Y., '52,	Killingworth.
Nickerson, Nehemiah,	N. Y. Med. Coll., '57,	Meriden.
Nicoll, John,	Yale, '54,	New Haven.
Noble, Henry Smith, A.B., '59,	P. & S., N. Y., '71	Middletown.
Nolan, Daniel Andrew, Ph.G., '94,	Med. Chir. Col., Pa.,	Middletown.
Nolan, Jacob Matthew,	P. & S., Balt., '94,	Westport.
North, Caroline,	Tufts', '98,	Wallingford.
North, James Howard,	L. I. Hosp. Coll., '73,	Goshen.
North, John Leopold,	Louisville, '94,	Avon.
Norwood, Paul, L.L.B., State Univ., Iowa '90,	Omaha Med. Coll., '87,	Ansonia.
Noxon, George Henry,	Balt. Med. Coll., '93,	Darien.
Ober, George Eugene,	Univ. Vt., '90,	Bridgeport.
O'Connell, Thomas Smith,	P. & S., Balt., '92,	E. Hartford.
O'Connell, Timothy Grattan,	Yale, '99,	Thomaston.
O'Conner, Matthew Charles, A.B., '69,	P. & S., N. Y., '73,	New Haven.
O'Connor, Patrick Thomas,	Bellevue, '92,	Waterbury.
O'Flaherty, John,	Albany, '64,	Hartford.
O'Hara, Bernard Augustine,	Bellevue, '82,	Waterbury.
O'Hara, William James Aloysius,	P. & S., Balt., '93,	Bridgeport.
O'Laughlin, Thomas Francis,	Univ. N. Y., '96,	Rockville.
Osborn, George Wakeman, B.A., '84,	P. & S., N. Y., '87,	Bridgeport.
Osborne, Oliver Thomas,	Yale, '84,	New Haven.
Otis, Samuel Dickinson,	Univ. N. Y., '77,	Meriden.
Overlock, Selden Barden,	Bellevue, '89,	Pomfret.
Paddock, Lewis Sloat, M.A.,	N. Y. Med. Coll., '54,	Norwich.
Page, Charles Whitney,	Harvard, '70,	Hartford.
Paige, Harris Lee,	Jefferson, '96,	New Britain.
Pallman, Theodore Dominic,	Yale, '97,	New Haven.
Park, Charles Edwin,	Yale, '81,	New Haven.
Parker, Theodore Raymond,	Univ. N. Y., '80,	Willimantic.
Parmele, George Luther, D.M.D.,	L. I. Hosp. Coll., '69,	Hartford.
Parsons, Edward Field, A.B., Williams, '48,	P. & S., N. Y., '58,	Thompsonville.
Peck, Anthony, B.A., '72,	Univ. N. Y., '75,	Norwich.
Peck, Robert Ellsworth, Ph.B., Yale, '90,	Yale, '93,	New Haven.
Peckham, Lucy Creemer,	Wom. Med. Pa., '85,	New Haven.
Perdue, Robert Ernest,	Starling, '92,	Bridgeport.
Perkins, Charles Harris,	P. & S., N. Y., '91,	Norwich.
Perkins, William Sheldon Clark,	P. & S., N. Y., '60,	Norwich.

Name.	Medical Graduation.	P. O. Address.
Phelps, Charles Dickinson, B.A., Amherst, '89; M.A., Amherst, '97,	P. & S., N. Y., '95,	West Haven.
Philip, Rosavelle Gardner,	N. Y. Inf., '75, Wom. Med. Coll.,	Stamford.
Phillips, Alfred Noroton,	P. & S., N. Y., '83,	Stamford.
Pierce, Elbridge Worthington,	Univ. N. Y., '85,	Meriden.
Pierson, Samuel,	P. & S., N. Y., '81,	Stamford.
Pinney, Royal Watson,	P. & S., N. Y., '88,	Derby.
Pitman, Edwin Parker, B.A., '86,	Dartmouth, 91,	New Haven.
Platt, William Logan,	P. & S., N. Y., '81,	Torrington.
Plummer, Paul,	Univ. Vt., '94,	Collinsville.
Plumstead, Matthew Woodbury,	Jefferson, '87,	E. Haddam.
Pomeroy, Nelson Asa.	P. & S., N. Y., '96,	Waterbury.
Poore, John Robinson,	Harvard, '94,	Waterbury.
Porter, George Elmer, B.S., Dartmouth, '88,	Dartmouth, '91,	Warehouse P't.
Porter, George Loring, B.A., '59,	Jefferson, '62,	Bridgeport.
Porter, Isaac Napoleon, B.A., Lincoln Univ., '90,	Yale, '93,	New Haven.
Porter, William, Jr.,	Chic. Med. Coll., '81,	Hartford.
Potter, Frank Edward,	P. & S., N. Y., '89,	Portland.
Powers, Frederick,	P. & S., N. Y., '70,	Westport.
Pratt, Arthur Wilson,	Bellevue, '92,	W. Cornwall.
Pratt, Edward Loomis,	Univ. N. Y., '84.	Winsted.
Pratt, Elias,	P. & S., N. Y., '87,	Torrington.
Rainville, Frederick E.,	Univ. Vt., '91,	Wauregan.
Ramsay, Otto Gustaf, M.A., Yale, '01, Hon.,	Univ. Va., '90,	New Haven.
Randall, William Sherman, Ph.B.,	Yale, '83,	Shelton.
Rankin, Charles Goodrich, A.M., '87, Williams, A.B., '84,	Chic. Med. Coll., '86,	Glastonbury.
Reardon, Thomas Francis,	Univ. Vt., '94,	Thompsonville.
Reilly, James Michael,	Yale, '78,	New Haven.
Reinert, Emil Gustav.	Balt. Med. Coll., '95,	Hartford.
Reoch, William Stewart, Ph.B., Brown, '93,	P. & S., N. Y., '96,	Hartford.
Reynolds, Herbert Sumner,	Univ. N. Y., '81,	Clinton.
Rice, Watson Emmons,	Univ. Mich., '72,	Stamford.
Richards, William Spencer,	Univ. N. Y., '89,	W. Winsted.
Ring, Henry Wilson, A.B., '79, M.A.,	Me. Med. Coll., '81,	New Haven.
Rising, Harry Breed,	Yale, '95,	So. Glastonbury.
Rising, Henry Martin,	Yale, '68,	So. Glastonbury.
Robbins, Charles Henry,	Med. Coll., Balt., '95,	New Haven.
Robbins, George Orrin,	Yale, '79,	Waterbury.
Robbins, James Watson,	Bellevue, '80,	Naugatuck.
Roberts, Edward Kilbourne, Ph.B., '78,	Yale, '80,	New Haven.
Robinson, Myron Potter,	Yale, '95,	Windsor Locks.
Robinson, Myron Winslow,	Berkshire, '60,	Noroton.
Robinson, Paul Skiff, Ph.B., Yale, '89,	Yale, '91,	New Haven.
Robinson, Rienzi,	L. I. Hosp. Coll., '69,	Danielson.
Rockwell, Thomas Francis,	Univ. N. Y., '81,	Rockville.
Rodger, David Robert, A.B., Hamilton, '82,	P. & S., N. Y., '88,	Woodbury.
Rodman, Charles Shepard,	P. & S., N. Y., '68,	Waterbury.
Rogers, Francis Joseph,	Univ. Pa., '73,	Stamford.

Name.	Medical Graduation.	P. O. Address.
Rogers, Frederick,	Univ. N. Y., '63,	Willimantic.
Rogers, Thomas Weaver,	P. & S., N. Y., '90,	New London.
Root, Edward King,	Univ. N. Y., '79,	Hartford.
Root, Joseph Edward, B.S., '76, S.B., Boston Univ.,	P. & S., N. Y., '83,	Hartford.
Rose, John Henry,	Univ. N. Y., '92,	Hartford.
Rowley, Alfred Merriman,	Univ. Vt., '97,	Hartford.
Ruickoldt, Arthur,	Univ. Vt., '97,	New Haven.
Ruland, Fred Davis,	P. & S., N. Y., '89,	Westport.
Russell, George Washington,	Bellevue, '96,	Waterbury.
Russell, Gurdon Wadsworth, Trinity, B.A., '34; M.A., '37,	Yale, '37,	Hartford.
Russell, Thomas Hubbard, Ph.B., Yale, '72,	Yale, '75,	New Haven.
Russell, William Spencer,	Yale, '80,	Wallingford.
Ryan, Patrick Joseph,	Niagara, '98,	Hartford.
Ryder, Charles Ambler,	Yale, '98,	Waterbury.
Sanford, Leonard Luther, B.A., Yale, '90,	Yale, '93,	New Haven.
Sanford, Ward Harding,	Balt. Med. Coll., '95,	New Haven.
Schavoir, Frederic,	P. & S., Balt., '87,	Stamford.
Schuyler, Albert Lewis,	Balt. Med. Coll., '95,	Bantam.
Scoville, Clarence Henry,	Balt. Med. Coll., '92,	New Canaan.
Sears, Cushman Allen,	Univ. N. Y., '62,	Portland.
Seaver, Jay Webber, B.A., '80,	Yale, '85,	New Haven.
Sedgwick, James Theodore,	Univ. N. Y., '85,	Litchfield.
Segur, Gideon Cross,	P. & S., N. Y., '82,	Hartford.
Selleck, Nathaniel,	Univ. N. Y., '89,	Danbury.
Sellew, Phillip Hamilton,	Jefferson, '90,	Salisbury.
Shannon, James Bernard,	Victoria, '89,	Danielson.
Sharpe, Elmer Thomas,	Univ. N. Y., '95,	Derby.
Sheedy, Bryan DeForest,	Univ. N. Y., '84,	Bridgeport.
Sheehan, William Joseph, B.S., Manhattan Col., '92,	Yale, '95,	New Haven.
Shelton, Gould Abijah, M.A., '91,	Yale, '69,	Shelton.
Shepard, Durell,	Yale, '64,	West Haven.
Shepherd, George Rubens,	Yale, '66,	Hartford.
Sherer, Henry Clifford,	Univ. N. Y., '92,	South Norwalk.
Sherrill, George,	P. & S., '91.	Stamford.
Simpson, Frederick Thomas, B.A., Yale, '79,	Me. Med. Coll., '84,	Hartford.
Skinner, Clarence Edward,	Yale, '91,	New Haven.
Slattery, Morris Dove,	Yale, '93,	New Haven.
Sleeper, George Everest,	Dartmouth, '95,	Hartford.
Sloan, Thomas George,	P. & S., N. Y., '99,	New Haven.
Smith, Andrew Jackson,	P. & S., N. Y., '63,	Bridgeport.
Smith, Edward Everett,	L. I. Hosp. Coll., '71,	South Wilton.
Smith, Edwards Montrose,	P. & S., N. Y., '82,	Bridgeport.
Smith, Earl Terry,	Yale, '97,	Hartford.
Smith, Edward Wier, A.B., Yale, '78,	McGill, Mont., '82,	Meriden.
Smith, Ernest Herman, A.B., Amherst. '85,	P. & S., N. Y., '89,	Redding.
Smith, Frank Lewis,	Univ. N. Y., '75,	Stafford Sp'gs.
Smith, Frank Llewellyn.	Albany, '83,	Bridgeport.
Smith, Frederick Sumner, B.A., Yale, '79,	Yale, '82,	Chester.
Smith, Herbert Eugene, Ph.B., Yale, '79,	Univ. Pa., '82,	New Haven.
Smith, Henry Hubert,	Jefferson, '77,	Whitneyville.

Name.	Medical Graduation.	P. O. Address.
Smith, Howard Franklin, B.A., Yale, '94,	Yale, '96,	Hartford.
Smith, Junius Foster,	L. I. Hosp. Coll., '90,	Brookfield.
Smith, Marvin,	Univ. N. Y., '83,	New Haven.
Smith, Newton Phineas,	P. & S., N. Y., '82,	Norwich.
Smith, Oliver Cotton,	L. I. Hosp. Coll., '83,	Hartford.
Smyth, Herbert Edmund,	McGill. Univ., '84,	Bridgeport.
Snow, Frank Simeon,	Albany, '89,	Hartford.
Spencer, William David,	P. & S., N. Y., '76,	Saybrook.
Sperry, Frederick Noyes,	Yale, '94,	New Haven.
Sprenger, William,	Univ. Vt., '91,	New Haven.
Spring, Frederick,	Univ. N. Y., '85,	Naugatuck.
Standish, James Herbert,	Univ. N. Y., '95,	Hartford.
Stanley, Charles Everett,	Univ. Pa., '76,	Middletown.
Stanton, John Gilman, B.A., Amherst, '70,	Wurtzburg, '73,	New London.
Stanton, Thomas Francis,	P. & S., Baltimore, '96,	Bridgeport.
Staub, George Edwards,	L. I. Hosp. Coll., '93,	New Milford.
Steadman, Willard George,	Bellevue, '74,	Southington.
Stearns, Henry Putnam, B.A., Yale, '53; M.A., '56,	Yale, '55,	Hartford.
Steiner, Walter Ralph,	Johns Hopkins, '98,	Hartford.
Stern, Charles Seymour,	Bellevue, '91,	Hartford.
Stetson, James Ebenezer,	Yale, '81,	New Haven.
St. John, Samuel Benedict, B.A., Yale, '66,	P. & S., N. Y., '75,	Hartford.
Stone, Jay Stephen,	P. & S., N. Y., '65,	New Britain.
Stratton, Edward Augustus,	Univ. N. Y., '83,	Danbury.
Street, Philo William,	Univ. Vt., '92,	Suffield.
Strickland, Rial,	Albany, '39,	Enfield.
Strosser, Hermann,	Univ. Berlin, '84,	New Britain.
Sullivan, Daniel Francis, A.B., Niagara Univ., '89,	Niagara Univ., '91,	Hartford.
Sullivan, John Francis, B.A., Yale, '90,	P. & S., N. Y., '94,	New Haven.
Sumner, Charles Fletcher,	Univ. W. N. Y., '40,	Bolton.
Swain, Henry Lawrence,	Yale, '84,	New Haven.
Swasey, Erastus Perry,	P. & S., N. Y., '69,	New Britain.
Swett, Josiah,	Univ. Vt., '78,	N. Hartford.
Swett, William Plummer,	Univ. Vt., '76,	Terryville.
Taft, Charles Ezra,	Harvard, '86,	Hartford.
Tanner, Alfred Herbert,	Bellevue, '74,	Brooklyn.
Taylor, John Clifton,	Mich. Univ., '91,	New London.
Teele, Julia Ernestine, A.B., Tabor, '85,	Women's Med. Coll., Pa., '88,	New Haven.
Tenney, Arthur John, Ph.B., Yale, '77,	Yale, '83,	Branford.
Thompson, George,	Me. Med. Coll., '89,	Taftville.
Thompson, Emma Jane,	Women's Med. Coll., N. Y. Inf., '96,	Hartford.
Thompson, Harriet Adaline,	Women's Med. Coll., Penn., '93,	Bridgeport.
Thomson, Edward Sanford,	P. & S., N. Y., '92	New Haven.
Thomson, Hiram Benson,	Trin. Un., Tor., '88,	New London.
Tiffany, Frank Monroe, A.B., Amherst, '91,	Univ. Pa., '96,	Stamford.
Tingley, Witter Kinney,	Bellevue, '86,	Norwich.
Tinker, William Richard,	Univ. N. Y., '80,	S. Manchester.
Topping, Jacob Reed,	Univ. N. Y., '82,	Bridgeport.
Townsend, Charles Rodman,	Albany, '95,	Bridgeport.
Townsend, George Hodgson,	Bellevue, '93,	Branford.
Townsend, Jos. Hendley, B.A., Yale, '85,	Yale, '87,	New Haven.

Name.	Medical Graduation.	P. O. Address.
Tracey, William Joseph,	Univ. N. Y., '89,	Norwalk.
Tracy, Andrew William,	McGill, Mont., '73,	Meriden.
Treadway, William A. Buckingham,	Univ. Mich., '83,	Stamford.
Trecartin, David Munson,	Dartmouth, '94,	Bridgeport.
Tudor, Mary Starr,	Women's Med. Coll., Phila., '93,	South Windsor.
Tukey, Frank Martin, B.A., Bowdoin, '91,	Harvard, '94,	Bridgeport.
Turner, Sylvester Wooster, B.A., Yale, '42,	Yale, '46,	Chester.
Tuttle, Albert Lake,	Albany, '88,	Milford.
Tuttle, Charles Alling, Ph.B., Yale, '88,	Yale, '91,	New Haven.
Tuttle, Frank James,	Univ. Vt., '98,	Naugatuck.
Tyler, Jr., Heman Augustin,	Yale, '98,	Hartford.
Van Vleet, Peter P.,	Bellevue, '69,	Stamford.
Varno, Henry George,	P. & S., Balt., '82,	Thompsonville.
Verdi, William Francis,	Yale, '94,	New Haven.
Wade, John Alexander,	Bellevue, '93,	Danbury.
Wadhams, Sanford Hosea,	Yale, '96,	Torrington.
Wadhams, Noah Samuel, Ph.B., Yale, '97,	Yale, '00,	Goshen.
Waite, Frank Louis,	Bellevue, '88,	Hartford.
Wakefield, Frederick Symonds,	P. & S., N. Y., '99,	Bridgeport.
Warner, Charles Norton,	Jefferson, '96,	Litchfield.
Wason, David Boughton,	P. & S., N. Y., '00,	Bridgeport.
Waters, John Bradford,	Univ. Vt., '90,	Hartford.
Watson, Wilbur Seymour,	L. I. Hosp. Coll., '87,	Danbury.
Weaver, William Myron,	Yale, '97,	Hartford.
Webb, Daniel Meigs, B.A., Yale, '46,	Yale, '49,	Madison.
Weidner, Calvin,	Univ. Indianapolis, '93,	Manchester.
Weir, Janet Marshall,	Queen's Un., Kingston, Ont., '91,	Hartford.
Welch, Edward Hubbard,	Yale, '76,	W. Winsted.
Welch, George Kellogg,	P. & S., N. Y., '78,	Hartford.
Welch, Harry Little, A.B., Yale, '97,	Yale, '94,	New Haven.
Welch, William Collins,	Yale, '77,	New Haven.
Weldon, John,	Univ. N. Y., '83,	Willimantic.
Weldon, Thomas Henry,	Univ. N. Y., '83,	S. Manchester.
Wellington, William Winthrop,	Univ. Vt., '89,	Terryville.
Wheeler, Franklin, B.A., Yale, '47; M.A., Yale, '67,	P. & S., N. Y., '52,	Farmington.
Wheeler, Frank Henry, B.A., Yale, '80,	Yale, '82,	New Haven
Wheeler, Lewis Hawley,	Yale, '97,	Westport.
White, Benjamin Franklin,	L. I. Hosp. Coll., '86,	Bridgeport.
White, Robert Creighton,	Univ. Vt., '89,	Willimantic.
Whiton, Francis Henry,	Dartmouth, '72,	Manchester.
Whittemore, Frank Hamilton,	Bellevue, '74,	New Haven.
Wight, George DeWitt,	Bellevue, '87,	Bethel.
Wilmot, Louis Howard,	Univ. N. Y., '91,	Ansonia.
Wilson, Frederick Morse, A.B., Colby, '71,	Harvard, '75,	Bridgeport.
Wilson, John Joseph,	P. & S., Balt., '86,	Bristol.
Wilson, Samuel Allen,	Yale, '52,	Windsor.
Wilson, William Patrick,	P. & S., Balt., '90,	Wallingford
Wilson, William Virgil,	Yale, '67,	West Haven

Name.	Medical Graduation.	P. O. Address.
Winchell, Alverd Ezra, A.B., Wesleyan, '57,	P. & S., N. Y., '65,	New Haven.
Winne, William Nelson,	Univ. N. Y., '97,	New Haven.
Winship, Ernest Oliver,	Univ. Vt., '00,	Rockville.
Witter, William,	Yale, '65,	Norwich.
Wolff, Arthur Jacob,	Tex. Med. Coll., '76, Bellevue, '83,	Hartford.
Wooster, Charles Morris,	Univ. N. Y., '79,	Tariffville.
Wordin, Nathaniel Eugene, B.A., Yale,'70; Yale,M.A.,'72,	Jefferson, '73,	Bridgeport.
Wright, John Winthrop, A.B., Amherst, '77,	Univ., N. Y., '80,	Bridgeport.
Wright, Theodore Goodelle,	Univ. N. Y., '65,	Plainville.
Wurtenberg, William Charles, Ph.B., Yale, '89,	Yale, '93,	New Haven.
Young, Charles Bellamy,	P. & S., N. Y., '94,	Middletown.

Members noticing any errors or omissions in any part of this record will please inform the Secretary for correction in future lists.

YALE UNIVERSITY.

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The Yale Medical School is a department of Yale University. Students of this Medical School, therefore, have all the advantages of residence in a large university, such as the use of the Libraries, the Gymnasium, the University Dining Hall, and the Museums. They are also admitted to any lectures on matters of current interest.

The curriculum is graded and is based on the assumption that medical sciences are best taught by the same methods as other sciences, namely, by the personal work of the student under the careful supervision of his instructors.

The school has well equipped laboratories, abundantly supplied with materials for instruction and research. The clinical instruction is carried on chiefly at the New Haven Hospital and the New Haven Dispensary. Class instruction in the Hospital is conducted in the Farnam Operating Theater and the Medical Amphitheater recently erected by the University. The New Haven Dispensary will be located before the Session of 1902–3 in the new clinic which has been erected by the University near the Hospital.

The minimum requirement for matriculation is the high school course or its equivalent. For information concerning the curriculum, tuition fees, honors and prizes, see the annual announcement, which will be furnished on application to the Dean.

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HENRY LAWRENCE SWAIN, M.D., *Clinical Professor of Laryngology and Otology.*

ARTHUR NATHANIEL ALLING, M.D., *Clinical Professor of Ophthalmology.*

HARRY BURR FERRIS, M.D., *Professor of Anatomy.*

OTTO GUSTAF RAMSAY, M.D., *Professor of Obstetrics and Gynecology.*

Ralph Augustine McDonnell, M.D., *Clinical Professor of Dermatology.*
Charles Joseph Bartlett, M.D., *Professor of Pathology.*

Francis Bacon, M.D., *Lecturer on Medical Jurisprudence.*
Samuel Benedict St. John, M.D., *Lecturer on Ophthalmology.*
George Rubens Shepherd, M.D., *Lecturer on Life Insurance Examinations.*
Max Mailhouse, M.D., *Clinical Lecturer on Neurology.*
Louis Bennett Bishop, M.D., *Instructor in Pediatrics.*
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Charles Dickinson Phelps, M.D., *Instructor in Physical Diagnosis.*
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Robert Ellsworth Peck, M.D., *Instructor in Neurology.*
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William Sprenger, M.D., *Instructor in the Uses of X Rays.*
Ernst Herman Arnold, M.D., *Instructor in Orthopedic Surgery.*
Allen Ross Defendorf, M.D., *Lecturer on Insanity.*
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Thomas George Sloan, M.D., *Instructor in Anesthesia, and First Assistant in the Surgical Clinic.*
Edward Michael McCabe, M.D., *Clinical Assistant in Ophthalmology.*
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William Matthew Kenna, M.D., *Assistant in Neurology.*
Leonard Cutler Sanford, M.D., *Assistant in the Surgical Clinic.*
Frederick Courtney Bishop, M.D., *Clinical Assistant in Laryngology and Otology.*
Henry Frederick Klenke, M.D., *Clinical Assistant in Dermatology.*
William Joseph Sheehan, M.D., *Assistant in the Surgical Clinic.*
Samuel Mowbray Hammond, M.D., *First Assistant in the Therapeutic Clinic.*
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William Samuel Barnes, M.D., *Second Assistant in the Therapeutic Clinic.*
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Francis Henry Reilly, M.D., *Assistant in the Surgical Clinic.*
William Nelson Winne, M.D., *Clinical Assistant in Pediatrics.*
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