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PROCEEDINGS

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AT THE

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FOR 1895-6.

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E. L. Wilson, M. D., Assistant Physician.

SOUTH CAROLINA—STATE HOSPITAL FOR THE INSANE, COLUMBIA.
J. W. Babcock, M. D., Superintendent.

SOUTH DAKOTA—SOUTH DAKOTA HOSPITAL FOR THE INSANE, YANKTON.
L. C. Mead, M. D., Superintendent.
William Searl, M. D., Assistant Physician.

TENNESSEE—CENTRAL HOSPITAL FOR THE INSANE, NASHVILLE.
John A. Beauchamp, M. D., Superintendent.
Paul W. Kirkpatrick, M. D., Assistant Physician.
Eastern Hospital for the Insane, Knoxville.
    Michael Campbell, M. D., Superintendent.

Western Hospital for the Insane, Bolivar.
    John P. Douglas, M. D., Superintendent.
    William P. Jones, M. D., Nashville.
    William A. Cheatham, M. D., Nashville.
    *John H. Callender, M. D., Nashville.
    Preston W. Stone, M. D., Nashville.

Tennessee—State Lunatic Asylum, Austin.
    Frank S. White, M. D., Superintendent.

North Texas Hospital for the Insane, Terrell.
    Charles M. Rosser, M. D., Superintendent.
    John Preston, M. D., Lockhart.

Hospital for the Insane, San Antonio.

Vermont—Brattleboro Retreat, Brattleboro.
    Shailer E. Lawton, M. D., Superintendent.
    Whitefield N. Thompson, M. D., Assistant Physician

Vermont State Asylum for the Insane, Waterbury.

Virginia—Eastern State Hospital, Williamsburg.
    James D. Moncure, M. D., Superintendent.

Central State Hospital, Petersburg.
    Randolph Barksdale, M. D., Superintendent.
    W. F. Drewry, Assistant Physician.

Western State Hospital, Staunton.
    Benjamin Blackford, M. D., Superintendent.

Southwestern State Hospital, Marion.
    R. J. Preston, M. D., Superintendent.

Washington—Western Washington Hospital for the Insane,
    Fort Steilacoom.
    John W. Waughop, M. D., Superintendent.

Eastern Washington Hospital for the Insane, Medical Lake.
    John M. Semple, M. D., Superintendent.

* Died August 3, 1896.
WEST VIRGINIA—West Virginia Hospital for the Insane, Weston.
W. P. Crumbacker, M. D., Superintendent.

Second Hospital for the Insane, Spencer.
W. D. Row, M. D., Superintendent.

WISCONSIN—Wisconsin State Hospital for the Insane, Mendota
Northern Hospital for Insane, Winnebago.

MILLWAUKEE HOSPITAL FOR THE INSANE, WAUWATOSA.
M. J. White, M. D., Superintendent.
James H. McBride, M. D., Wauwatosa.
John B. Edwards, M. D., Mauston.
William F. Wegge, M. D., Oshkosh.
Richard Dewey, M. D., Milwaukee Sanitarium, Wauwatosa, Wis.

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BRITISH AMERICA.

ONTARIO—Asylum for the Insane, Toronto.
Daniel Clark, M. D., Superintendent.

Asylum for the Insane, London.
Richard M. Bucke, M. D., Superintendent.
H. E. Buchan, M. D., Assistant Superintendent.

Asylum for the Insane, Kingston.
Charles K. Clarke, M. D., Superintendent.

Asylum for the Insane, Hamilton.
James Russell, M. D., Superintendent.
Thomas W. Reynolds, M. D., Assistant Physician.

Asylum for the Insane, Mimico, Toronto.
Nelson H. Beemer, M. D., Superintendent.

Asylum for the Insane, Brockville.

QUEBEC—Protestant Hospital for the Insane, Montreal.
T. J. W. Burgess, M. D., Superintendent.
GEOGRAPHICAL DISTRIBUTION OF MEMBERS AND INSTITUTIONS.

Asile Des Aliénés de Saint Jean de Dieu, Longue-Pointe.
George Villeneuve, M. D., Superintendent.
J. A. Prieur, M. D., Assistant Physician.
E. Philippe Chagnon, M. D., Assistant Physician.

Quebec Lunatic Asylum, Quebec.
A. Vallée, M. D., Superintendent.
E. J. Bourque, M. D., Montreal.

NOVA SCOTIA—Nova Scotia Hospital for the Insane, Halifax.
George L. Sinclair, M. D., Superintendent.

NEW BRUNSWICK—Provincial Lunatic Asylum, St. John.
James T. Steeves, M. D., Superintendent.
J. A. E. Steeves, M. D., Assistant Physician.

PRINCE EDWARD'S ISLAND—Hospital for the Insane, Charlottetown.

NEWFOUNDLAND—Lunatic Asylum, St. John's.

HONORARY MEMBERS.

David Yellowlees, M. D., F. F. P. S., LL. D., Glasgow, Scotland.
A. Motet, M. D., Paris, France.
A. Tamburini, M. D., Reggio-Emilia, Italy.
Foster Pratt, M. D., Kalamazoo, Michigan.
Stephen Smith, M. D., New York, N. Y.
Charles F. Folsom, M. D., Boston, Mass.
Victor Parant, M. D., Toulouse, France.
Jules Morel, M. D., Ghent, Belgium.
Emmanuel Régis, M. D., Bordeaux, France.
American Medico-Psychological Association.

CONSTITUTION.

Article I.

This organization shall be known as the American Medico-Psychological Association, this name being adopted in 1892 by "The Association of Medical Superintendents of American Institutions for the Insane," founded in 1844.

Article II.

The object of this Association shall be the study of all subjects pertaining to mental disease, including the care, treatment, and promotion of the best interests of the insane.

Article III.

There shall be four classes of members: (1) Active members, who shall be physicians, resident in the United States and British America, especially interested in the treatment of insanity; (2) Associate members; (3) Honorary members; and (4) Corresponding members.

Article IV.

The officers of the Association shall consist of a President, Vice-President, Secretary—who shall also be the Treasurer,—two

Note.—The Association of Medical Superintendents of American Institutions for the Insane was founded in 1844 by the original thirteen members. In 1891, when its membership had increased to more than two hundred, it was proposed, at the annual meeting of that year in Washington, to form a better organization of the Association,—its work having previously been done under the somewhat unstable rules of custom and a few resolutions scattered through its records. The proposition was agreed to, and at the annual meeting in Washington, in 1892, there was unanimously adopted the following Constitution and By-Laws, with the change of name to the American Medico-Psychological Association.
Auditors, and twelve other members of the Association to be called Councillors; all of these officers together shall constitute a body which shall be known as the Council.

**Article V.**

The Active members of the Association shall include all past and present medical superintendents named in the official list published for 1892 of members of "The Association of Medical Superintendents of American Institutions for the Insane;" the Honorary members shall include those so designated in that list; the Associate members shall include all the assistant physicians named in the same list; it being provided that said list shall be corrected by the Council, as may be necessary to carry out the intention of the Constitution as to the continuance of existing membership.

Every candidate for admission to the Association hereafter, in either of the three above-named classes of members, or as a Corresponding member, shall be proposed in writing to the Council, in an application addressed to the President, at least two months prior to the meeting of the Association, with a statement of the candidate's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership. In the case of a candidate for Active or Associate membership, the application shall be signed by three Active members of the Association; and by six Active members for the proposal of an Honorary or Corresponding member. The names of all candidates approved by a majority vote of members of the Council present at its annual meeting, shall be presented on a written or printed ballot to the Association at its concurrent annual meeting, at least one session previous to that at which the election is made, which shall be by ballot at a regular session, and require a majority vote of the members present. The only persons eligible for Associate membership are regularly appointed assistant physicians of institutions for the insane that are regarded to be properly such by the Council; and they are eligible for such membership only during the time they are holding such appointments. After holding such an appointment three years, an Associate member may become an Active member by making application in writing to the Council, and upon its approval being elected in the manner heretofore prescribed.
Physicians, and others who have distinguished themselves by their attainments in branches of science connected with insanity, or who have rendered signal service in philanthropic efforts to promote the interests of the insane, shall be eligible for Honorary membership.

Physicians not resident in the United States and British America, who are actively engaged in the treatment of insanity, may be elected Corresponding members.

Active members only shall be entitled to a vote at any meeting, or be eligible to any office. Honorary and Corresponding members shall be exempt from all payments to the Association.

Any member of the Association may withdraw from it on signifying his desire to do so in writing to the Secretary, provided that he shall have paid all his dues to the Association. Any member who shall fail for three successive years to pay his dues after special notice by the Treasurer shall be regarded as having resigned his membership, unless such dues shall have been remitted by the Council for good and sufficient reasons.

Any member who shall be declared unfit for membership by a two-thirds vote of the members of the Council present at an annual meeting of that body shall have his name presented by it for the action of the Association from which he shall be dismissed if it be so voted by two-thirds of the members present at its annual meeting.

The Officers and Councillors shall be elected at each annual meeting. They shall be nominated to the Association, on the second day of the annual meeting in the order of business of the first session of that day, by a Committee appointed for that purpose by the President; and the election shall take place immediately. The election shall be made as the meeting may determine, and the person who shall have received the highest number of votes shall be declared elected to the office for which he has been nominated.

The President, Vice-President, the Secretary and Treasurer, and Auditors, shall hold office for one year or until the beginning of
the term for which their successors are elected. The Secretary and Treasurer, and one Auditor, are eligible for re-election. At the first election of Councillors, four members shall be elected for one year, four for two years, and four for three years; and thereafter four members shall be elected each year, to hold office three years, or until their successors are elected. The President, Vice-President, one Auditor, and the four retiring Councillors are ineligible for re-election to their respective offices for one year immediately following their retirement. All the officers and Councillors shall enter upon their duties immediately after their election, excepting the President and Vice-President. When any vacancies occur in any of the offices of the Association, they shall be filled by the Council until the next annual meeting.

A quorum of the Council shall be formed by six members; and of the Association by twenty Active members.

Article IX.

The President and Vice-President for the year shall enter on their duties at the close of the business of the annual meeting at which they are elected. The President shall prepare an inaugural address, to be delivered at the opening session of the meeting. He shall preside at all the annual or special meetings of the Association or Council, or in his absence at any time the Vice-President shall act in his place.

The Secretary and Treasurer shall keep the records of the Association and perform all the duties usually pertaining to that office, and such other duties as may be prescribed for him by the Council; and under the same authority he shall receive and disburse and duly account for all sums of money belonging to the Association. He shall keep accurate accounts and vouchers of all his receipts and payments on behalf of the Association, and of all invested funds, with the income and disposition thereof, that may be placed in his keeping, and shall submit these accounts, with a financial report for the preceding year, to the Council, at its annual meeting. Each annual statement shall be examined by the Auditors, who will prepare and present at each annual meeting of the Association a report showing its financial condition. The Council shall have charge of any funds in the possession of the Association, and which shall be invested under its direction and control. The Council shall keep a careful record of its proceedings, and make an
annual report to the Association of matters of general interest. The Council shall also print annually the proceedings of the meetings of the Association and the reports of the Treasurer and Auditors.

The Council is empowered to manage all the affairs of the Association, subject to the Constitution and By-Laws; to appoint committees from the membership of the Association, and spend money out of its surplus funds for special scientific investigations in matters pertaining to the objects of the Association; to publish reports of such scientific investigations; to apply the income of special funds, at its discretion, to the purposes for which they were intended. The Council may also engage in the regular publication of reports, papers, transactions, and other matters, in an annual volume, or in a journal, in such manner and at such time as the Council may determine, with the approval of the Association.

**Article X.**

Amendments to the Constitution and By-Laws shall be taken up for consideration at the first session of the second day of any annual meeting, and may be made by a two-thirds vote of all the members present, provided that notice of such proposed amendment be given in writing at the annual meeting next preceding. It shall be the duty of the Secretary to send to all the members a copy of any proposed amendment at least three months previous to the meeting when the action is to be taken.
BY-LAWS.

ARTICLE I.

The meetings of the Association shall be held annually. The time and place of each meeting shall be named by the Council, and reported to the Association for its action at the preceding meeting. Each annual meeting shall be called by a printed announcement sent to each member, at least three months previous to the meeting.

The Council shall hold an annual meeting concurrent with the annual meeting of the Association; and the Council shall hold as many sessions, and at such times, as the business of the Association may require.

Special meetings of the Council may be called by the order of the Council. The President shall have authority at any time, at his own discretion, to instruct the Secretary to call a special meeting of the Council; and he shall be required to do so upon a request signed by six members of the Council. Such special meetings shall be called by giving at least four weeks' written notice.

ARTICLE II.

Each and every Active and Associate member shall pay an annual tax to the Treasurer, the amount to be fixed annually by the Council, not to exceed five dollars for an Active member, or two dollars for an Associate member.

ARTICLE III.

The order of business of each annual meeting of the Association shall be determined by the Council, and shall be printed for the use of the Association at its meeting. The Council shall also make all arrangements for the meetings of the Association, appointing such auxiliary committees from its own body, or from other members of the Association, and making such other provisions as shall be requisite, at its discretion.
NOTE.

The accompanying volume containing the proceedings, papers and discussions of the American Medico-Psychological Association, at its fifty-second annual meeting, is printed by the Council with the approval of the Association.

HENRY M. HURD,
Secretary.

Baltimore, October 1st, 1896.
American Medico-Psychological Association.

PROCEEDINGS OF THE FIFTY-SECOND ANNUAL MEETING.

TUESDAY, MAY 26, 1896.

FIRST SESSION.

The Association was called to order by the President, Dr. Richard Dewey, at 10 a.m., in Huntington Hall, Massachusetts Institute of Technology. Acting Governor Roger Wolcott of Massachusetts was introduced and welcomed the Association to Boston in the following words:

"Mr. President and Gentlemen of the Medico-Psychological Association:

"The word of welcome that I speak to you today must be very brief and informal. I have asked one or two of your officers whether this Association had yet been able to solve a problem that has presented difficulties to others for many centuries, which is, how a person can be in two places at the same moment of time. I am at this moment due at Tremont Temple to welcome another association, and as I have not solved the problem, I shall have to be very brief. But it gives me great pleasure to simply welcome you to the Commonwealth of Massachusetts. It has been the pride of Massachusetts to take her place amongst the foremost in recognizing the interests of the higher education and the higher science. It is with pride that we receive here in Boston men representing different directions of human thought, of study and achievement. I look with peculiar interest to the discussions that this body will hold during its sessions here. I have, for many years, as trustee of the Massachusetts General Hospital, and I hope also as a citizen, taken some pride and interest in all measures that minister to suffering humanity, and I have had a strong interest in what can be done to alleviate the terrible curse of mental disease. It appears to me that you, gentlemen, have before you the duty of solving, if by God’s blessing it can in any degree be solved, one of the most difficult problems presented to science or to humanity."
We stand aghast sometimes at the success of surgery when the knife seems to invade the very citadel of life, and yet when you gentlemen try to touch the hidden places where the brain and the mind of man have their habitation, it seems as if you were venturing upon a field beyond and more awful still. I believe that we are destined, those of this generation who live to old age, to see very great advances made in the department that you have taken as your own. Whether it shall come by some sudden flash of light, some startling discovery of science, or whether it shall be simply the slow advance upon well-known lines, the lines of better treatment, of better mental occupation, of more careful investigation of the physical symptoms of mental disease, and of gradual alleviation rather than of sudden cure, of course we can not say; but that all the citizens of this State and all the people of the world have an intense interest in what advances you may make does not require any word of mine to assure you. I trust that your deliberations here, the bringing of mind in contact with mind, the offering of suggestions by one and another, the weighing of those suggestions and the adoption of those that are proven sound, will lead to advancement of this great cause.

"I am glad to welcome you to the hospitality of Boston and to the Commonwealth of Massachusetts, and I trust that you will carry away with you to your distant homes not only some added knowledge to help you in the solution of your great problem, but that you will carry away with you also a pleasant recollection of the old City of Boston and of our Commonwealth."

The President appointed the following Committee to nominate officers of the Association for the ensuing year: Dr. Edward N. Brush of Maryland, Dr. C. B. Burr of Michigan, and Dr. J. W. Givens of Idaho.

A recess was then taken for the registration of members, and the following were present during the whole or a portion of the session:

Abbott, Edward S., M. D., Assistant Physician McLean Hospital, Waverley, Mass. (Associate member.)
Adams, Geo. S., M. D., Medical Superintendent Westborough Insane Hospital, Westborough, Mass.
Allen, Henry D., Milledgeville, Ga.
Allison, Henry E., M. D., Medical Superintendent Matteawan State Hospital, Fishkill Landing, N. Y.
Baker, Lucius W., M. D., Riverview, Baldwinsville, Mass.
Bancroft, Charles P., M. D., Medical Superintendent New Hampshire Asylum for the Insane, Concord, N. H.
Beemer, Nelson H., M. D., Superintendent Mimico Branch Asylum, Toronto, Ont. (Associate Member.)
Blackford, Benjamin, M. D., Medical Superintendent Western State Hospital, Staunton, Va.
Blumer, G. Alder, M. D., Medical Superintendent Utica State Hospital, Utica, N. Y.
Brown, John P., M. D., Medical Superintendent Taunton Lunatic Hospital, Taunton, Mass.
Brush, Edward N., M. D., Physician-in-Chief and Superintendent Sheppard Asylum, Towson, Md.
Buchanan, J. M., M. D., Medical Superintendent East Mississippi Insane Asylum, Meridian, Miss.
Bucke, Richard M., M. D., Medical Superintendent Asylum for the Insane, London, Ont.
Burrell, Dwight R., M. D., Resident Physician Brigham Hall, Canandaigua, N. Y.
Burgess, T. J. W., M. D., Medical Superintendent Protestant Hospital for the Insane, Montreal, P. Q.
Channing, Walter, M. D., Private Hospital for Mental Diseases, Brookline, Mass.
Chapin, John B., M. D., Physician and Superintendent Pennsylvania Hospital for the Insane, Philadelphia, Pa.
Clark, Daniel, M. D., Medical Superintendent Asylum for the Insane, Toronto, Ont.
Cook, George F., M. D., Oxford Retreat, Oxford, Ohio.
Copp, Owen, M. D., Superintendent Massachusetts Hospital for Epileptics, Palmer, Mass.
Cowles, Edward, M. D., Medical Superintendent McLean Hospital, Waverley, Mass. (President, 1894.)
Crumbacker, W. P., M. D., Medical Superintendent West Virginia Hospital for the Insane, Weston, W. Va.
Curwen, John, M. D., Medical Superintendent State Hospital for the Insane, Warren, Pa. (President, 1893.)
Dewey, Richard, M. D., Medical Officer Milwaukee Sanitarium, Wauwatosa, Wis.; Editor American Journal of Insanity, 34 Washington Street, Chicago, Ill. (President, 1896.)

Drew, Charles A., M. D., Assistant Physician Medfield State Hospital, Medfield, Mass. (Associate Member.)

Drewry, W. F., M. D., Assistant Physician Central State Hospital, Petersburg, Va.

Edenharter, George F., M. D., Medical Superintendent Indiana Central Hospital, Indianapolis, Ind.

Edgerly, J. Frank, M. D., 44 Green Street, Jamaica Plains, Mass.


Elliott, Edward P., M. D., Danvers Lunatic Asylum, Danvers, Mass. (Associate Member.)

Eyman, H. C., M. D., Medical Superintendent Cleveland State Hospital, Cleveland, Ohio.


Fisher, Theodore W., M. D., (formerly Medical Superintendent Boston Lunatic Hospital), Boston, Mass.

Folsom, Charles F., M. D., 15 Marlboro Street, Boston, Mass. (Honorary Member.)

French, Edward, M. D., Medical Superintendent Medfield State Hospital, Medfield, Mass. (Associate Member.)

Fuller, Daniel H., M. D., Assistant Physician McLean Hospital, Waverley, Mass. (Associate Member.)

Gapen, Clark, M. D., Medical Superintendent Illinois Eastern Hospital for the Insane, Kankakee, Ill.

Gilman, H. A., M. D., Medical Superintendent Iowa Hospital for the Insane, Mt. Pleasant, Iowa.

Givens, John W., M. D. (formerly Medical Superintendent Idaho Insane Asylum), Los Angeles, Cal.

Godding, W. W., M. D., Medical Superintendent Government Hospital for the Insane, Washington, D. C.

Gorton, William A., M. D., Superintendent and Physician Butler Hospital for the Insane, Providence, R. I.

Grauger, William D., M. D., Vernon House, Bronxville, N. Y.

Gundry, Richard F., M. D., Richard Gundry Home, Catonsville, Md.
Hall, G. Stanley, Ph. D., LL. D., President Clarke University, Worcester, Mass. (Honorary Member.)

Hancker, W. H., M. D., Medical Superintendent Delaware State Hospital, Farnhurst, Del.

Harmon, F. W., Medical Superintendent Longview Hospital, Carthage, Ohio.

Harrington, Arthur H., M. D., Physician Asylum for Insane Criminals, State Farm, Mass.

Hill, Charles G., M. D., Attending Physician Mt. Hope Retreat, Baltimore, Md.

Hill, Gershom H., M. D., Medical Superintendent Iowa Hospital for the Insane, Independence, Iowa.

Hinckley, L. S., M. D., Medical Superintendent Essex County Hospital, Newark, N. J.

Hoch, August, M. D., Pathologist McLean Hospital, Waverley, Mass. (Associate Member.)

Holmes, Charles M., M. D., Assistant Physician Northampton Lunatic Asylum, Northampton, Mass. (Associate Member.)

Houston, John A., M. D., Assistant Physician Northampton Hospital, Northampton, Mass. (Associate Member.)

Howard, Eugene H., M. D, Medical Superintendent Rochester State Hospital, Rochester, N. Y.

Howard, Herbert B., M. D., Medical Superintendent Asylum for Chronic Insane, Tewksbury, Mass.

Hoyt, Frank C., M. D., Medical Superintendent Iowa Hospital for the Insane, Clarinda, Iowa.

Hughes, D. E., M. D., Chief Resident Physician Philadelphia Hospital, Philadelphia, Pa.

Hurd, Arthur W., M. D., Superintendent Buffalo State Hospital, Buffalo, N. Y.

Hurd, Henry M., M. D., (formerly Medical Superintendent Eastern Michigan Asylum,) Baltimore, Md. (Secretary.)

Hutchinson, Marcello, M. D., Medical Superintendent Asylum for Dipsomaniacs and Inebriates, Foxboro, Mass.

Jelly, George F., M. D., (formerly Medical Superintendent McLean Hospital), 69 Newbury Street, Boston, Mass.

Keene, George F., M. D., Medical Superintendent State Insane Asylum, Cranston, R. I.

Kellogg, Theo. H., M. D. (formerly Medical Superintendent Willard State Hospital), Astor House, New York City.
Knowlton, W. M., M. D., Assistant Physician Private Hospital for Mental Diseases, Brookline, Mass. (Associate Member.)

Kulp, Jno. H., M. D., Superintendent Insane Department of Mercy Hospital, Davenport, Iowa.

Lane, Edward B., M. D., Assistant Physician Boston Lunatic Hospital, Austin Farm, Roslindale, Mass. (Associate Member.)

Lawton, Shailer E., M. D., Medical Superintendent Brattleboro Retreat, Brattleboro, Vt.

Long, Oscar R., M. D., Medical Superintendent Asylum for Dangerous and Criminal Insane, Ionia, Mich.

Mabon, William, M. D., Medical Superintendent Willard State Hospital, Willard, N. Y.

MacDonald, Carlos F., M. D., (formerly Medical Superintendent Asylum for Insane Criminals, Auburn), President State Commission in Lunacy, 334 Fifth Avenue, New York.

Mead, Leonard C., M. D., Medical Superintendent South Dakota Hospital for the Insane, Yankton, S. D.

Meredith, Hugh B., M. D., Medical Superintendent State Hospital for the Insane, Danville, Pa.


Murphy, P. L., M. D., Medical Superintendent State Hospital, Morganton, N. C.

Nims, Edward B., M. D., Medical Superintendent Northampton Lunatic Hospital, Northampton, Mass.


Noyes, William, M. D., Superintendent Pierce Farm, Mattapan, Mass. (Associate Member.)

Orth, H. L., M. D., Medical Superintendent Pennsylvania State Lunatic Hospital, Harrisburg, Pa.

Page, Charles W., M. D., Medical Superintendent Danvers Lunatic Hospital, Danvers, Mass.

Page, H. W., M. D., Assistant Physician Insane Asylum, Worcester, Mass. (Associate Member.)

Paine, N. Emmons, M. D., (formerly Medical Superintendent Westborough Insane Hospital), Newton Nervine, West Newton, Mass.

Park, John G., M. D., (formerly Superintendent Worcester Lunatic Hospital), Groton, Mass.
Peterson, Frederick, M. D., Instructor in Mental and Nervous Diseases, Columbia College, 201 West 54th Street, New York.

Pilgrim, Charles W., M. D., Medical Superintendent Hudson River State Hospital, Poughkeepsie, N. Y.

Powell, Theophilus O., M. D., Medical Superintendent State Lunatic Asylum, Milledgeville, Ga. (Vice-President.)

Quinby, Hosea M., M. D., Medical Superintendent Worcester Lunatic Hospital, Worcester, Mass.

Ratliff, J. M., M. D., Superintendent Dayton State Hospital, Dayton, Ohio.

Richardson, A. B., M. D., Medical Superintendent Columbus State Hospital, Columbus, Ohio.

Rogers, Joseph G., M. D., Medical Superintendent Northern Indiana Hospital for the Insane, Longcliff, Logansport, Ind.

Rohé, George H., M. D., Medical Superintendent Second Maryland Hospital for the Insane, Sykesville, Md.

Row, W. D., M. D., Superintendent Second Hospital for the Insane, Spencer, W. Va.

Rowe, G. H. M., M. D., City Hospital, Boston, Mass.

Runge, Edward C., M. D., Superintendent St. Louis Insane Asylum, St. Louis, Mo.

Russell, James, M. D., Medical Superintendent Asylum for the Insane, Hamilton, Ontario.

Sanborn, Bigelow T., M. D., Medical Superintendent Maine Insane Hospital, Augusta, Maine.


Smith, S. E., M. D., Medical Superintendent Eastern Indiana Hospital for the Insane, Richmond, Ind.

Stearns, Henry P., M. D., Superintendent and Physician Retreat for the Insane, Hartford, Conn.

Talcott, Selden H., M. D., Medical Superintendent State Homeopathic Hospital, Middletown, N. Y.

Tobey, Henry A., M. D., Medical Superintendent Toledo State Hospital, Toledo, Ohio.

Tuttle, George T., M. D., Assistant Physician McLean Hospital, Waverley, Mass. (Associate Member.)

Wade, J. Percy, M. D., Superintendent Maryland Hospital for the Insane, Catonsville, Md. (Associate Member.)
Wagner, Charles G., M. D., Medical Superintendent Binghamton State Hospital, Binghamton, N. Y.
Warden, John L., M. D., Medical Superintendent Asylum No. 1, Fulton, Mo. (Associate Member.)
Wentworth, Lowell F., M. D., (formerly Medical Superintendent Kansas Insane Asylum), Boston, Mass.
White, M. J., M. D., Medical Superintendent Milwaukee Hospital for the Insane, Wauwatosa, Wis.
Wilsey, O. J., M. D., Long Island Home, Amityville, N. Y.
Wise, Peter M., M. D., Medical Superintendent St. Lawrence State Hospital, Ogdensburg, N. Y.
Woodbury, Charles E., M. D., Secretary Massachusetts Board of Charities, 13 Beacon Street, Boston, Mass.
Woodson, C. R., M. D., Medical Superintendent State Lunatic Asylum No. 2, St. Joseph, Mo.
Worcester, William L., M. D., Pathologist Danvers Lunatic Hospital, Danvers, Mass. (Associate Member.)

The following physicians not members of the Association were also present by invitation:

Bell, Samuel, M. D., Medical Superintendent Asylum for the Insane, Newbury, Mich.
Crothers, T. D., M. D., Walnut Lodge, Hartford, Conn.
Elliott, R. M., M. D., Brooklyn Department Long Island State Hospital, Brooklyn, N. Y.
Gordon, W. A., M. D., Medical Superintendent Northern Hospital for the Insane, Winnebago, Wis.
Lyman, W. D., M. D., Medical Superintendent Wisconsin State Hospital, Mendota, Wis.
McNary, H. F., M. D., Medical Superintendent Central Kentucky Lunatic Asylum, Lakeland, Ky.
Scott, W. F., M. D., Medical Superintendent Eastern Kentucky Lunatic Asylum, Lexington, Ky.

Also:

H. A. Reeves, Commissioner in Lunacy, Albany, N. Y.
J. L. Hildreth, M. D., President Massachusetts Board of Lunacy and Charity, Cambridge, Mass.
Samuel H. Hopkinson, Chairman Board of Trustees Danvers State Hospital, Danvers, Mass.
Charles Lawrence, Superintendent Philadelphia Hospital, Philadelphia, Pa.

The Secretary and Treasurer presented his financial statement, (see page 64), and referred to a possible call upon the treasury for the Journal of Insanity, whereupon the Editor stated that the Journal, after paying all expenses for the current year, and issuing the numbers at an additional expense for printing and illustrations over former years, has now $180 in the treasury.

The President then addressed the Association on “Our Association and Our Associates.” At the conclusion of the address, upon motion of Dr. Rohé, seconded by Dr. Gilman, a vote of thanks was tendered to the President for his eloquent and instructive address and a copy was requested for publication in the Transactions.

The following letter from Dr. Callender was read:

NASHVILLE, May 20, 1896.

DR. HENRY M. HURD, Secretary and Treasurer, Boston, Mass.

DEAR DOCTOR HURD: I am to-day in receipt of official notice of the fifty-second annual meeting of the American Medico-Psychological Association on the 26th inst.

I had cherished the intention to be with the body this year, but find I will be compelled to forego the pleasure. Though resigned from work in the institution with which I was so long connected, my labor is still in the specialty, in an institution of my own, and in special private practice. Pardon me for mentioning such personal facts. My pleasant connection with the body for so many years endears it to me, and I am desirous that those with whom I was so long contemporary in its councils should know that I am still one of them in spirit and purpose, if not in the flesh, at every meeting.

Through this note please present my best regards and wishes to the Association, as a whole, and shake hands for me with friends of the olden time.

Faithfully yours,

JOHN H. CALLENDER.

The following gentlemen were then introduced to the Association:

Charles Lawrence, Superintendent of the Philadelphia Hospital, by Dr. W. E. Hughes.
Dr. J. H. Kulp of Davenport, Iowa, by Dr. Gilman.
Dr. W. A. Gordon of Winnebago, Wis., by Dr. White.
Mr. C. F. Cooke of Hillsdale, Mich., Trustee of the Michigan Insane Asylum, Kalamazoo, by Dr. Edwards.

Mr. W. H. Mattison, Trustee of the Asylum for Dangerous and Criminal Insane, Ionia, Mich., by Dr. Long.

Upon motion of Dr. Charles G. Hill these gentlemen, and all others present connected with institutions for the insane, were requested to register, and were accorded the usual privileges of members of the Association.

Upon motion of Dr. Hurd the members of the Boston Medico-Psychological Association and the physicians of the City of Boston were invited to sit with the Association and to participate in the discussions.

Dr. Paine reported that some years ago he was appointed a Committee on Photographs by the Association of Medical Superintendents. He collected a large number of photographs, and from them a group-picture was made, which was sold to those members who desired copies. After some months of sale about 100 copies of the group-pictures remained unsold, and a balance of $65.48 due the Committee was paid by the Association in 1893. There is now in the hands of the Committee $9, received since this settlement. The Association was requested to decide what disposition should be made of the pictures remaining on hand.

Upon motion of Dr. G. H. Hill this matter was referred to the Council.

SECOND SESSION.

The Association was called to order by President Dewey at 3 p. m., in Huntington Hall.

The President: "As you all doubtless know, an effort is being made to raise money for a memorial to the memory of Rush. The American Medico-Psychological Association has never taken any action on that matter, although it is one in which its members might be considered to be especially interested. To-day I wish to call your attention to a fund which is being raised for a memorial to Dr. D. Hack Tuke, and to which some of our members have already subscribed. The object of honoring the memory of these men who have been so famous in our especial line is one that is worthy of consideration by this Association."
Upon motion, the President was authorized to appoint a Committee of three to cooperate with the English committee on the Hack Tuke memorial.

Dr. Theodore W. Fisher of Boston read a paper on "The Neuron Theory and Cerebral Localization," which was discussed by Drs. William L. Worcester and O. R. Long.

Dr. W. L. Worcester, of the Danvers State Hospital, Asylum Station, Mass., read a paper entitled, "Cases of Paraphasia and Word-Deafness," which was discussed by Drs. Hurd, Rohé, G. H. Hill, Woodson, Dewey, and Russell.

The Secretary read an invitation to the members of the Association to visit the Boston Insane Asylum.

A paper by Dr. Henry J. Berkley of Baltimore, entitled, "The Intra-Cerebral Nerve-Fibre Terminals, Apparatus, and Modes of Transmission of Nervous Impulses," was read by title.

THIRD SESSION.

The President called the Association to order at 8 p. m., at the Hotel Brunswick.

The Secretary read an invitation to visit the Boston City Hospital on Thursday, from 3.30 to 6 p. m.

Dr. R. M. Bucke, of London, Ontario, read a paper on "Gynecology in the Asylum," which was discussed by Drs. Hinckley, Eyman, Gapen, Burgess, Tobey, Woodson, Rohé, Burr, Givens, Richardson, Chapin, Russell, Brush, and W. M. Edwards.

Dr. Joseph G. Rogers of Logansport, Ind., read a paper on "Some Cases of Catalepsy Under Thyroid Treatment."

The Association then adjourned.

WEDNESDAY, MAY 27, 1896.

FIRST SESSION.

The Association was called to order by the President at 10 A. M., in the Hotel Brunswick.

The Secretary reported that the Council had made the following recommendations:
For Honorary Membership.—Victor Parant, Toulouse, France; Jules Morel, Ghent, Belgium; Emanuel Régis, Bordeaux, France.


The ballot was then taken and all the names recommended were elected members of the Association.

Dr. E. N. Brush, Chairman of the Nominating Committee, reported for the Committee the following nominations:

For President: Theophilus O. Powell of Georgia.
Vice-President: R. M. Bucke, Ontario, Canada.
Secretary-Treasurer: Henry M. Hurd, Maryland.
Auditors: William A. Gorton, Frank C. Hoyt.

Upon motion of Dr. Gilman this Report was adopted and the Secretary was directed to cast the ballot for the list of names submitted.

The following Report was presented by Dr. Gilman in behalf of the Auditors:

REPORT OF AUDITORS.

Boston, May 26, 1896.

Your auditors, having examined the accounts and vouchers of the Treasurer of the American Medico-Psychological Association, find the same correct in every particular. We recommend that the dues for this year be fixed at $5 for active members and $2 for associate members.

H. A. Gilman,
W. A. Gorton,
Auditors.

On motion of Dr. Wise this Report was adopted.
The amendment to Article IX of the Constitution, proposed by Dr. Cowles, was then adopted. The Article as amended reads as follows: "The president and vice-president for the year shall enter on their duties at the close of the business of the annual meeting at which they are elected."

The amendment to the By-Laws, proposed by Dr. G. H. Hill, providing for meetings in Washington and Chicago on alternate years, was laid on the table.

Dr. Wise gave notice of an amendment to the Constitution as follows: To insert in Article V, previous to the sentence beginning "The only persons eligible for associate membership," the following: "Physicians who are especially interested in the treatment and welfare of the insane are eligible to Active membership."

The paper of Dr. Rogers, which had been read during the previous session, was discussed by Drs. Richardson, Gilman, Bancroft, C. G. Hill, and Burgess.

Dr. A. B. Richardson of Columbus read a paper on "The Psychic Influence of the Night Season."

Dr. J. B. Chapin of Philadelphia read a paper entitled, "On Detention of the Insane and the Writ of Habeas Corpus."

The hour of 11.45 a.m. having arrived, the Association adjourned, and the members, upon invitation of the Trustees of the Massachusetts General Hospital, attended a reception and luncheon at the new McLean Hospital, Waverley, and under the escort of the medical staff made an inspection of the Hospital.

The Association reassembled at Huntington Hall, at 8 p.m., and listened to an address by President G. Stanley Hall, LL.D., upon "Recent Progress and Present Tendencies of Scientific Psychology."

Upon motion a unanimous vote of thanks was tendered to President Hall for his scholarly and stimulating address.

At 9.30 p.m. the members of the Association attended a reception at the University Club, 270 Beacon Street, tendered to them by the Boston Medico-Psychological Society.
The Association met at 10 A. M. in the Hotel Brunswick, President Dewey in the chair.

The Secretary read the following report from the Council:

1. The Secretary has been instructed to give a letter to Dr. Channing, as a representative of the American Medico-Psychological Association, to the British Medico-Psychological Association.

2. It has been determined to hold the next meeting in Baltimore, Md., commencing on the second Tuesday of May, 1897. Drs. G. H. Rohé, E. N. Brush, and Chas. G. Hill, together with the President and Secretary, have been appointed a Committee of Arrangements.

3. It has been decided to send the group photographs now remaining in the hands of the Committee, to such institutions as are willing to pay the postage on them.

4. It has been decided to continue the publication of the Journal of Insanity, and Drs. Dewey, Blumer and Hurd have been appointed an Editorial Committee.

Upon motion of Dr. Brush the Council was instructed to consider the advisability of having a session of the Association in connection with the Congress of American Physicians and Surgeons, which meets triennially at Washington, and to report at the next annual meeting. Carried.

Dr. C. R. Woodson gave notice of an amendment to the Constitution as follows: To strike out after the word "by," in line four of Article VIII, the words, "a Committee appointed for that purpose by the President," and insert in lieu thereof the words, "the Council."

The paper of Dr. Chapin, which was read at the previous session, was discussed by Drs. Dewey, Godding, and Woodson.

Dr. Edward N. Brush of Maryland read a paper entitled, "Four Cases of Insanity Associated with Peripheral Neuritis."

Dr. Carlos F. MacDonald of New York read a paper entitled, "State Care and Maintenance for the Dependent Insane in the State of New York," which was discussed by Drs. Wise, Burr, and Hurd.
Dr. Theo. H. Kellogg of New York read a paper entitled, "Disorders of the Muscular System in Insanity."

Dr. W. W. Godding read a paper entitled, "Pictures from the Past."

The Association then adjourned.

SECOND SESSION.

The Chairman called the meeting to order at 3 p.m., at the Hotel Brunswick.

Dr. G. Alder Blumer then read the following Report:

REPORT OF COMMITTEE ON THE RELATIONS OF ALCOHOLIC INDULGENCE TO INSANITY.

To the American Medico-Psychological Association:

Your Committee, to whom was referred the whole question of the relations of alcoholic indulgence to insanity, with special instructions to report some feasible form of tables at this meeting of the Association, submits its report with respect, but also with fear and trembling.

The relation of the liquor problem to insanity is so vast and so complex an issue, that the Association surely can not have intended that the "whole question" should be considered in a committee report. Your Committee has, therefore, confined itself to the consideration of a scheme of statistical inquiry, whereby information might be elicited from the entire Association, such as to constitute the basis of a report for some future occasion that shall represent, so far as statistics may, the findings of this body; hence the diffidence and apprehension with which this report is submitted. It is well aware of the comparative ease and freedom—no superintendent or assistant physician but knows it to his cost—with which questions may be put by an industrious interrogator of the so-called inquiring turn of mind, and all have experienced the enormous labor and stupendous difficulty which such free and easy questioning sometimes involves. In asylum life there is no more insidious menace to one's serenity than the apparently innocent question-mark of the circulars. Hinc ulla lacrimae! Albeit your Committee is sustained by the hope that the great importance of this question, and the particular circumstances under which the Association is appealed to, will be considered a sufficient warrant for the line of inquiry which is herewith suggested.

The call for cooperation comes from the so-called Committee of Fifty to investigate the liquor problem. This committee of fifty gentlemen represents widely different communities and occupations, and has been at work for two or three years, under the presidency of the Hon. Seth Low of New York, in the hope of securing a body of facts relating to the medical, legal, ethical, and economic aspects of the liquor question, which will serve as a basis for
intelligent public and private action. It is not a committee of total abstainers, of temperance advocates, or of faddists of any description, but of men without prepossessions whatsoever, desirous only of discussing with absolute impartiality all the facts which it is able to collect, and thus of securing for the evidence which it shall present a measure of confidence on the part of the community which it is not in the power of partisan statements to command.

The names of some of the members of the sub-committee on the physiological and pathological aspects of the drink problem are submitted as a guarantee of eminent respectability and as an earnest of what the Association may expect as the result of their labors. Your Committee would merely mention Dr. J. S. Billings, chairman, of New York; Dr. H. P. Bowditch, Boston; Gen. Francis A. Walker, Boston; Dr. William H. Welch, Baltimore; Prof. R. H. Chittenden, New Haven.

These gentlemen having requested the coöperation of the American Medico-Psychological Association in such departments of this important inquiry as relate to insanity, your Committee, appointed for the purpose last year, earnestly asks the assistance of the Association in obtaining data.

The Association is perhaps familiar with some of the careful work that has been done by these gentlemen in elucidation of the drink problem, and the important auxiliary work of Dr. H. J. Berkley, of Baltimore, as embodied in his paper on "Experimental Lesions Produced by the Action of Absolute Ethyl Alcohol on the Nerve Cells of the Rabbit's Brain," is fresh in memory.

The proposition is now made that the Association shall take up the inquiry as a body, and coöperate with this sub-committee. To this end your Committee has prepared a circular for distribution by mail to the members of the Association, provided it seem wise to the Association, with the earnest request that they place at the disposal of your Committee the facts of experience as contained in records, and that they also enlist the good will, and consequently the good work, of assistant physicians in this important investigation.

The questions of the circular follow:

1. What proportion of cases of insanity in the records of your institution have alcoholic drinks stated as the cause of their condition?
2. What proportion of cases have evidently, from their history, had their insanity, in part at least, caused by intemperance?
3. What proportion of cases are know to have been excessive drinkers?
4. What proportion of cases have been known to be moderate users of wine, beer, or spirits as a beverage?
5. What proportion have been total abstainers (not reformed drunkards)?
6. Please give the totals of cases in regard to which facts in these particulars could be obtained, and of those where no facts were obtainable.

Respectfully submitted,

[Signed]  
G. ALDER BLUMER,  
C. B. BURR,  
H. M. BANNISTER,  
Committee.

Upon motion of Dr. Brush, the Report was accepted and the Secretary was requested to distribute the circulars.

Dr. H. P. Stearns of Hartford, Conn., read a paper entitled, "In Relation to Heredity."

Dr. Frederick Peterson of New York read a paper entitled, "Psychology of Idiocy," which was discussed by Drs. R. M. Bucke and J. J. Putnam.

Dr. Walter Channing of Brookline read a paper entitled, "The Hard Palate in Idiots," which was discussed by Drs. Peterson, Brush, and C. G. Hill.

Dr. Frederick Peterson of New York read a paper entitled, "Idiot Savants."

Dr. Gilman then submitted the following Report:

REPORT OF AUDITORS.

Boston, May 28, 1896.

Your Auditors, having examined the accounts and vouchers of the Editorial Committee of the American Journal of Insanity, have found the same correct.

H. A. Gilman,
W. A. Gorton,
Auditors.

This Report was adopted.

The Association then adjourned.

Friday, May 29, 1896.

The Association was called to order at 10 a. m., Hotel Brunswick.

Dr. C. R. Woodson gave notice of the following amendment to Article III of the By-Laws:

"No paper, except the President’s address, shall exceed twenty minutes in length, nor discussions five minutes, and no one shall be heard a second time."

Dr. Cowles of the Committee on Training Schools then reported as follows:
report of committee on training schools.

When the Committee was first appointed it was found to be a difficult matter to determine what it was best to do in the way of preparing a manual for the teaching of nurses. We did not feel that we had experience enough to do it, or rather we felt that inasmuch as schools were being established in State hospitals, in various States in which the conditions were so different, it would be far better to wait a reasonable time in order to get the results of experience so that whatever was done in that regard might be submitted to men who were dealing with the material they had. The conclusion of the Committee is that it is not even yet possible to prepare in the name of the Association a manual of instruction. But if our duties are continued we may in another year be prepared in some way to recommend a compilation of methods of work and instruction in our various schools. But upon another point we are clearly of the mind now that it is time to publish what may be called a "Manual for the Organization of Training Schools in Hospitals for the Insane," to answer questions which so many hospital men are now asking. Upon that matter there was need of the results of experience to provide a practicable standard that might be adopted for general use in our hospitals throughout the country—not too high a standard, and yet high enough and complete enough to cover necessary grounds. After having asked, at the Philadelphia meeting, to have others added to the Committee, making a Committee of seven as against a Committee of four, in order to get representative hospitals in the West, South and East, and having reported progress last year, we are this year prepared to recommend printing a manual, an idea of which may be obtained from a brief synopsis of the chapters it shall contain. It will be a small manual and devoted solely to the purpose of indicating to those who have no schools the methods found expedient in starting them, and what seems to be the best methods of conducting schools, in the hope of the uniformity of standards so much to be desired in our schools.

Chapter I will deal with the preliminary requirements, covering such items as the necessity of having a proper officer as superintendent of nurses, how to obtain such an officer, the need of general hospital experience, the value of it, and the number of assistants necessary. The kind and quality of teaching by the medical staff, and beginning with a hospital in which these things are not understood as a matter of experience, how to start the first class of nurses.

Chapter II deals with the best methods of employing nurses. The form of prospectus for inviting applicants, and the questions to be answered. How to obtain evidences of their qualifications; the proper use of a probationary period, and how to get at the qualities of persons in a short time.

Chapter III deals with the general principles of the methods of conducting schools, the advantages of having a sufficient corps of instructors, the need of having instruction in general as well as special nursing, and the reasons for it. The method of dividing the course into terms, and the manner of holding examinations, whether oral or otherwise. The manner of
conducting lectures; quizzes; apportioning didactic and practical instruction by lectures, recitations, and other exercises, and the time of exercises. The method of keeping the proper register of nurses, and a record of the work of every nurse.

Chapter IV: Having the schools established and the nurses introduced, ready for work, a course of instruction may be laid down. First, the junior year. Subjects of lectures and recitations. Text books. Clinical instruction in the wards. Practical exercises in the practice of nursing. The same in the senior year. Then the matter of marking the results of work.

Chapter V might contain a discussion of best graduate work, meaning carrying on the instruction of nurses who have graduated from the school, and who will themselves become teachers. Having infirmary wards, with the graduate nurses as teachers; or the ways of getting for them more complete instruction in general nursing in other institutions.

This is, in brief, an outline of the manual we recommend to be published. The Committee would ask to be authorized to publish this work in the name of the Association during the coming year.

Edward Cowles,
C. K. Clarke,
John Curwen,
C. P. Bancroft,
C. B. Burr,
J. W. Babcock,
Committee.

Upon motion of Dr. Godding the Committee was continued in the manner suggested by Dr. Cowles.

Dr. C. B. Burr then submitted the report of the Committee on Statistical Tables.

REPORT OF COMMITTEE ON STATISTICAL TABLES.

To the American Medico-Psychological Association:

Your Committee on Statistical Tables would respectfully report that in compliance with instructions from the Association, received at the Chicago meeting in 1893, forms for tables have been prepared for statistics tending to show:

First. The duration of life in the insane.

Second. The permanency of recovery from the various forms of mental disease.

Third. The length of interval of mental health between attacks of mental disease in patients discharged "recovered."

All familiar with statistical work will appreciate that this has been beset with peculiar difficulties, and the Committee acknowledges its indebtedness to members of the Association for important suggestions. It is hoped that the use of the tables will not be found unduly burdensome. Though necessarily large and detailed, they have been simplified as much as is consistent with
the purpose sought to be attained. It has been found impracticable to construct a table within reasonable limits as to size, adapted for publication in hospital reports, which shall show the results of treatment in individual forms of disease on first, second and third admissions. It is believed, however, that for practical purposes of study, the grouping of cases as "mania in acute forms," "melancholia in acute forms," will be found as convenient and useful as if the tabulation were made more in detail. The Committee is gratified to say that the assumptions contained in its report made at the meeting in Philadelphia have been almost unanimously approved by the hospital officers to whom letters of inquiry were addressed. In the case of Assumption No. 1, however, the Committee, concurring in the views of several correspondents, has concluded to exclude "acute alcoholism," and to substitute "acute confusional insanity." The assumption, therefore, will read as follows, and in case of the adoption of this report will stand as an authoritative expression of the Association:

Assumption No. 1. That there are but three curable types of mental disease:

1. Mania in its acute forms; this including acute mania, acute exhaustive mania, hystero-mania, and dementia after mania.
2. Melancholia in its acute forms; including simple melancholia, melancholia with stupor, melancholia with frenzy, hystero-melancholia, hypochondriacal melancholia, and dementia after melancholia.
3. Acute confusional insanity.

Assumption No. 2 has also been modified. It reads as follows:
"That no case should be discharged 'recovered' more than three times and readmitted as suffering from an acute form of disease."

The former assumption read "more than twice," but this reading seems to require amendment. The view of the Committee is that it is expedient to discharge the same patient three times as recovered, but after three admissions and discharges, no case may properly be accounted acute and placed among curable conditions. The following tables are respectfully submitted:

Table No. 1. For tabulation of results of treatment in presumably curable cases for one year. In this table are studied cases of melancholia in acute forms, of mania in acute forms, and of acute confusional insanity; each of these groups of cases on first, second, and third admissions.

In preparing tables, it must be borne in mind that, in the interest of uniformity:

First. It is not permissible to extend the number of assumed curable conditions. These are the following: Acute mania, acute exhaustive mania, hystero-mania, dementia after mania, simple melancholia, stuporous melancholia, melancholia with frenzy, hystero-melancholia, hypochondriacal melancholia, dementia after melancholia, and acute confusional insanity. In explanation of "dementia after mania" and "dementia after melancholia," the Committee would say that these names apply to those conditions of temporary mental impairment observed in patients convalescing from acute attacks, and who occasionally reach the hospital in this stage. Under "mania in acute forms" are included the first four of the above, and under "melancholia in acute forms," the next six forms of disease. Acute confusional insanity

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<th>No.</th>
<th>Cases</th>
<th>Convalescing</th>
<th>Discharged</th>
<th>Patients</th>
<th>Admissions</th>
<th>Discharges</th>
<th>Males</th>
<th>Females</th>
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comprises those conditions of acute excitement attended by restlessness, incoherence, changing mental impressions, changing delusions and varying emotional states, and which can not, with propriety, be included in either of the other groups.

Second. No case, after three admissions, may be introduced in this table. Any such must be placed in one of the chronic groups.

Third. Transfers from other groups (see column three) may be made for errors in diagnosis only.

Fourth. In length of interval, etc., consider periods of time of more than three months as six months; six months to one and one-half years as one year; one and one-half years to two and one-half years as two years, etc.

Fifth. In the average duration of insanity of patients deceased, take into consideration the whole of the last attack, time spent at home after insanity displayed itself, as well as time spent in the hospital.

Sixth. Transfers to other groups (next to the last column) may be made for, first, chronicity; second, errors in diagnosis.

Note that columns under "length of interval," etc., are to be filled out for second and third admissions only.

Table No. 2 is for the movement of population in curable conditions. It is designed to supplement No. 1.

Table No. 3 is for the permanent tabulation of the results of treatment in curable conditions. It has columns for whole number of cases admitted, discharged recovered, discharged improved, unimproved and died; for analysis of cases discharged recovered, whether from first, second, or third admission; for whole number of cases transferred to other groups; for cases remaining; for percentage of death on whole number admitted, and percentage of recoveries on the whole number admitted, treating of first, second, and third admissions.

Table No. 4 is for movement of population in assumed incurable conditions.

Table No. 5 is for record of admissions and discharges. Here insane conditions and toxic conditions, as the alcohol and opium habits, are treated separately. The table is ruled for first, second, and third admissions. These may be extended to any number desired, or fourth and more admissions may be treated together.

Table No. 6 is for permanent record of toxic conditions. It was the view of several who answered the interrogatories of the Committee, that these should be entirely separated from the insane cases.

Table No. 7 is for mortality in the insane.

Table No. 8 is for mortality in toxic conditions.

It is recommended by the Committee that tables already in use by the different hospitals be continued; that independently of the above percentages, figured on assumed curable cases, other percentages be made, as in the past, on the whole number of cases, curable and incurable, admitted, as well as upon the average daily population. It is hoped, however, that the tables recommended by the Committee, particularly those which pertain to the study of curable conditions, can be made use of by the hospitals. It is only by means of tables such as these that comparative statistics of value can be obtained. With statistics of recoveries based upon assumed curable cases,
no injustice will be done those hospitals where but few cases of this character are admitted. On the other hand, the arbitrary ruling that no case shall be discharged "recovered" more than three times, will prevent vitiation of statistics by reporting thus again and again cases of recurrent mania and other chronic cases. Under this, the conscientious and prudent observer, who hesitates long before discharging a doubtful case as recovered, will be upon the same footing as the most cheerful optimist, who sees recovery in every lucid period and every favorable episode.

It is further recommended that the tables reported be printed in the Transactions, and that advance sheets containing them be furnished those who desire them for use in reports this year.

Very respectfully,

C. B. Burr,
Henry M. Hurd,
P. M. Wise.

[For Tables, see following pages.]

Upon motion of Dr. Christian the Report of the Committee was accepted and ordered printed in the Transactions, with the forms presented, and further consideration was postponed till the next annual meeting.

Dr. August Hoch of Waverley then read a paper on "General Paralysis in Two Sisters, Commencing at the Ages of Eleven and Sixteen, with an Autopsy of One," which was discussed by Dr. J. J. Putnam.

Dr. Fred G. Burrows of Waverley read a paper on "A Study of Leucocytosis Associated with Convulsions," which was discussed by Drs. J. J. Putnam and H. M. Hurd.

The Association adjourned at 12 m., to meet in Baltimore on Tuesday, May 11, 1897, at 10 a. m.

HENRY M. HURD,
Secretary.
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<tr>
<th>CURABLE CONDITIONS</th>
<th>Present at Beginning of Year</th>
<th>Admitted during Year</th>
<th>Transferred from other groups</th>
<th>Under Treatment during Year</th>
<th>Length of Interval of Complete Immunity from Symptoms of Insanity in Cases previously Discharged Recovered—Now Readmitted</th>
<th>Discharged Recovered during Year</th>
<th>Died during Year</th>
<th>Average Duration of Insanity in Patients Deceased (Last attack)</th>
<th>Transferred to other groups</th>
<th>Remaining at Close of Fiscal Year</th>
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<td>Mania in Acute Forms</td>
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<td>Acute Confusional Insanity</td>
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<td>Third admission...</td>
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</table>

* Columns for years may be added to indefinitely.
**TABLE 2.**—*Movement of Population, Curable (Assumed) Conditions.*

Recommended by Committee on Statistical Tables, American Medico-Psychological Association, 1896.

| Diagnosis                        | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total | Men | Women | Total |
|----------------------------------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|
| Melancholia, Simple              |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Melancholia, Stuporous           |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Melancholia with Frenzy          |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Hystero-Melancholia              |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Hypochondriacal Melancholia      |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Dementia after Melancholia       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Mania, Acute                     |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Mania, Acute Exhaustive          |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Hystero-Mania                    |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Dementia after Mania             |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |
| Acute Confusional Insanity       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |

Transfers to other Groups were as follows:

Remaining.
TABLE 3.—FOR PERMANENT TABULATION OF RESULTS OF TREATMENT IN (ASSUMED) CURABLE CONDITIONS.

Recommended by Committee on Statistical Tables, American Medico-Psychological Association, 1896.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
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<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>Percentage of Recoveries on Whole Number of Cases Admitted</th>
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<td>Melancholia, Simple...</td>
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<td>Melancholia, Stuporous...</td>
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<tr>
<td>Melancholia with Frenzy.</td>
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<td>Hystero-Melancholia.</td>
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<td>Hypochondriacal Melancholia.</td>
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<tr>
<td>Dementia after Melancholia.</td>
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<tr>
<td>Mania, Acute.</td>
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<td>Mania, Acute Exhaustive.</td>
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<td>Hystero-Mania.</td>
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<td>Dementia after Mania.</td>
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<tr>
<td>Acute Confusional Insanity.</td>
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</table>
TABLE 4.—MOVEMENT OF POPULATION, INCURABLE (ASSUMED) CONDITIONS.

Recommended by Committee on Statistical Tables, American Medico-Psychological Association, 1896.

<table>
<thead>
<tr>
<th></th>
<th>Present at Beginning of Year</th>
<th>Admitted During Year</th>
<th>Transferred from Other Groups</th>
<th>Whole Number Under Treatment</th>
<th>Transferred to Other Groups</th>
<th>Discharged and Died</th>
<th>Transfers to Other Groups were as follows:</th>
</tr>
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<tbody>
<tr>
<td>Mania, Chronic</td>
<td></td>
<td></td>
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<tr>
<td>Dementia, Chronic</td>
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<tr>
<td>Dementia, Monomania</td>
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<tr>
<td>Dementia with Paralysis</td>
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<td>Paranoia</td>
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<tr>
<td>Epileptic Dementia</td>
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<td>Hystero-Epilepsy</td>
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<td>Imbecility</td>
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<table>
<thead>
<tr>
<th></th>
<th>To Mania Acute</th>
<th>To Mania Exhaustive</th>
<th>To Hysteria</th>
<th>To Melancholia Simple</th>
<th>To Melancholia Simple with Frenzy</th>
<th>Bio., Etc.</th>
<th>To Toxic Conditions</th>
<th>Not Insane</th>
<th>Remaining</th>
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<tr>
<td>Men.</td>
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<td>Women.</td>
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<td>Total.</td>
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TABLE 5.—For Records of Admissions and Discharges.
Recommended by Committee on Statistical Tables, American Medico-Psychological Association, 1896.

<table>
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<tr>
<th>Insane Conditions</th>
<th>Admitted for Year</th>
<th>Discharged During Year</th>
<th>Discharged from Beginning of Record</th>
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<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>Total</td>
</tr>
<tr>
<td>First Admission</td>
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<tr>
<td>Second Admission</td>
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<tr>
<td>Third Admission</td>
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<tr>
<td>Fourth, or more, Admission</td>
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<tr>
<td>Total</td>
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</table>

| Toxic Conditions  |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |
| Alcohol Habit     |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |
| Opium Habit       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |
| Cocaine Habit     |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |
| Chloral Habit     |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |
| Total             |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |     |       |       |
TABLE 6.—FOR PERMANENT RECORD OF TOXIC CONDITIONS TO SEPARATE THESE FROM TABULATIONS OF INSANE CASES PROPER.

Recommended by Committee on Statistical Tables, American Medico-Psychological Association, 1896.

<table>
<thead>
<tr>
<th>Alcohol Habit</th>
<th>Opium Habit</th>
<th>Cocaine Habit</th>
<th>Chloral Habit</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Present at Beginning of Period</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
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<td>Admitted.</td>
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<tr>
<td>Transferred from Other Groups.</td>
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<thead>
<tr>
<th>Transferred to Other Groups.</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
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<td>Paranoia.</td>
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<td>Dementia.</td>
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<td>Chronic.</td>
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<td>Etc.</td>
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<td>Etc.</td>
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| Discharged.                  |     |       |       |     |       |       |     |       |       |
| Percentage Recovered.        |     |       |       |     |       |       |     |       |       |
| Percentage of Deaths.        |     |       |       |     |       |       |     |       |       |
| Remaining.                   |     |       |       |     |       |       |     |       |       |
TABLE 7.—MORTALITY TABLE FOR ONE YEAR'S REPORT.
Recommended by Committee on Statistical Tables, American Medico-
Psychological Association, 1896.

<table>
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<tr>
<th></th>
<th>Age in Years at Death</th>
<th>Age at First Attack</th>
<th>Number of Admissions</th>
<th>Age at Last Admission</th>
<th>Duration Last Attack</th>
<th>Duration of Life After First Attack</th>
<th>Nativity</th>
<th>Form of Disease</th>
<th>Cause of Death</th>
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<tbody>
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<td>Man</td>
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TABLE 7a.—FOR STATISTICS OF MORTALITY AMONG THE INSANE.
Recommended by Committee on Statistical Tables, American Medico-
Psychological Association, 1896.

<table>
<thead>
<tr>
<th>Whole Number Admitted</th>
<th>Whole Number Died</th>
<th>Averages</th>
<th>Men</th>
<th>Women</th>
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<tr>
<td>Men</td>
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Average Age at First Attack
Average Age at First Admission
Average Number of Admissions
Average Age at Last Admission
Average Duration Last Attack
Average Duration of Life after First Attack
Percentage of Deaths on Whole Number Admitted
TABLE 8.—Mortality Table for Toxic Conditions.

One Year's Record.

Recommended by Committee on Statistical Tables, American Medico-
Psychological Association, 1896.

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HENRY M. HURD,
Secretary and Treasurer.

BALTIMORE, May 22, 1896.
PRESIDENTIAL ADDRESS.

OUR ASSOCIATION AND OUR ASSOCIATES.

SOME RELATIONS AFFECTING MEDICAL OFFICERS OF HOSPITALS FOR THE INSANE.

BY RICHARD DEWEY, M. D., CHICAGO.

We hear of persons who suffer from their misfortunes rather than their faults, and others there are who profit by their good fortune rather than their merit. It seems to me as I address you to-day that I belong to the latter class; nevertheless I am here to speak to and for our Association as best I may, and I can, perhaps, serve the present purpose by directing attention to some of the relationships we sustain, which seem worthy of review in the light of the newer day into which we are advancing from a dawn which, though a "twilight of the gods" and full of a splendor of its own, was still a twilight and not a full day.

Whether it be true or not that "fair science frowned not on our humble birth," it is certain that science smiles upon us to-day, a beckoning and an inviting smile, not one of approbation; and we for our part have now to consider—and have most earnestly to consider—how we may approve ourselves in the light of science in the days and years immediately before us, in order that the invitation, the favor and the promise which science holds out to us, may be well and wisely met. I would not be understood as undervaluing the past. No matter what brilliant exploits the future in our specialty may have in store, nothing can eclipse or obscure the achievements of the worthies who led the way, whom we revere and to whom the homage of science and philanthropy alike is due. Indeed the dreariness and dimness of the past only serve to enhance the glory of the stars that forever shine in our especial firmament.

But the fact remains that the past has had its dreary and dismal elements. We have suffered from cold and hunger in an intellectual and spiritual sense, and the position of the medical man in charge of the average insane asylum has been, to say the least, unattractive. It has been a position of isolation, of hardship, and
of little respect, of hard work and poor pay. Nevertheless, noble and able men have always been found in this position, and through their labors and example a better day has been brought about. Our Association has changed in twenty-five years and a remarkable evolution has occurred due to two causes—the devotion and the genius of our fathers and the general advances in the medical sciences. Exact science could never be applied to the material of our study until all the lower and supplementary branches had undergone their highest development. Griesinger somewhere remarks in substance that "if a higher intelligence were to appear and offer an explanation of the genesis of insanity we could not grasp it," but the spirit of the last twenty-five years has been more that of a mathematician to whom I once quoted this remark of Griesinger's. He replied, "I might not understand it, but I would try mighty hard to do so." We have the field of labor of all others most difficult to bring under the domain of experimental and inductive study. In one sense, all the other medical sciences are but handmaids to ours, yet ours was dependent upon these and has in the past been like Cinderella in the fable. Loftily her sisters have passed her by or delivered to her lectures de haut en bas, but in the day that is to come we may confidently expect to occupy a prouder position and win the homage of those who once scoffed at our low estate.

If we ask the reason for the opprobrium attending insanity, it is to my mind all explained by one fact, namely, the impossibility that has existed from the first until a very recent day, of forming any rational conception of a material substratum or reason for diseases affecting the operation of the mind. An explanation for these diseases was necessary; the human mind will have its reasons as a child will have toys, be the same good or bad, and the only reason in the last resort that could be given for insanity was that it originated with the devil. Hence all the disgrace, the opprobrium, the shame, the abuse, the ignorance which have clung to the insane and the ideas of insanity.

You will perhaps say that the violent and dangerous acts and the repellant ways and conditions of the insane are a cause of this general repugnance—and yet I apprehend that if these things were traced by the public only to natural causes, as to-day you and I are able to trace them, and if the demoniac idea were omitted from the calculation, the horror of these things would be removed. There is nothing in the violent and dangerous acts of the insane
not fully paralleled by the acts of the sane or by the evil conditions found in other diseases which render the patient delirious or incapable of self-care. But delirium of fever, the filthy and unpleasant conditions which many diseases produce; even suicide and homicide, when affecting sane persons, are contemplated with a different feeling, simply because the thought of insanity conveys an idea of something mysterious and horrifying.

The value of this Association of ours to ourselves and to the community is, and will be, just in proportion to the extent to which we understand ourselves, and are in earnest in making our work count for the advancement of our branch of medical science and for the benefit of those of our fellow beings whose welfare is placed in our hands in a sense and to an extent that is not true of the ordinary relation between physician and patient. It is related of one of your famous Massachusetts jurists that when opposing counsel once reviled him in court and informed him that he was considered a rascal by his neighbors, he replied, "Is that so? I'll inquire." If we make inquiry as to our standing in the community we are impressed with the fact that we are most differently and variously regarded by those round about us. To the general public we are holders of an office and there the matter ends. To these, all office-holders are alike or differ only in degree. But to those who think further, we are holders of an office little to be desired. Mad people and those who care for them are regarded only from an immeasurable distance by the general mind. Perhaps the commonest remark we hear from those whom chance or business throws in our way is, "Well, doctor, I don't envy you your place." The governor of Ohio once said to me, "I would not be in your place, doctor, for a million." One of our members once innocently remarked to a lady that he thought the calling of a dentist disagreeable, but the lady replied, "Why, doctor, that is exactly what I should say with respect to your calling." Another of our members was told by Hagenbach, the animal trainer, that he would rather be in the cage with his pets than in the position occupied by the doctor. Such remarks are something more than amusing to us, but they help us to see ourselves as the masses see us.

A simple computation will serve to show how little our work touches the every-day life of the community. There are, perhaps, three insane persons in each one thousand of the general population. These three have, to be sure, a certain interest in us, wittingly or
unwittingly; and each of these three, we will say, has five who take some personal interest in him or her (a liberal estimate); now add two per thousand for our associates in the same work and a few generous, philanthropic souls who are neighbors to us in the scriptural sense, and this gives in each thousand of our fellow citizens twenty who have a personal interest in or knowledge of us—all told, we may say, all but one in fifty of our fellow men in the locality where we live "pass by on the other side."

There are others whose life is narrow from their isolated position, but there is scarcely any other work that is so sharply sundered from common every-day interest as the work in which you and I are engaged, though it has for all mankind a fascination and a fear. It is looked at askance, with suspicion, and, above all, ignorance. How often have we met wise men only to find them as little enlightened concerning insanity and the insane as the most ignorant. Sympathy and insight are the rarest things to meet, repugnance and doubt are commoner. This is the outgrowth of age-long prejudice and ignorance; of the relics of the old idea that madness is of demoniac origin, that it is a disgrace to be insane, also of the mystery and gloom that have too much surrounded the insane asylum. Further, the idea is, rightly or wrongly, common that the insane are, in general, badly and brutally treated, and that the persons in charge of these abodes are mostly willing, "for a consideration," to enter into and perform a compact to take any innocent and unfortunate wight whose liberty is inconvenient, or whose possessions would be convenient, to some bad man and obligingly detain him behind bolts and bars while the plunder is divided or while he goes hopelessly mad, so that he will never be heard from again. There is no discrimination in the general mind between well or ill-managed institutions—unfortunately some badly managed ones exist to-day, notwithstanding all the progress that has been made—but the best are quite commonly supposed to be no better than the worst. Then the ideas of diabolical conspiracies that had some foundation in fact, possibly, fifty years ago, in other countries, and have been made the subject of thrilling romance, are held still true in our country to-day, and all this misapprehension is kept alive by the lively paragraphs almost daily seen in the press. Whether it be for good or ill, the press does undoubtedly foster false beliefs hurtful to the work of caring for the insane, and will doubtless continue to do so until the masses are too well-informed to
heed and read the lively accounts of sane people "incarcerated in mad houses," and stories of inhumanity colored beyond recognition. When these will no longer "sell the paper," then, and only then, will they be dropped. At the same time we cheerfully recognize the fact that our institutions must be elevated to a point in public estimation where the press can neither help nor hurt, make nor mar them. The common conception of insanity is as if the insane were a new and strange order of beings, like the inhabitants of another planet, and we as their care-takers are believed to dwell upon the borders of an outlying country impenetrably mysterious, whose inhabitants are more curious in their manners and customs than the denizens of the antipodes, and whose traits are perhaps supposed to show a certain reflex in ourselves.

Thus it comes about that the superintendent of an asylum is constantly misunderstood. If he is frank in admitting a fault, his frankness, instead of being taken as intended, is interpreted as a confession of so much of his guilt as he is obliged to confess and cannot conceal. Who of us has not burned with the sense of wrong inspired by the attitude of this uninformed and yet opinionated public. If what I have said be not true, let it be disproved, but if it be true it helps to show why our way has been straight and narrow, and why we are much fenced away from our fellow men, and it is well for us to fully face the fact that we have dwelt much apart from them, whether we be "stars" or "glow-worms."

In our blind enthusiasm many of us go on with our work for years; we think it important; we are absorbed and happy in it; we wonder the while at our little recognition and our isolation, never thinking we and our people are subjects only of mild curiosity to the masses of our fellows. This separation from the ordinary, every-day life of our fellow men is an evil. It were far better for us to enter more into the life of the community in which we live, and despite the fact that our duties are uncommonly exacting and engrossing, it seems to me we ought to do so. It is for us to change this atmosphere of doubt, ignorance, and suspicion to one of confidence, respect and intelligence, and, to my mind, this is our greatest task, next to our professional duties, and indeed is part and parcel of them.

By mingling more with our neighbors we not only share with them in the matters of education, religion, politics, and what not, which are universally important and interesting, but they gain a view of
us, new to them, wherein we and our work appear in a more natural guise. Above all ought we to mingle more with our fellow practitioners of medicine, as indeed every day shows more plainly that we are doing. And the increasing number of our members receiving calls to chairs of psychiatry or neurology in the medical schools of the United States and Canada is another fact that augers well for the future position of our specialty in the profession. It is evident that a man who can be Sunday school superintendent as well as hospital superintendent, who attends the "primaries" as well as the medico-psychological meetings, will have a more rounded and symmetrical existence than he who is an "alienist" and nothing else; and such activity may be made a help rather than a hindrance, as we so often see in the lives of those who accomplish most professionally.

I have spoken of the general light in which we appear, and now come to consider how we stand with those to whom we are brought nearer, our official associates, our patients' friends, our fellow practitioners and especially our neurological confrères.

OFFICIAL ASSOCIATES.

In our boards of managers or trustees we generally have an association that is of high value to us in our work. The high-minded, able, practical, enlightened and benevolent men who as a rule are selected for trustees or managers give to the insane appreciative service, and give it as a labor of love. Their services may not be perfect, but it is, in my opinion, vain to hope for better results than they have given us. I do not speak here of the exceptional cantankerous or corrupt trustee; we have all seen specimens of this species, but it is fortunately so rare that it does not call for special notice. If there has been a fault with boards, it has been over-geniality, but in these days of civil service reform and sharp criticism, such a fault is undergoing correction. It is best remedied by stimulating supervision and criticism from a general board of lunacy or charity; also serving as a "labor of love" and not for a salary. I desire to speak here for the principle of local self-government in lunacy administration—a system wherein local officers are held to strict accountability by a central supervising board possessing fullest authority to review and report their acts, while the local officers retain the right of independent and initiative action. We believe (if I understand the views of
this Association) that we and our trustees can better know and better meet the needs of our patients than some central bureau with the bureaucratic and autocratic methods inseparable from arms-length administration. With an advisory and supervisory board of lunacy or charity which usurps none of our proper powers, but holds us strictly accountable for the exercise of our own, we can sustain a self-respecting and independent relation, honorable and useful alike to both, with no belittling jealousies or conflicts, and no self-absorbing and paralyzing ambition.

ASSISTANT PHYSICIANS.

A word here upon the importance of mutually helpful relations toward our medical assistants. There has been, in the past, perhaps, too little of participation on the part of the superintendent in the purely medical work of the hospital, and the medical assistant has had too little aid and direction from his chief in the duties of the day. The superintendent has given too much time to details of executive matters. There will never be the highest results in medical administration until the superintendent and assistants are each in close touch, one with the other, in the medical work, and this can only be attained by the more complete relegation of all business details to subordinate officers; and such can be easily secured who, under able supervision and discipline, are capable of attending to the routine duties of department administration better than the superintendent himself.

A permanent and honorable career as medical assistant should be open to those who engage in this position, and everything possible should be done to make it attractive. Provision should be made for a certain proportion of married assistants in every large hospital, but they should have their own house. There is also a place for one or more women assistants in every large hospital, a fact that is increasingly recognized.

The association of assistant physicians and their union in a general or several local societies is an object which we should do well to promote. I do not think it is to be feared that outside medical activity of a strictly scientific kind can have any but a beneficial effect in a reflex way upon the hospital.

LEGISLATIVE ASSOCIATIONS.

Regarding relations to the law-making and appropriating power, every superintendent of a State institution has his duties. The
only thing I desire to mention in this connection is the importance of laboring in and out of season with legislatures, individually and collectively, to secure recognition for medical science in the financial provisions made for each institution. The ordinary needs of the insane—even those for recreations, for books and pictures—are now pretty generally recognized, and to some extent provision is made for laboratory and pathological work, but so far only a feeble beginning has been made, and the one provision at this time of greatest importance for the advancement of psychiatry is the better equipment of institutions for clinical study with instruments of precision, for pathological and bacteriological work, and for psychological research. The importance of work of this kind it is difficult to make clear to the average member of a legislative body, and much unremitting work is necessary in this direction. Another object for which systematic effort should be made is the securing of recognition for the training schools by the appropriation of sums of money for apparatus and material for teaching, and to admit of a permanent superintendent, such as all training schools employ in the general hospitals.

NURSES AND ATTENDANTS.

Regarding our relation to those in the subordinate service of the institution, I only wish to speak of one question, that is the question of raising the standard of qualifications for those employed as nurses and attendants. The task of training these for their work is one which can not be performed with too much care and thoroughness, and I have long thought that progress was halting until, by engaging more intelligent and better educated men and women, we can obtain higher skill and talent. The fact that most impressed me in my own training-school days in a large State institution was that I had a great number of men and women who were entirely unable to think abstractly, many of whom, in fact, had never mastered thoroughly the "three r's," to say nothing of anatomical, physiological and psychological problems, and I found, furthermore, that an effort to secure any large number of men and women sufficiently educated to take up these problems was not successful. Educated men and women do not, as a rule, seek these positions or feel attracted to this work, and when they enter it are not inclined to remain in it very long.

What, it seems to me, is most needed is to make the work
attractive for better qualified persons. To do this, better pay, shorter hours, better quarters, larger increase of comfort and convenience, more permanency, are needed, and the elevation of the position to more respect and importance. This latter tends to be accomplished by the very training and schooling. The establishment of the merit system, and a civil service examination for all who wish to enter the service, as has already been done in some States, will be of great value.

Of others who come in near relation to us there are the patients’ friends.

PATIENTS’ FRIENDS.

What is there to say of these except that they require our utmost patience and gentleness? They are often exacting, but we would be the same in their places. To those who give us their confidence we are duly thankful. The tendency of human nature to a good opinion of self and distrust of all others we have ever to take for granted. It is shown often in an amusing way by the fondness of the patients’ friends for relating their experience and presenting their theory of the “case.” The principal thing some of them seem to desire of the doctor is that he shall listen to their exposition of the “case.” They feel they have acquired a profound knowledge of mental states by the observation of one, and care more to give you their views oftentimes than to hear an expression of your own.

NEUROLOGICAL ASSOCIATES.

Our specialty and that of the neurologists touch at the edges, and these edges, like the borders of most naturally demarcated territories, are ragged and rugged, and many a bewildered mortal has gone astray in them. A predatory disposition has been shown at times and “border wars” have not been unknown. Some neurologists have shown a disposition to annex the neighboring “land of promise,” but eventually there will be a “united kingdom” under the domain of science.

Our neurological associates judge us (and can but judge us) from the medical standpoint, pure and simple. They thus see but a part of our life and work, for we have economic, administrative and humanitarian duties that they know not of. In regard to these latter we have listened to much advice, but we fail to find a way to do our full duty without giving much time to affairs
other than medicine. Looking at the neurologist from the standpoint of psychiatry we gain, likewise doubtless, a partial view. But we have only admiration for their facile command of all that is new and much that is good in theory and practice, though we find them somewhat unpractical in the care of the insane. In their own field of activity they derive enormous advantage from the daily, living contact with the medical life of the great centers, living, as they do, only in the larger cities, while we suffer corresponding loss from our isolated and mostly rural situations. Their whole energies are concentrated in a narrower channel than ours, and hence produce more marked and immediate results. Their positions are independent; ours are complicated by official obligation, and in many cases suffer from the inevitable evils of officialism.

It is not possible to contemplate our relations with our neurologica confrères without calling to mind the criticisms directed toward our Association by one of the most highly-placed and highly-honored of their number, in an address to which we listened in Philadelphia in 1894. That address was intended to hold up a mirror wherein we might see our true lineaments. Its glittering surface, however, reflected an image which we do not believe candor and truth would recognize as wholly faithful. In this we may be mistaken, but we think the knowledge shown of our work was incomplete. Dr. Mitchell had certainly never "put himself in our place." If he was not prejudiced yet preconceived ideas were apparent in some of his utterances. In informing himself for his task, he appears to have consulted his fellow neurologists and he presents an array of letters, some of which are more just than his own strictures. Is it too much to claim that there are men in our own ranks whom he might have consulted with profit? His "aloofness" was as great as would be that of a naval commodore who should assail the army for not winning victories upon the high seas. Something more of insight, something less of asperity will be needed by him who is to address us with entire advantage.

Some of the listeners to this eloquent but not persuasive address felt wonder, some sorrow, some resentment. There were also some who were even large of heart enough to receive such good counsel as was given into honest hearts, if not to cry "Lord be merciful to me a sinner!" Nevertheless, we have neither the right nor the disposition to complain, because Dr. Mitchell only consented to speak after we had accorded him the fullest latitude and longitude of expression.
It has been believed that Dr. Mitchell's arraignment had done much injustice, and it is possible that the use of it made by the press may have increased already existing prejudice, but the people who know of Dr. Weir Mitchell and his criticism are mostly capable of judging for themselves, while the great public little knows and little cares for learned doctors' sayings.

I do not mean to be understood that there was not much of wholesome truth in Dr. Mitchell's address, but the manner of its deliverance was such as to defeat its object, if its object were to win from error and show a "more excellent way."

COMMITMENT OF THE INSANE.

Regarding the subject of commitment of the insane to hospitals and asylums, I desire to speak briefly, as this is a matter affecting our relation to the courts of law and our standing in the community.

Insanity is a disease with the two unhappy and unique peculiarities of generally requiring treatment away from home and interference with personal liberty—either for better hope of recovery or for safety—and these facts lead to complications and embarrassments for all concerned.

The one question I wish to raise in this connection is as to the truth of claims that sane persons are, with wrong motives and by the use of fraud and conspiracy, committed to and confined in institutions for the insane. I can, perhaps, say nothing that is new on this subject to the members of this Association, but I am seeking to reach beyond our immediate membership in these remarks. The belief that sane persons are confined with the insane one may suppose is rather commonly entertained, judging from expressions frequently heard, from paragraphs in the press, and from the portrayals of novelist and play-wright. This belief is kept alive by the cases occasionally occurring, in which persons who have been in institutions for the insane and are released by the hospital authorities, or sometimes by the courts, set up the claim, and often maintain it most plausibly, that they were never insane. Such persons meet with and deserve the greatest kindness and sympathy. It is natural that they should make such a claim and there are rare cases in which it is true. Mistakes are made and sane persons are sometimes sent, even by "juries of their peers," to the hospitals. Sometimes, furthermore, persons undoubtedly insane
are sent to the asylum whose condition did not really require commitment. The difficulty with the public understanding of these cases is that it is impossible to discriminate, and if a commitment has been or seems unjust they blindly fix all the odium upon the institution. There are many cases in which, when commitments were made by courts and were wholly right and proper, they may appear at a later time to be wrong to the uninformed, through misapprehension or misrepresentation. Some considerations which would enable the people to judge more intelligently may be here adduced. We of this Association know that many ill-balanced, highly nervous persons often become "raving distracted" and wholly unable to control themselves under some especial strain or shock, and are committed to the hospitals, but after a short period of care and rest often regain self-control and temporarily, or even permanently, thereafter evince a propriety of conduct which never would have been attained except as a result of their commitment and care in the hospital—and here one is reminded of a popular error, which is, that if a person is sane to begin with, commitment to an insane hospital or "incarceration in a mad-house," as it is generally styled, would soon develop "raving madness." Now, the truth is that any person when first admitted to any respectable hospital, who shows even superficial rationality, has all surroundings and privileges regulated accordingly, and so far from being driven to madness, would have rest and quiet and comfort such as few could command in their own homes. So far from such cases being "driven to madness," the truly mad often become speedily sane under such circumstances.

Again we know that alcoholic and other toxic conditions and various acute crises in life, as well as various acute bodily diseases, produce delirium or other mental states that lead to commitment, with regard to the propriety of which opinions may honestly differ.

We know that there is an ignoble army of cranks, many of whom, under the tonic effects of confinement in a well-regulated lunatic hospital, are shortly enabled to pose as belonging to the "noble army of martyrs," and the public will give them tender sympathy so long as they commit no violent act. These are the very ones who are often subject to homicidal tendencies, and when these appear the public sympathy turns to thirst for blood. We of this Association think we have a wiser view of these cases in keeping them safe, but they are often released by courts in habeas corpus
proceedings, and then our public cheerfully remark: "Did I not tell you so? Here is another case of a sane man locked up in an insane asylum." Another source of public misapprehension is the fact that press reporters, men and women, have at different times successfully planned to be committed as insane, and from the fact that this has been done, the people argue the easy commitment of other sane persons, not seeing the fallacy involved in the inference that because a sane reporter, trying with all his might to pass muster as insane, can succeed in accomplishing this feat, therefore any and all other persons not wishing to be considered insane nor to enter an asylum are pro tanto liable to be pounced upon and incarcerated. We know that the examiners and custodians of the insane were imposed upon simply because they had no reason to suppose any of their inmates were making so remarkable a "sneak," if I may indulge in slang, as to steal the garb of lunacy to clothe a scheming mind.

The opprobrium of various evils for which we are in no wise responsible thus comes upon us. Some blame lies somewhere in some of these cases, and in others there is nothing wrong; but whether there is real wrong or no, all the odium all the time is apt to light on us. Some head must be hit, and ours is the only one fully visible, so it receives the blow. Public reproof like death "loves a shining mark," and our devoted heads metaphorically (and sometimes literally) are such a "shining mark!" But the question with which we and the public are most concerned is whether corrupt or fraudulent commitments and detentions occur for which we, the members of this Association, or any of us, are responsible. I have made an earnest effort to get facts of this nature if such there were, and will read extracts from the letters which I have received.

My information comes from men whose word is authoritative, who are thoroughly familiar with this subject and who are mostly connected with lunacy administration, as commissioners or members of supervising boards in their respective States, and who should be the ones to know of and correct these evils if they exist.

From Pennsylvania, Mr. Philip C. Garret, long identified with all that is good in public benevolence in his State, writes: "I do not know personally of a single instance of fraudulent commitment or malicious or intentionel illegality in commitment."

From Massachusetts, Mr. Frank Sanborn, thoroughly versed in all
that pertains to this matter, writes: "No commitments technically fraudulent have been so declared in Massachusetts by any court, so far as I know, since our commitment law took effect seventeen years ago. Nor have damages been recovered I think, in any case of false imprisonment of the insane for thirty years." He mentions two cases of persons who, though admittedly insane, were released by courts as capable of care outside of an asylum.

Concerning Illinois, Dr. Wines, for a long period of years Secretary of the State Board of Charities, writes: "I am most happy not to be able to give you any information. I have not known of an illegal or fraudulent commitment to a hospital for the insane in my twenty-four years as Secretary."

From New York, the State Commissioner in Lunacy, Dr. Carlos F. MacDonald, writes: "Speaking from personal observation and experience, covering a period of twenty-five years, I have yet to find a case of whose insanity I had any reasonable doubt, except in certain convalescent patients who were about ready to be discharged from the institutions as recovered. * * * I have not as yet found an authenticated instance of a sane person being certified as insane and incarcerated in an asylum through fraudulent intent, corrupt collusion or conspiracy on the part of physicians. We are all aware that mistakes in diagnosis occur, but these cases are quickly detected in the hospitals and their release promptly provided for. Moreover, in every case coming within my personal knowledge where a court or jury has discharged a person brought before it on a writ as not insane, the subsequent history of the case has shown that the patient was insane, and in a majority of cases they have been speedily recommitted, it having become necessary to again place them under control. In fact this has been the history of substantially every habeas corpus case that has occurred in this State."

From Ohio, Gen. Roeliff Brinkerhoff of the State Board of Charities, writes: "I have been for eighteen years upon the State Board of Charities. I have never known of a single instance of illegal or fraudulent commitment to an institution for the care of the insane in the State of Ohio.

From Minnesota, Rev. H. H. Hart, Secretary of the Minnesota State Board of Charities for many years, after speaking of the cases of two persons admittedly insane, in whose commitment there was, or was claimed to be, technical error, states: "We have had two or three cases of patients discharged by the superintendents on
the ground that they were not insane.” These are the only cases of illegal commitment known in Minnesota to its State Board.

We find evidence in the above, and other cases, that the officers of asylums refuse to retain cases if found not insane.

Such statements as the above might be indefinitely multiplied, but for the time it would consume to present them.

Now on the subject of probable or possible conspiracy to incarcerate a sane person, a few words. The assertion is occasionally made that two doctors can “railroad” any man into an asylum upon the instigation of one or more wicked men.

Let us examine this statement and what it involves—beside the “villain of the piece,” there must be two doctors who are legally qualified practitioners and who are also villains. There must be concealment from or connivance with all the persons who daily come in contact with the victim. Then, at the institution after the patient is “landed,” there must again be connivance and concealment by doctors, nurses and all others who have any knowledge of the individual. It will be seen that a combination is required, so complicated as to be hazardous in the extreme.

Upon this point the language of Lord Shaftesbury may be quoted. The Earl of Shaftesbury was for fifty years chairman of the English Commission of Lunacy, and he stated before a committee of parliament in 1887, as follows: “I believe conspiracies in ninety-nine cases out of one hundred to be altogether impossible. The number of (medical) certificates (of insanity) that have passed through our office since 1859 is more than 185,000. Out of all these I do not think so many as one-half dozen have been found defective. I am quite certain that out of the 185,000 there was not one who was not shut up upon good *prima facie* evidence that he ought to be under care and treatment.”

Now I wish to advert to a cause of the wide-spread suspicion often attaching to these cases:—which is, that all the people connected with them are apt to act precisely as if they *had* done something wrong. Owing to the fact that insanity is considered a disgrace or that the knowledge that a person has been insane hurts his business reputation, it comes about that when an individual unfortunately becomes insane there is a natural desire on the part of all the friends to conceal the matter. Access to the patient is prevented, the friends will claim there is nothing wrong, yet no one sees the patient; the family doctor is equally reticent. If the patient goes
to an asylum, it is given out that he is "in Europe," or in "the mountains," or a mysterious silence is maintained. All these circumstances feed suspicion, and if in addition the patient has wealth or there is a family disagreement, the materials are all at hand for a fine sensation, and they are duly combined by inventive minds in the spiciest manner possible. Meantime the hearts of the afflicted friends are silently bleeding with a grief bitter enough without this added blight of suspicion, and at the same time a widespread error is being more deeply graven on the public mind.

But it will be said Lord Shaftesbury admits that one case of fraud in one hundred is possible, and this brings us to another source of mistaken opinion. It is not claimed that villainy or attempts at villainy are impossible, the only contention is that if there are wrong or unjust commitments the authorities of the institutions are not responsible for them; indeed the records show that they are from time to time releasing persons sent to them who are found to be not insane.

The attempt to form and carry out a conspiracy such as we are considering would involve so many risks and contingencies that the most bold and hardened evil-doer would shrink from it, or, if he persevered, bring the merited punishment of the law upon his head; and at this point another question naturally presents itself: If it has occurred frequently that sane persons have been committed to asylums as insane, surely some of those who regain their liberty would seek and obtain redress at law. Of the many cases first and last released on habeas corpus, some would recover damages for false imprisonment. I have earnestly sought for cases of this kind, asking all the gentlemen whose statements I have given and many others in various States, if they knew of such cases personally, or could refer me to others who did. I also made the same inquiry of Mr. Alfred Bach of New York, the counsel for the "Society for the Relief of Persons Improperly Committed." Mr. Bach gave me a list of seven cases of commitment which he considered to have been made "without just cause," but furnished no facts as to suits for false imprisonment, or their results. Mr. Bach gives a case of a woman who was certified insane by a physician who did not see her; but adds that she was released by the authorities of the asylum as not a proper person to be there. There is in Mr. Bach's statement nothing to show wrong or malicious action on the part of officers of insane hospitals.
He cites the case of Miss Anna Dickinson as one of his seven cases committed without just cause. Regarding this unfortunate case litigation is still pending, but the facts leave room for an honest difference of opinion as to the alleged insanity. One suit for damages has been carried through to a disagreement of the jury and a new trial is pending. In the case of another well-known woman who has recently started at Chicago upon a lecturing crusade against hospitals for insane, it is to be borne in mind that a jury heard her case and pronounced her insane before her commitment.

Still another able but erratic woman whose case is worth recalling, is Mrs. Elizabeth Packard. Her case was one in which the evidence of insanity before and for sometime after her commitment was convincing, but it may be that her detention continued after she was well enough to have been released. Be this as it may. She had remarkable brilliancy and power after her release in agitating for legislative changes, and the jury-law for trial of the insane in Illinois, and the postal law in several States were due largely to her efforts. These laws have now all been repealed the last to go being the jury-law in Illinois. This law was in force for about twenty-four years in Illinois, and an investigation which I made in 1893 showed that 29 cases had occurred of sane persons being found insane by juries, and 12 instances where insane persons were brought in as sane and subsequently required a second trial in which they were found insane. These were such cases as I obtained personal knowledge of, but there were many more.

But to return to the question of suits for damage for false imprisonment. The following are the only cases concerning which I could gain information. First, About about fifty years ago, I learn from Dr. Robert H. Chase, superintendent of the Friends' Asylum at Frankford, Pa., that a man who had been confined in that institution recovered damages in quite a large sum from the superintendent and trustees. The particulars Dr. Chase could not give me. Some of those who knew personally of the case, allege the patient was undoubtedly insane, but popular clamor was instrumental in producing the verdict. Second, There was a case in Michigan about fifteen years ago in which a verdict for damages was rendered by a jury* against the superintendent of the Eastern Michigan Asylum. The case went to the Supreme Court which ordered a new trial.

There was a technical defect in the commitment papers, but on the second trial the judge took the case from the jury on the ground that no evidence existed to show anything but *bona fides* in the conduct of the superintendent.

Finally, I learn of one case from Dr. Ralph L. Parsons of Greenmount-on-the-Hudson which he describes as follows: "One case in which damages were recovered on the ground of illegal commitment has come within my knowledge, the committed person being really not insane. But the doctor who was mulcted in the sum of $500 was honest in his opinion which was really a charitable view of the outrageous conduct of the person committed. These are the only cases of damages being awarded of which I have been able to learn."

Physicians are apt to maintain that insanity is simply a disease, and they alone should pronounce as to its existence; on the other hand lawyers in all cases where personal liberty is in question think the court should intervene. This difference of views leads to conflict. Views come in collision and will continue to collide until all the error is destroyed that can be destroyed on both sides; but no matter how perfect our forms of commitment there will always be cases of difficulty and differences of opinion, at least this side of the millennium.

**THE PROPER LEGAL SAFEGUARDS.**

The principles, the necessity of which would seem to have been established by experience are: *First*, A medical certificate by two physicians competent under provisions prescribed by law. *Second*, The approval of the medical certificate by a judge of a court of record, and his examination or hearing of the patient, unless he deems it unnecessary, and so states. *Third*, Notice to the alleged insane person of the intended proceedings if considered necessary by the court. *Fourth*, A jury trial if called for by the patient or some responsible person, or deemed necessary by the court. *Fifth*, The filing with a state board of lunacy or charity of copies of the papers in each case within a brief period of the arrival of the patient. *Sixth*, Under certain restrictions patients may be allowed to voluntarily enter the asylum.

The most contrary requirements present themselves in lunacy cases. Insanity is a thing concealed from the world as much as possible.
It seriously compromises the whole future of the patient to have it known he is or has been insane. Hence the effort in the patient's own interest to hide it. On the other hand to legalize secret commitments would lead to serious abuse. How can a law work with perfect satisfaction in the face of these opposite requirements? The only course open is to give the largest discretion to the courts. It would save misapprehension, however, if the people were more fully informed as to the working of the law and the difficulties encountered, and a statement of this kind I have here sought to make, imperfect as it is.

Real or alleged wrongs may occur in some of the following ways: A person who is sane may be committed to the asylum by error or fraud; but experience shows that any deliberate or intentional fraudulent attempt of the kind is so rare that it can only be placed in the category of other fraudulent or criminal violations of law. There is no systematic or prevalent attempt to practice wrong in this way. Practically all wrongful commitments are the result of ignorance rather than of malice, whether done by juries or physicians' certificates. Persons who are actually insane are sometimes committed when they could have been provided for otherwise, and there are some cases in which there is a difference of opinion as to whether the patient has recovered; many of these furnish the habeas corpus proceedings, and many persons are released by courts by habeas corpus who have not recovered, and whom it is found necessary to commit again. Persons not strictly insane, but victims of morphine, alcohol, etc., or of delirium from toxic conditions, are occasionally committed as insane, but speedily recover and are perhaps not at any time insane, in the full meaning of the word.

THE INSANITY PLEA IN CRIMINAL CASES.

In connection with our legal relations another subject is worthy of mention. I refer to the disposition to be made of cases in which crimes are committed by persons mentally defective.

An earnest word should be spoken on our attitude toward crime and insanity, especially as regards the so-called "homicidal crank." It is believed by members of this Association and by others who have the fullest means of study of insanity as related to crime and criminals, that the perpetrators of homicidal acts or attempts like those of Guiteau, Frendergast and scores of others more obscure,
differ so wholly from the sane murderer that their treatment should be different. This position is at present unpopular. The general public sentiment seems to favor precisely the same penalty for the paranoiac, or what is called the "monomaniac" or the "crank," as for the fully sane.

The fact that insanity is sometimes fraudulently used as a plea, has created a prejudice in these cases, but greater discernment is what is needed. The threadbare plea that the individual "knows right from wrong" has been sufficient to hang many a mentally defective wretch, but is beginning to show signs of decay as it is becoming known that half the admittedly insane in asylums "know right from wrong" in the same sense. But there is on the part of the public generally, and even of the enlightened and humane public, a disposition to dismiss all pleas in favor of the recognition of irresponsibility of the homicidal crank as "maudlin sentimentality."

When the president of one of our great universities publicly declares that the retaliatory policy is, in his opinion, right, and that society should kill the so-called crank who takes or attempts the life of another, we can not wonder that the untutored mind demands his crazy head. And, so far as the unhappy wretch is concerned, whose weak mind conceives murder to be justifiable from inability to reason, it can make little difference whether life is given or taken, it is of so little worth. What we feel more concerned about is the honor and the intelligence of the State. We think the community which seriously treats such weaklings as fully responsible and metes out to them under the guise of stern justice the same punishment it inflicts upon a criminal of intact reasoning power, takes an illogical and erroneous position.

We believe there will be an awakening upon this subject and the growth of newer and better views. The International Prison Congress at Paris in 1895 took action by passing a resolution that insane persons committing crimes should be confined "pending consecutive action of administrative judicial and medical boards."

An injury is, however, done the cause of justice by the tendency to claim that all criminals of every degree are mentally defective and irresponsible. It is true that there has not been sufficient discrimination in the past in our administration of so-called justice; but the present tendency under the theories of degeneracy to class all criminals in a separate category, and in case certain physical evidences of defect are found, to infer their irresponsibility, is
ill-judged. There is, doubtless, much of truth in the theories of Lombroso, but we are not ready yet to generalize or to take practical action upon them.

We who would see these wrongs remedied must recognize the fact that the only remedy is the creation of a system of proper provision for insane criminals. This is the greatest desideratum, and it is useless to complain of the execution of insane homicides until a better way has been provided of disposing of them. This has been done in England, and the Broadmoor criminal asylum receives the crazy homicide and securely and permanently guards him, and no one complains.

MUTUAL RELATIONS.

One of our relations of which I have not spoken is that which we, as members of this Association, sustain one to another. This is so well understood it needs no words of mine. It is said that there is no sympathy so keen as that which unites "two sufferers from the same kind of rheumatism." Our bond is one in which we do mutually condole at times over the trials of these days of degeneracy. Yet our aims and prospects are inspiring enough to relieve the gloom. There is no lack of objects which we may unite in furthering with earnest good will which invite to cheerful contemplation. Indeed the problems that present themselves and the means of their solution are so numerous and so important as to leave no time for repining.

In pursuing the various branches of our work, whether we scrutinize the ultimate nerve elements of the cortex and trace to the cell and its ramifications the effects of fatigue or poison; whether we analyze the secretions of the body and by more profound and patient study discover new morbific causes and their remedies; whether we search out and record the reactions of the neuron to its various stimuli in health and disease; whether we busy ourselves with the conditions, social, racial, hygienic, which tend to mental overthrow; whether we are engrossed with the material or the psychological side of our calling, our one object of lifting the art and science to which we are devoted to a higher level and improving the condition of our people, must ever remain with us.

Many are the lessons we have learned; many the illusions we have lost. But in place of these we gain newer and truer conceptions
which may be in a healthy sense called "imperative conceptions," to be put in force and action for the furtherance of our work.

Let us remember that for every splendid blossom, for every luscious fruit of science, for every wide-spreading tree that gives its shade and shelter, there are, deep in the cool, dark soil, downward-reaching, unseen roots that afford strength and absorb nutriment to be transmuted into light and beauty. And the labor which we do in the quiet and obscurity of the study shall render our organization strong and full of life to grow broadly and burgeon blithely with the expanding years.

In conclusion, I can but advert to the great amelioration which is going on in the bitter and painful conditions which have surrounded the insane, and those charged with their care. Amid all the changes of the past we may discern the workings of a benign Providence. The good genius of our Association has never deserted us, and warrants us to look for years of ever-brightening and broadening usefulness and renown.

After having served and promising still to serve you to the best of my poor ability, it only remains for me now to express my thanks for the kindness shown by the Association to me.
ANNUAL ADDRESS.

PSYCHOLOGICAL EDUCATION.

BY G. STANLEY HALL, LL. D.,

Those who have not given the subject special attention can hardly realize the progress made in scientific psychology within the last few years. Ten or fifteen years ago there was but one laboratory; now there are over thirty in the country. There were no adequate text-books in English; now there is a superfluity of them. There were no journals; now there are two, both rapidly growing, and altogether inadequate to represent all that is being done. There was no association of students of the mind; now there is one already so large that bifurcation seems impending and another international organization. There was a deep-seated prejudice in most of the conservative colleges against it as materialistic, of which now hardly a trace remains. Laboratory work was limited to the senses, reaction-time, and the psychophysic law. Now will, and even the emotions, are made subjects of fruitful research with instruments. Formerly graduates began with the very elements; now three or four hundred standard experiments are already required as preliminary in the best institutions. Then experimentation was a curious novelty, and its simplest results often crept into text-books of mental science, along with rude cuts of the brain, where they were strangely incongruous with the subject-matter and tendency of the text; now there is hardly a question in psychology, metaphysics, ethics, or even logic, unaffected by the newer empirical methods. Besides the laboratory, where conditions are controlled by methods of ever-increasing precision, is the observation station, where the census of hallucination, studies on fear, anger, automatisms, feelings for nature, imitation, appetites, laughing and crying, the phenomena of senescence, exceptional and peculiar children, the doll instinct, and other psychophysic phenomena, including even love and aspects of religion, like conversion, are carried on with all possible precautions, and with most fruitful results.

This development, which began under the modest title of physiological psychology, is rapidly broadening into what might be designated as biological philosophy. Already we begin to
glimpse a view of life far higher, broader, and more unified than Plato, Aristotle, Kant, Hegel, or even Darwin, Huxley, and Spencer ever dreamed of, which some decades may be necessary fully to work out. The great fact is that evolution is at the door, for students of mind. Psychology is now just about where the biological sciences were shortly before Darwin. The same old classification methods, the same strained and exiguous interpretations, the same excessive weight laid upon exceptional and even doubtful phenomena; the same struggle against mystic, semi-theologic supernaturalism, telepathy; the same strange mingling of carefully observed fact and speculation in current text-books on the one hand, but on the other we also see similar foregleams of deeper insights, larger unities, a disposition to cross-section all previous lines of endeavor, and to recognize that the oldest things of the soul are also the deepest and most controlling, so that the study of animal instinct, of the dispositions and impulses of children, reveal elementary organs of the soul likely to illustrate the recapitulation theory in the psychic realm just as fully as the seventy rudimentary organs of man's body show that he is simply the topmost branch of the animal tree, and bound to everything that lives by ties of the most intimate and vital kinship.

I think a faintly dawning sense of impending synthesis is now beginning to show itself in two special tendencies; first, the method of sympathy, appreciation, and cooperation is slowly but steadily gaining on the old spirit of criticism and polemics, once so nearly universal in all topics dealing with the soul. If the issues are more numerous, they are less intense, and, above all, lines of issue do not remain drawn so long. Religion and science have more and more in common and less in severality. One can now be a good psychologist and neither know nor care very much about the problem of freedom versus necessity, or of the exact relation of mind to brain, interesting and important as these questions are. The field is so large, moreover, that specialization is inevitable, and equal interest in all problems no longer possible. Indeed, a present danger among American psychologists sometimes seems to be too great tolerance of aberrations and too much mutual compliment. Our science is beset by difficulties and dangers perhaps greater than any other. Old superstitions, phrenology, magic and mystic, mind and other cures, the vagaries of modern spiritualism, clairvoyance, etc., are represented by scores of mystagogues,
theosophists, and mysologists, who not only prevent and degrade
the word psychology, but somehow work a charm as subtle as
Merlin's spell on some of the most gifted of our craft, who, in this
transition period, are almost but not quite persuaded of the holy
power of science in its nakedness and simplicity. Moreover, it is so
much easier to speculate than to experiment; the charm of the vast
generalizations so peculiar to this field makes sharp specialization so
hard if not, indeed, impossible for those trained in the old ways
that inadequate and superficial treatment of important themes is far
too common in books and monographs. Under such conditions,
wholesome and unsparing mutual criticism is indispensable to
life, health, and progress. It must be, however, criticism with
conscience in it, and born of the deepest conviction, and absolutely
independent of personal friendship or aversion. A man who can
not criticise his friend or praise his enemy, or who refrains, upon
fit occasion, from expressing unqualified praise of work he deems
good, or dispraise of the bad, fails of what is now a greatly
needed duty, lest our science lose the best thing it has gained
from the new movement, severity of method, and lapse in sight of
the promised land to easy-going ways which will make us contented
with the present and sap the roots of progress.

An ideal organization of a university department of psychology,
adequate to modern needs and opportunities, is a topic to which I
have given some attention in recent years, and the beginnings of
which, indeed, we already have at Clark University and elsewhere.
It should be something as follows:

1. There should be a strong background, historic course, because
to know how the great minds have dealt with the great questions is
the beginning and basis of wisdom here, to a degree which is not
true of the special sciences which are of more recent origin. Greek,
German, English, and other philosophies are at present generally
taught in a too doctrinaire spirit, and often by the most unpeda-
gogic methods possible. A professor whose interest centers in the
theory of knowledge leads up to his work by propædeutic of Locke,
Berkley, Hume, and Kant. Others spend a term or more each
upon Plato, Aristotle, Kant, or Hegel, without giving the student
a general periscope. Some insist on Greek or German masters in
the original language, and encourage discussions of their philology.
I believe every beginner should have the root ideas of the chief of
the great thinkers presented as clearly and forcibly as possible, with
extracts, read as literature rather than dogma, with salient facts of the author's biography, and that, outside the lines laid down in historic text-books, there should be brief glances at the concurrent history of literature and science, with at least chart references to the history of contemporaneous events. Some of our younger psychologists are dwarfed by lack of general acquaintance with and an interest in this history. The psychological laboratory alone has not yet given us a large mind; but the best results so far are from those who, like Wundt, have carried to it the wide horizon of general philosophy. Logic, esthetics, ethics, and psychology should, of course, be included in the historic treatment, and the narrowing old Hegelian notion of any organic unity in this history as a whole, or of any logical sequence in the order of systems, must be entirely abandoned. Moreover, I am a new convert to the belief that in this historic course there should be included the elements of religious history, some references to the later results of Old Testament studies, to comparative religion, the higher criticism not excluding, if students are post-graduate and professional, concise statements of methods and results concerning the life of Christ in its proper historic place; so all-important is this for understanding the greatest transition in the history of culture, viz., that from the Greek to the modern standpoint.

2. Next in importance I should plan some knowledge of general biology, including Darwinism and evolution, contemporary theories of the cell, reproduction and heredity, some practice with the microscope, perhaps the most important of all scientific instruments, which has enlarged the universe many diameters and created half a dozen sciences of what no naked eye can ever see. What might be called the biologic standpoint and habit of thought, give, I think, the sanest and most fruitful method of dealing with the larger questions of psychology. To many of the old systems of philosophy modern biology is coming to be a kind of new dispensation, revealing what lay concealed in them, while they find new propædeutic value because of the prophecy they bore. What is life, health, disease, death, growth and reproduction?—these have been the problems to which all others were subsidiary. To present the discussions or conclusions of Haeckel, Weismann, Eimer, and Hertwig, or to give an interest in the problems of younger men like Brooks, Minot, Verworn, Ward, Bütschli, the contributors to the Journal of Morphology, etc., is to give the thought forms in which
many of the larger questions of psychology are to be either settled
or discussed. Of course this should not be too technical nor too
detailed, and it can not be denied that in the present state of these
studies this need for psychologists desiderates a talent as rare as it
is necessary.

3. Next, and with this should come—but does not yet systemati-
cally, anywhere that I know of—empirical studies of animal in-
stincts. The world is full of wondrous stories of their sagacity, but
there are few exact studies, like those of Morgan on the beaver, Mc-
Cook on trapdoor spiders and harvesting ants, Loeb and Verworn
on instinctive movements of the lower forms of life. We are just
coming to realize that the instinct function is no whit less complex
than structure, if, indeed, it is not more so; and that a vast sci-
entific field is here awaiting future development. Systems of philos-
ophy, like Schelling, Hartmann, and others, have been evolved
speculatively from a very deep but vague sense of the richness and
value of this field. Moreover, feeling and all the deeper things
in the human soul strike their roots deep into the field of animal
instinct, and can never be explored fruitfully and finally until
there is much clearing up here. Children, too, have much in com-
mon with animals, and the study of them constantly brings us to the
desire of more knowledge here. The general books on instinct now
current are, without a single exception, lamentably narrow, and in
some instances that will readily occur, are so superficial as to be
preposterous. Dr. Gurley finds a mine of the richest psycholog-
ical material concerning the migratory habits of the Salmonidæ
alone, awaiting collation in the voluminous reports of the Ameri-
can Fish Commission. The gypsy moth and insects harmful to
agriculture await another compiler. No text-book maker has yet
adequately exploited that vast thesaurus of information found in
the heavy volumes of Brehm's Thierleben. Investigations, almost
by the score, as meaty as those of Palmen on the migrations of the
eider duck, could readily be planned. All this shows us how little
we really know of our "elder brothers." Perez added something
to psychology by careful observation of his two kittens. Drs.
Hodge and Aikens did the same by simply glueing their eyes to
a microscope, to keep a few amœbæ under continuous observation
for several days and nights. As careful observation of a marked
bee, a fly, or even gnat, would almost surely prove helpful. It is
hard for a psychologist to reconcile himself to such facts as that
we know, for instance, the minute anatomy of the frog—that almost classic animal for the laboratory—but know so little of its life habits, under varying conditions, which are probably no less complex, and certainly more generally interesting. One of the chief desiderata of psychology now is a properly trained man, who, from spontaneous interest, will devote himself to this field as a specialty, gathering and teaching what is at present known, and surrounding himself with aviaries, formicaries, equipped with a menagerie as well devised for study in this field as Shaw's botanical gardens are in its, and such as any large city with a good system of parks could readily provide under expert advice; a man who should strive to unite the breezy, out-of-door spirit of Audubon, White of Selborne, and Brehm, with that of a modern specialist, and have adequate university encouragement.

4. Physiological psychology should be introduced by a hasty glance at general physiology, beginning with digestion and nutrition, and leading on to a few hundred practical experiments to learn the use of instruments, methods, etc., as laid down, e. g., in Dr. Sanford's book. This work has sure and immediate fascination for those interested in problems of perception, association of ideas, attention, relations between mind and body, etc., as treated by the old non-experimental psychology. To many it has been the introduction to scientific methods, and has marked a turning point in their whole intellectual history. Most of this work could be just as well done in college, and its disciplinary, logical value alone make it of the highest educational worth. Some of it is now being done in normal and even in high schools with great success and profit. Some of its tests are proving useful in the clinic, especially in nervous and mental diseases. Dr. Chrisman has arranged several scores of them for use in schools to test general ability or special defects of children. Prof. Bryan, Dr. Bolton, Mr. Hancock, and others have shown us how fruitful single tests thus treated can be if carried up the school grades. It can not be denied that there is some tendency now in this field of research for method to increase in undue proportion to results, and that some workers have lacked breadth and depth to formulate for themselves problems that were new, large, or important enough to represent possibilities in this field. But when we reflect that sleep, hypnotism, all the problems of will that involve muscular action, are open here, and still more when we see how experimentation,
which began with a few simple problems of the senses, association, etc., has pushed on as steadily to will and feeling, it is plain that the possibilities of this method are still vast. The chief present danger here is lack of vigor and severity of method. Thoughtful psychologists have often lately been dismayed by the tendency of certain very facile minds to set up apparatus and report speedy results, really as speculative as any of the armchair philosophy, but barricaded behind a show of instruments, technical terms and manipulations that made criticism impossible without repetition of the work, and which impressed the more credulous non-experimenters as the direct and certain outcome of tedious and voluminous experimental research.

5. Modern anthropology represents a vast array of studies, ranging from physical measurements so intricate that a recent handbook at Vienna describes over two hundred for the head alone, and from excavations like those exploring the life of paleolithic man down to those in Palestine, the Troad, Nineveh, Babylonia, Greece, Rome, etc., and ranging over to the study of the language, industries, tribal organizations, and social institutions of modern savages. No science in its larger interpretation has so wide a range; it has celebrated wondrous triumphs of late, and has had vitality enough to sustain the devoted interest of many investigators with almost no academic recognition. Men and even women leave home and spend years among barbarians with an enthusiasm as intense as that of missionaries, in order to know more of their myths, rites, customs, and beliefs. The psychological side of these studies is of the utmost importance, and they should be represented wherever things of the soul are seriously taught. No one chair could possibly represent this field. There have been nearly a thousand distinct Indian languages on this continent, many of them as different one from the other as the Aryan, Turanian, and Semitic, and requiring five or ten years each of hard study to master, so intricate and unique is their structure. The organization of tribes, clans, such as Morgan and others have explored; the marriage customs summarized by Westermarck; the religious ideas which so many ethnologists are finding such new light upon; and museums like those at Washington, Berlin, Cambridge, and the Musée Guimet at Paris—these are constantly giving us new and larger standpoints for philology, sociology and religion. And despite all that is done there is danger that many
races will become extinct before they are fully known. Surely a general survey of this vast field, sufficient at least to give the student a feeling of its richness, and to suggest to him the range of the kingdom of man, is essential for every specialist in psychology, if not indeed in less degree for the novice and undergraduate. Two of the recent developments from within this field in its larger delineation should be mentioned under the following separate headings:

6. Criminology is the first of the two. Comprehensive and important as it was before, it has now been placed on a new basis, and brought into new and deeper relations with ethics on the one hand and jurisprudence on the other, by the labors of one man (Lombroso) and his school, which regards crime as one form of human decadence to be studied comparatively, along with the study of other classes of defectives, and treated not according to traditional modes so much as rationally and biologically. Perhaps many of the stigmata of degeneration have been over-emphasized and possibly some are mistaken. Perhaps great genius does generally co-exist with real defect, but I make bold to assert that as culture and sanity increase, and mind and brain get better organized and more highly developed, the range of activities that are normal slowly but surely widens; that strong souls can have, dominate, and use what in less developed ones would be disquieting symptoms of defect and disease. Just as there is such a thing as being so firmly fixed in truth that one can play with gracious lies, or as indulging in follies and absurdities which, in the absence of higher power to control, would constitute idiocy, just so strong thinkers may reach a delusional degree of intensity, great workers may find reaction in puerilities which really give poise and express mental elasticity. The error of some modern pessimists of this school, and I think of the leader himself, is that his lines between what is normal and abnormal have been drawn too narrowly, and also too strictly, so that perfect sanity, according to this ideal, would not only be uninteresting but ineffective. Quite apart from this, however, what can be more essential for practical and theoretical morals than a knowledge of perversions and aberrations? I have found this literature gave the greatest access of interest and intelligibility, not only to ethical theory, but to class-room expositions of what was right and wrong in personal conduct and moral hygiene and regimen. Visits to jails, houses of detention and reformatories which I have
conducted, and ethical classes in prisons, have, I believe, increased my effectiveness as a teacher, and they can not fail to enlarge and deepen moral perceptions, and to quicken the conscience. A sub-
department, represented by a young man who gave all his time to it, in this field, which has been within my own observation, has confirmed this opinion. It tends to bring law, medicine, and ethics into a reciprocity that is stimulating for each, while the reinforce-
ment it gives to the old moral science which, in the old New Eng-
land college was the chief philosophic discipline, until recent years may be compared step by step with the quickening influence of laboratory psychology upon the old mental science, although unfortunately the lack of such chairs leaves as yet very much to be desired in the actual demonstration of this relation. It is greatly to be hoped that in the present new university movement this need will be met.

7. The other development which may be called, at least in part, anthropological is child study. This new movement has several unique features. Its suddenness, the fact that this country now appears to lead, the new co-operation between universities and kindergartens, between professors and teachers, the immediate practical utilization of every scientific result, have caused some psychologists to distrust its methods and to hold aloof from its work. Nor is this surprising when we reflect that a more or less radical reconstruction of all sciences that deal with the human soul on this subject seems now to impend. In place of the analysis of the adult consciousness is coming the genetic study of each element of feeling, will, and intellect. The time, order of growth, relations of sequence, always higher than those of co-existence, are at the door. Wider comparative relations between the soul of animals, children, and savages are apparent. The transmutation of one rudimentary organ of the soul into another higher, the monographic study by composite methods of collecting and digesting vast bodies of returns to syllabus and questionnaire, which bring out in the result features in all their completeness which are fully represented in no individual life, psychic atavism, recapitulation, growth by bifurcation, and differentiation; these, perhaps, may suggest at least some of the lines of endeavor here. On one side, too, this movement represents a wide tendency toward the fuller study of individualities, such as have made Laura Bridgman, Casper Hauser, some of the heroines of the telepathists, certain lunatics, criminals
and animals, household words for science, which has suggested the term and thing individual physiology. On another it seeks to add a charm to parenthood and make it worthier, that love be no longer blind. It is not strange that a movement so novel already so fruitful and full of promise, and which enlists some of the most powerful human motives, should have had so phenomenal growth, with already eight or ten State and one national organization, and two journals in this country devoted exclusively to it, and several academic chairs chiefly or wholly occupied with it. That it is destined to repeat in perhaps a slower but surely a larger way the stages of academic growth through which experimental psychology has lately passed in this country, there seems now no doubt.

8. Neurology.—The brain and nervous system, which are latest to develop, and are relatively larger the higher in the series the species stand, is also the most complex of all the tissues, and therefore naturally destined to be the last to be understood. Somehow, through it the wisdom in the cosmos finds expression, the absolute and divine come to consciousness. The brain may be called the mouthpiece of the universe, without which it would be dumb; its intimate relations with mind and soul have always made it a center of profound, though, I think we must confess, often not the most healthfully scientific interest ever since the days of the pioneer cerebralists of the seventeenth century. The applications of electricity, which began with Humboldt's now almost forgotten volumes, and were continued by Du Bois Reymond; the nerve and brain time-studies initiated by the remarkable little paper of Helmholtz in 1852; the localization work since Fritsch and Hitzig; Munk, Goltz, Exner, Bianchi, and many others, the marvels of modern brain surgery, the plethysmograph from Mosso to Mentz, McDougald, and Sanford, the almost epoch-making work of Hodge in the laboratory, and Cowles and others in the clinic, the new brain anatomy since Flechsig and Gudden and Meynert, and chief of all, the recent work of Golgi, Cajal, Hammarberg, Rabl-Rückhardt, and many others, have given us a new conception of this marvelous organ of thought, and called special attention to neurones of the polymorphic layer, while the perhaps premature suggestions of Duval that sleep and waking are mediated by contact between nervous elements, Stevens' hypothesis of contact granules, Cajal's notion of pseudo-podial mediation, Nissl, Bevan Lewis, and Retzius' conception of the sub-pyramidal layer and of
neuroglia elements, while they have brought many old conceptions into flux, have certainly tended to develop hope of narrowing, if not here and there actually bridging, the chasm so long thought impassable between brain and soul. The distinction between sensory and motor neurones certainly seems most credible, and is vastly helpful, while the distinction between normal and idiotic brains in the number and completeness of cells so clearly demonstrated by the work of the late brilliant and youthful Hammarberg is an achievement of less but yet of great importance. In the presence of this wonderful organ we may almost parallel the old phrase about the astronomer and say the undevout neurologist is mad, and how naive becomes the argument of several recent text-books on psychology that mind must be independent of its organ, because it is infinitely more complex. Precisely the reverse of this relation seems true. Modern ideas of the brain now make possible a conception of the soul larger, higher, and more complex than ever before. Soul, spirit, anima, nous, and all the other terms known in savage or civilized tongues designating the psyche, mean breath, shadow, air, gas, will-o’-the-wisp, or more concrete and material things. So, too, many current descriptions of the psychic processes seem mechanical, and even wooden, compared to that of a principle adequate to use or expressed in all the myriad cells and fibres in their manifold connections and relationships, and in the very varied states between extreme fatigue and complete rest. Nay, more, the indications seem to be rather that education trains only small parts of the brain. In the old days of memory cram only the island of Reil with its connections was educated. With object lessons the much larger visual area was put to school; with manual and physical training the pyramidal centers of the limbs were educated. With all its high pressure there is some reason to think that the resources of the brain are far from being exhausted, and also that indefinite further development is to be awaited. Certainly if education teaches economy of brain and nerve force, follows the lines of least resistance as it should, makes energy saving short cuts, this view is strengthened. Probably chemistry is ultimate, and perhaps such convenient ideas as lability, momentum, trophic processes as a background of everything, sthenic and asthenic states will not be explained till we can go back of anatomy and back of circulation to molecular activities. Probably, we shall not understand feelings from either muscle tensions or blood supply, but
must penetrate to this ulterior field at least. Even here, could we know the processes in every molecule of each brain cell, and even the atomic motions concurrent with psychic states, while we might completely coördinate we could not identify the mental with the physical aspects, as we now understand them, and if new conceptions should revolutionize our views of either, it would seem as likely to be views of matter as of mind that would be reconstructed before a completely monistic view would be established.

9. *Psychiatry.*—We can not experiment upon the human soul, but nature does so in disease on a vast scale, and some acquaintance with forms of mental alienation should be an essential part of every psychological course. The waste of good material that now goes on in most of our asylums for the insane in this country is lamentable. The State which recognizes its educational duties to schools and universities should intervene to utilize this material more effectively than it now does. Dr. Cowles, the head of the most magnificent asylum in the world, selected some years ago a medical graduate of exceptional promise; sent him abroad to work with Kraepelin, Wundt, Mosso, and with others at Paris, London, and elsewhere, and he has now established a unique laboratory for the study of the insane in the asylum building with all necessary modern appliances, and his work, already published, is of high promise for this new departure, which was fully described by me in a recent article in the *American Journal of Insanity.* Last fall Dr. Adolf Meyer was appointed to a similar position in the Worcester Hospital by the superintendent, Dr. Quinby. Dr. Meyer is also docent in psychiatry in Clark University, in the same city, to the graduate psychological students, in which he gives courses in clinics. In these he seeks to show how far we can attribute the various symptoms to known fundamental and anatomical lesions, when our neurological views begin to leave the ground of actual observation and become mere logical inference, and when we enter upon the field of pure psychology. Thus the course begins with demonstrations of the general plan of the nervous system, passes to clinical demonstration of cases of paralysis leading over to pure psychoses; then come the forms of depression, then various neurasthenic states and delusions, then exaltation passing to dementia, and finally degenerative types. For about ten years, both at the Johns Hopkins and at Worcester I had previously given asylum clinics to illustrate my own university course on
insanity, and have found nothing more helpful, stimulating, or useful to students of the mind. Work organized as above is far better, because it allows a specialist to devote his entire time to this great field, and also has a most wholesome influence at the hospital itself, encouraging physicians and interns, insuring records valuable for science, as well as more helpful for diagnosis and treatment, and which give autopsies a greatly increased value, and can, also, if circumstances favor, attract young physicians intending to be specialists, just before or after graduation, to the hospital.

Such nine courses as I have very roughly outlined, with proper facilities for access to books and current literature in each, and facilities for prompt publication of any work that might be valuable, would be a very ideal university curriculum. While each of these exists somewhere there is no university in the world which offers all these courses, and it would be hard to find any man who has had them all. It would be easy, however, to increase them. Logic, esthetics, ethics, the rudiments of which can now generally be presupposed for graduate courses, might each be expanded into a chair and added. The value of some such training as I have outlined would, I think, be incalculable and transforming in many directions. In this age, when psychology is affecting so many other and remote branches of work, and is itself growing so fast in all these directions that the long delayed science of man seems near at hand, the realization of such an ideal would be most opportune. With all the munificence toward higher education may we not hope to see it actualized somewhere, and soon.

Finally, I would urge the importance of special training in psychology. First, For all those who deal with the insane or with nervous diseases, in peculiar and striking forms of which this country so abounds. The relative neglect of such studies at our American medical schools is deplorable, and I can not forbear to urge it upon each member of this Association that he contribute something himself, as indeed, so many have already done; also that he urge upon all the younger men entering this work the importance of more or less of such preparation. To cite one or two among many illustrations of the ready accessibility of data of great importance, I would instance Dr. Bancroft's paper on the attitudes of the insane; the studies of individual cases of paranoia, such as have been made by Dr. Cowles and by Dr. Noyes.

Second, Teachers have, perhaps, so far profited most from the
new psychology. The arrangement of curricula, the methods of teaching and discipline, and now especially the new genetic movement, are awakening new educational life. The application of this material now constitutes the chief work of professors of pedagogy and has given them vastly increased utility and is slowly transforming the spirit and method of our schools. The next step which I believe already impends is to apply psychology to the work of the ministry, where it is no less needed, and will do no less good than in the field of education. Some of the above scientific courses should be in every theological seminary and candidates for this profession who desire to rise to the new opportunities of the near future will, I believe, not fail to seek out some of these courses, as many of them are now doing. Every word of antagonism of science and religion is so much dead loss to the world, as indeed every scientist or clergyman who reads President White's new book must be doubly assured. The hostilities of the age of Tyndall and Huxley are forever obsolete. The new spirit of unity and cooperation is already manifest in the neo-christian movement in France and is visible in a similar trend in German, English, and American universities. The ideals of young men are the best materials for prophecy and all the foundations of religion are sure to be deepened as the best men everywhere are coming to realize that nature herself is the original revelation of the divine, and that science is one of its ministers, sustained in her largest work by a spirit as religious as any that history has seen and penetrated with the old sense of unity, law and trust out of which all bibles and science alike have sprung.
THE NEURON THEORY AND CEREBRAL LOCALIZATION.

BY THEODORE W. FISHER, M. D., (HARV.)

Recent progress in cerebral anatomy seems to require some attempt to re-adjust our views of cerebral physiology to the new facts. For instance, the terms motor and sensory as applied to nerve fibres, cells and the so-called centers in the cortex, are no longer quite satisfactory. I have always felt the difficulty of explaining to a class of medical students the fact, that according to Dana's diagrams the motor and sensory centers are so nearly identical in location. The motor and sensory cells, if there are such cells, must be in very close relations over most of the motor area—and if so the name is a misnomer.

If the neuron theory is true each cell with all its afferent and efferent fibres must constitute a homogeneous unit, identical in structure and therefore presumably so in function throughout its whole extent. Since these units affect other similar units by contact, and not by continuity, they must be essentially independent organs of nervous force. Are some of the neurons motor and some sensory, or in spite of the apparent homogeneity of structure, does each cell transmute a sensory impulse into a motor? If so, each cell is both motor and sensory, and has sensory and motor fibres. We have been in the habit of supposing sensory impulses to travel towards the cortex by the way of certain bundles of fibres, and having been changed in nature by the groups of cells called motor centers, to pass outwards by way of the motor nerves. We must now imagine a group of neurons as composing a motor or sensory center. It is hard to rid ourselves of the idea that the cell is the point of transmutation of a sensory into a motor impulse. If each cell in the motor region was both motor and sensory we should expect to find the motor and sensory centers not only co-extensive but identical.

In attempting to come to a clearer understanding of certain terms, I merely propose to review the present state of our knowledge concerning the nerve cells and fibres, to glance at the evidence in favor of the neuron theory, and to present some recent opinions
regarding the so-called cortical centers. The most important recent discoveries have been made possible by the invention of Golgi who, in 1888, first used a salt of silver for staining purposes. This turns the nerve cell and its prolongations black, extending into the minutest ramifications, of the fibrillae. A student of Golgi's also found that Japanese redwood stained the axis cylinder red. By the use of both methods in one specimen, a perfect picture of a section of the cortex was obtained.

Dr. W. Bevan Lewis has made recently a valuable contribution to this branch of anatomy in his study of the brains of the lower animals. He finds his descriptions answering as well for the apes and man. He says the nerve cells of the cortex are by no means identical units. He gives six varieties of cells—angular, granule, pyramidal, motor, inflated or globose, and spindle cell. Some authorities only admit the pyramidal form, while Meynert describes pyramidal, granule and spindle cells. Dr. Lewis thinks the primitive form of all these cells was globose or slightly pyriform; that the fusiform outline was the next stage of development, and further modifications occur as the processes extend laterally. The reverse order is seen in cell degenerations. The cell has no cell wall in fresh specimens. It consists of a delicate protoplasm, which appears to be directly continuous with its various processes. There is always a nucleus and a nucleolus.

The cortex consists in most places of five, occasionally of six layers. There is a great difference in the sizes and shapes of cells found there. There is nothing found, however, which is characteristic of specialized function except in the fourth layer. Here, especially in the motor area, the giant pyramidal or motor cell is numerous. It occurs in groups near the center of that area, and singly and less numerous near the outskirts of it. This would seem to suggest a shading off of function between the motor and non-motor regions of the cortex. Between the different layers there is a similar gradation in the size, number and shape of the cells. Dr. Lewis says "certain elements preponderate in certain fixed areas of the cortex: and that the development of certain layers appears to exclude that of another series."

Each cell throws off processes from the apex and the base. The apical process is formed by the gradual attenuation of the cell. It, and the cell are perfectly homogeneous in structure, and it is sometimes called the protoplasmic process. Also the naked axis
cylinder process, being destitute of a sheath of medulla, it passes straight up towards the first layer and divides into many very attenuated fibrils.

The basal process arises from an attenuation of the base of the cell. It passes downwards for some distance where it is invested with a protecting sheath of medulla. Hence it is known as the medullated axis cylinder fibre. It is only in the peripheral nerves that these fibres become invested with the sheath of Schwann. Some authorities claim that the nerve fibres sometimes show signs of longitudinal fibrillation. If this view were correct each fibril would be regarded as an isolated tract of conduction from the smallest branch of the apical process, through the cell to the minutest subdivision of the peripheral nerves.

Dr. Gray (Jour. Nervous and Mental Diseases, 1893, p. 18) says: "The basal axis cylinder processes have been traced to the nucleus of the cell, some microscopists having followed them to the nucleoles." These processes carry sensations from the periphery to the center if the neuron is a sensory one, or motor impulses to the muscles if the neuron is a motor one. The apical or protoplasmic processes are supposed to connect one neuron with another.

The term neuron was first used by Waldeyer to designate a nerve cell in its totality, including its primary apical and basal processes and all their branches, and the secondary or short and fine processes of which Dr. Lewis has seen eighteen connected with a single cell. The basal process often sends out at once large lateral branches, and in its longer or shorter course to the periphery it subdivides numerously and minutely. The apical process subdivides at once in the cortex into many minute fibrillae. Waldeyer claims that the neurons are only related to each other by the contact of these fibrillae and not by their continuity. They are independent organs and physiological and pathological units. Touching the extremity of a fibril, no matter how long, is like touching the long drawn-out cell itself.

Renaut (cited in Jour. Nervous and Ment. Dis., 1895) has tested this theory recently, using methylene blue instead of silver. This brings out nervous ramifications of remarkable extent and complexity. He claims to have seen in some cases a genuine anastomosis of filaments from the protoplasmic processes. The usual mode of connection, however, is as claimed by Waldeyer. The neuron remains an anatomical, physiological and pathological unit,
whether one or both methods of connection are shown to exist. The cell is probably more concerned in nutrition than in the transformation of sensory into motor impulses. It seems necessary to conceive of the whole neuron as either motor or sensory. A nervous impulse travels from the periphery through a sensory neuron and by means of its apical or protoplasmic process, affects a motor neuron, either by contact or continuity with the brush-like extremity of its protoplasmic process.

It is not impossible that the same neuron is at one time motor and at another sensory in function. It may, perhaps, in cases of injury to nerve structures, change in a short time from a channel for sensory impulses to one for motor impulses, or the contrary. It has been observed that a very small portion of spinal cord will suffice to carry sensations. A nerve fibre may carry different kinds of impressions, and in either direction, according to the stimulus employed, as a wire will carry several currents of electricity in either direction.

Foster says in relation to this subject: "We may be tempted to consider the fibres connected with the grey matter of the cortex as divisible into motor and sensory; and we may go on to suppose that the fibres joining the cortex as axis cylinder processes of recognizable cells are motor fibres, and all the other fibres joining the grey matter in some way are sensory fibres. But in doing so we are going beyond our tether; in all probability the nervous processes going on in the cortex are far too complex to permit of such a simple classification of the functions of fibres as into sensory and motor; and any attempt to arrange either fibres or regions of the cortex as simply motor or sensory is misleading." The transitory nature in some cases of motor and sensory paralyses following limited lesions of the cortex shows that new areas and new fibres either in the same or in the opposite hemisphere take up the old functions.

The meeting of the American Neurological Association in Boston in June, 1895, was a memorable one. Its interest for me, however, was chiefly the discussion of some of the topics and questions I have already mentioned including cerebral localization. Dr. Mills opened the discussion by reviewing the different theories as to the separate cortical localization of movements, and of cutaneous and muscular sensation. He said, too much importance has been given to nerve cells as originating centers of nervous action. Impulses
are transmitted and transferred by processes as well as by cell bodies and the function of the latter is chiefly trophic. He did not think, on the whole, that former views as to special localizations of motor functions in the Rolandic center need to be abandoned. While the whole of the cortex in some of its strata may be regarded as sensory the motor area is closely related to specialized movements in various parts of the body. It may be also termed kinesthetic, sensori-motor, or executive, but for the physician and surgeon it is practically a motor center. He would give up the terms motor and sensory cells, but retain them with reference to the centers so-called. He would still locate the area for skin and muscle sensations in the postero-parietal, quadrate, and fornicate convolutions.

Dr. Dana said he had collected a large number of cases in support of his view that the motor and sensory functions are practically united. In the cases referred to when a section of the mid-central or pre-central convolutions is cut away he finds tactile and muscular anesthesia the next day with paralysis. He and Dr. Russell had each in the living subject irritated the motor cortex in front of the fissure of Rolando getting sensory and motor disturbance combined. It does not follow because the centers for special sensation are somewhat narrowly localized that those for muscular and cutaneous sensations are so. The latter are more closely related to motion than the former. The sensations are not very closely localized, and I do not think we have separate sensory areas so far from the motor ones as Dr. Mills has placed them. I think they extend in front of the fissure of Rolando.

Dr. Putnam agreed with this last statement. He cited one case among many where Dr. Warren excised a minute piece of the cortex from the hand center followed by transient disturbance of sensibility in the hand with paresis. Dr. Putnam thought the function of sensibility very widely distributed and closely related to cerebral functions of various kinds. A sensory stimulus is a gross molecular disturbance which tends to spread, if its natural channel is obstructed, in a dozen different directions. He referred to a case of Dr. Richardson’s where the motor area was nearly destroyed by the tumor and the operations. There was considerable sensation left but complete paralysis. We know that a minute portion of the cord will convey centripetal impressions, and nerves may be so injured as to destroy their motor functions, without interfering with sensation.
Dr. Starr is positive that a lesion of a small area of the motor zone anterior to the fissure of Rolando does produce disturbance of sensation. He referred to Flechsig's address (Bost. Med. Jour., April, '95) who said there were two stages in the development of the cortex in the child. The first is that in which are formed projection tracts and sensory tracts of distinct kinds, such as the motor tract and visual, auditory and tactile tracts. These terminate in separate areas of the brain. The second stage is where there is an enormous development of association fibres. It is at this period that the child begins to develop that evidence of the combination of various sensory memories as shown in conscious intellectual acts. Dr. Starr thought the solution of certain contradictory facts lay in Dr. Putnam's term "diffusion of sensation." The sensory neurons terminate in fibres with brush-like extremities, and one may conceive of a sensation as spreading over a wide area in the central nervous system. The cortex may be extensively affected by incoming sensation; the path out for each sensation is, however, through its own motor center. Hence muscular reaction follows more speedily than consciousness. I think we must abandon the idea of consciousness being associated with certain cells; it is just as likely to be related to the association fibres and to the combined activity of various areas of the cortex. The cells are probably trophic and concerned in nutrition.

Dr. Prince called attention to the fact that in many cases of operation on the motor cortex there is no loss of sensation. He mentioned a case of Beever and Ballam (Bost. Med. and Surg. Jour., Jan., 1895) where a piece as large as an orange was scooped out of the motor area. Before the operation there was hemianæsthesia and paralysis; afterwards no hemianæsthesia, with paralysis remaining. He said we may have a lesion in the corpus striatum, with aphasia and sensory disturbances, or even hemianopsia. It does not follow that the visual or speech centers are in the corpora striata. There may be œdema, congestion, irritation or loss of inhibition, by reason of the affection of association fibres.

Dr. Putnam said motor and sensory aphasia are frequently associated though their centers are remote.

The chairman, Dr. Knapp, said: "The whole of our knowledge of the neuron goes to show the very pronounced dependence of the motor neuron upon the sensory neuron. In the primary neurons
it has been clearly proven that the terminal processes of the axis cylinder of the sensory neuron are closely connected with the apical processes of the motor neuron in the cord.” Golgi, he said, held that we could not tell from the minute anatomy of the cortex which part was sensory, which motor. We do know from recent investigations that the sensory tract passes upwards towards the central convolutions, and not towards the gyrus fornicatus where Ferrier and Dr. Mills locate the sensory centers. It is probable that the higher sensory neurons pass directly up to connect by their axis cylinder processes with the cell bodies of the motor neurons. To offset Dr. Prince’s negative cases he mentioned the fact that many cases of injury to the motor area are not followed by motor disturbance. These cases our increasing knowledge have explained. Positive cases of both kinds are increasing, and each one is more important than ten negative ones. Positive cases of lesions in the gyrus fornicatus affecting sensation are few and far between.

Dr. Mills in closing the discussion admitted the existence of cases where lesion of the cortex in front of the fissure of Rolando is followed by sensory as well as motor disturbance. The cases where the derangement is motor alone are as 100 to 1 of the others. In explanation he remarked that in the first place the disturbances of sensation, though objective, were usually temporary; secondly, they are sometimes purely subjective; thirdly, they are in a few cases permanent. Charcot suggested that they were like sensory phenomena of hystero-traumatism. Dr. Mills thinks the injury caused by the disease, and by the surgeon’s knife, greater than we have in shock. It may be injury to the association fibres in the field of conjunction between the motor and sensory areas which causes the sensory disturbance. He thought the weight of argument still in favor of the localizations of Ferrier and his followers. He had never claimed the gyrus fornicatus as the sole region of common sensibility. He thought this area included also the quadrate lobule and posterior parietal convolutions. It is very rare to find a lesion in this region, for well known reasons, while lesions of the motor zone are very common. Hence the few confirmatory cases. Also bilateral destruction is necessary in some cases to bring about complete anaesthesia. He would not deny that the posterior central convolution might take some part in sensory phenomena. Dr. Dana then said: “I don’t think we differ very much.”
Dr. Thudichum (Tuke's Dictionary of Psychological Medicine) gives the motor area as including frontal and parietal convolutions, one-half the three frontal gyri, and the corresponding portion of the marginal convolution on the inner surface of the hemispheres. This excitable cortex, as he calls it, he subdivides in the usual way. All the rest of the cortex he calls non-exitable and locates the areas of general and special sensation in the parts behind and below the excitable cortex. The centers for the special senses are quite accurately located, that for sight in the angular gyrus and occipital lobe; for hearing in the first temporo-sphenoidal convolution; for taste and smell in the anterior extremity of the temporo-sphenoidal lobe. The remaining convolutions posterior to the excitable cortex are the seat of general sensibility. It is impossible to accurately localize the sensations from different parts of the body to definite gyri on account of the rapid diffusibility of sensory impulses. Lesions of the excitable cortex are usually followed by slight loss of both tactile and muscular sense. The frontal lobes in front of the motor area are non-exitable, and have no motor or sensory symptoms from lesions great or small. They are supposed to be the seat of the higher mental operations.

Hughlings Jackson regards this frontal region as having important relations both to motion and to mind. With the cortex of the occipital region it forms his highest functional level. Though non-exitable this level is sensori-motor in some way, as it is the seat of the discharging lesion in ordinary epilepsy. He divides the cerebro-spinal system into three levels, each sensori-motor with all parts of the body represented in each; but with decreasing automatism from below upwards. In the non-exitable cortex the most complex combinations of movements and impressions become objects of conscious volition.

The latest contribution to our knowledge of the functions of the frontal lobes is by Dr. L. Bianchi of Naples. In "Brain" (Part IV, 1895) he gives the result of his experiments on dogs and monkeys, continued for seven years. His method consisted in the removal of parts or the whole, of one or both of the frontal lobes, with observation of the animals for months or even years after. His opinion is "that the frontal lobes are the seat of co-ordination and fusion of the incoming and outgoing products of the several sensory and motor areas of the cortex. As the nervous waves from the peripheral organs of reception are transmitted from neurons of
the first order to neurons of the second, and third: so from these they pass to the frontal neurons of the highest order. The frontal lobes would thus sum up into series, the products of the sensori-motor regions, as well as the emotive states which accompany all the perceptions; the fusion of which constitutes what has been called the *psychical tone* of the individual."

The question now arises can we rearrange these facts and theories in a more coherent manner? Can we give up some old terms to advantage and adopt new ones? I will offer for your consideration the following suggestions:

1. I think the idea of a sensory impulse being changed in a nerve cell into a motor one is no longer tenable. The cell with all its primary and secondary processes is a unit and should be known as a neuron.

2. We may use the expression, centripetal neuron for one that transmits any kind of an impression towards the cord, medulla, cerebellum, basal and central ganglia or cortex. Also the term centrifugal neuron for one that carries an impulse from those centers towards the periphery, thus avoiding the attribution of sensory or motor functions. We may say afferent and efferent neurons if we prefer terms already in use. Neurons of the first, second, third and fourth orders will be useful terms by which to designate the different levels of nervous structure and function from below upwards. Association neurons would be those connecting neurons of the other kind together.

3. The terms motor and sensory might be applied to neurons proven to be always motor or sensory. The cortex should be divided into excitable and non-excitable areas. The former may be subdivided into sensori-motor centers for all the different muscular movements.

4. The non-excitable cortex posteriorly to the excitable area may be subdivided into centers of special sensation. The remainder will constitute the area of general tactile and muscular sensibility.

5. The non-excitable cortex in the frontal region anterior to the ascending frontal convolution must be regarded as relating chiefly to the mental operations. It is probably the place where sensations rise into consciousness,—where the attention concentrated on certain impressions inhibits for the time all others; where the judgment selects certain muscular movements, which the will
executes through the neurons of the excitable area. We may call it, for want of a better name, the region of conscious voluntary movement.

**DISCUSSION.**

Dr. Worcester: As far as the division of this cortex into sensory and motor regions is concerned, I am inclined to think that it is not tenable in the sense in which the words were formerly used. We have in the cerebrum an immense number of nerve cells with their connections, some more and some less directly connected with the peripheral nervous system. Of course all the voluntary actions issuing from or originating in the cerebrum must be considered from the mechanical point of view as very complicated reflexes. The functions of the cells of the different parts of the cortex seem to me to be essentially the same with reference to these reflexes, as far as we know. Perhaps I can best illustrate what I mean by taking the two instances of reflex and so-called voluntary motion of the lower extremity. Supposing that the foot is tickled, the impulse is transmitted through the afferent nerves, through the posterior spinal ganglia of the roots to the large motor cells in the anterior horns of the spinal cord; the axis cylinder processes of these cells constitute the motor nerves of the leg and foot and when they are stimulated the foot moves, to escape the tickling, as we assume. But at the same time a part of this afferent impulse is transmitted to the brain and a voluntary movement may be performed in order to escape the inconvenience. Now when we perform the voluntary movement what takes place from a mechanical point of view is that an impulse emanating from the cells in the region around the upper part of the fissure of Rolando is transmitted through the axis cylinder processes of these cells to the same cells in the anterior horns of the spinal cord, and a co-ordinate movement occurs by which the foot is removed from the source of irritation. Now as far as I can see these cells (we will assume them to be the giant pyramidal cells in the cortex around the fissure of Rolando) perform precisely the same office towards the cells of the anterior cornua of the cord as is performed in the reflex action by the cells of the posterior spinal ganglia; they both transmit impulses to the anterior cornua of the spinal cord which result in motions. Doubtless these cells around the fissure of Rolando are more immediately concerned in voluntary
movements of the trunk and limbs than those of other regions, but their function seems to be, so far as the movement is concerned, precisely the same as that of the cells of the posterior spinal ganglia, and they are influenced by various stimuli. An auditory stimulus or an optical stimulus may be transmitted to them and set up a movement of the same character as one which originates in the peripheral surface.

There is one point in which it has seemed to me, ever since the neuron theory was brought to my attention, helped to explain phenomena which previously seemed to be rather obscure, and that is in reference to what we see in peripheral neuritis. Those of you who have observed cases of that sort will have noticed, doubtless, that the farther from the centers the greater the affection both of sensibility and motion. The feet are affected more than the legs, the legs than the thighs; and frequently when there is great paralysis of sensation and motion in the lower extremity the trunk may be hardly affected at all. The same is true of the upper extremities, which are affected less than the lower extremities, and the hands are affected in sensation and motion more than the upper arm. Now we assume that the nerve cell is the center of nutrition for the neuron and its axis cylinder processes, and it seems quite possible that in any impairment of its nutrition the more distant parts will be more impaired than those which are nearer, and those cells which have very long processes would be less able to stimulate their extremities than those having shorter processes.

Dr. Long: I was not present during the entire reading of the paper and may have misunderstood Dr. Worcester; but as I understand him he does not confine the motor function to any particular area; but regards all portions of the cortex as possessing this action. My individual experience in autopsies where cortical changes were apparent, confirms the generally accepted theory in regard to the motor area being confined chiefly to the vicinity of the fissures of Sylvius and Rolando. It is possible I did not understand the Doctor's statements in regard to the motor centers.

I wish to add, that the opportunities afforded the alienist to observe the effects of brain disease, should make this body undisputed authority upon the subject of cerebral localization. Up to the present I fear we have been followers instead of leaders.

Dr. Worcester: I do not at all question that the area around
the fissure of Rolando is more immediately connected with voluntary motion than any other, but what I object to is the calling of the cells of this area "motor cells" specifically. They act directly in stimulating the cells of the anterior horns of the spinal cord. The other areas of the cortex act only indirectly; their impulses all have to pass through this area and must act on the large so-called motor cells of this area. The point I wish to bring out is that so far as I can see the function of these cells in the direction of motion is precisely analogous to that of the cells of the ganglia of the posterior roots and that it is just as proper to call one motor as the other. As far as the extremities are concerned the motor cells seem to be those of the anterior horns of the spinal cord.

Dr. Fisher: I merely wish to call attention in this connection to an interesting fact which I learned to-day in reading the proceedings of the meeting at Denver. Doctor Meyer's paper alludes to a post mortem in a case where a large extent of the white matter of the brain was destroyed by a cyst of long standing. There was a large extent of cortex entirely disconnected from the white matter and we would naturally suppose that the cortex under such circumstances would have shown decided degenerative changes. To Dr. Meyer's surprise the cortex was, on microscopical examination, apparently in its normal condition throughout.
CASES OF PARAPHASIA AND WORD-DEAFNESS.

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During the time—a little more than a year—which has elapsed since I became connected with the Danvers Lunatic Hospital, eight cases have come under my observation there, having in common two prominent symptoms. Although talking volubly and without defect in articulation, they were, to a greater or less extent, unable to use appropriate words to express their thoughts, interspersing their sentences either with legitimate words having no meaning in the connection in which they were used, or with neologisms of their own invention. Again, while evidently hearing sounds distinctly, they all, with perhaps one exception, failed, to a greater or less extent, to understand what was said to them.

These symptoms, as is well known, are often associated with lesion of the first left temporal convolution of the cerebrum—a condition which was found in the only two of these cases which came to post mortem examination.

I have thought it might be well to bring before you brief notes of these cases, and of several similar ones that have come under my observation elsewhere, not because I have anything original to offer in regard to their pathology, but because I have reason to think that such cases are not infrequently misunderstood in hospitals for the insane.

The aphasic symptoms are liable to be confounded with incoherence, and the failure to comprehend speech to be set down to the account of dementia, which may not be present in any marked degree. Such misapprehensions may result in needless restriction of the liberty of persons who, apart from this special infirmity, have a good degree of mental capacity.

Case 1.—This case was fully reported in the American Journal of Insanity for July, 1887. The patient, a traveling agent, aged 58, was admitted to the Michigan Asylum for the Insane, March 25, 1885. When admitted his speech was almost unintelligible, and, although he improved considerably, he always used many words incorrectly, and only imperfectly understood what was said
to him. He died January 10, 1887. At the autopsy extensive arterial degeneration was found, which had resulted in multiple cerebral softening. A patch of atrophy from old softening an inch and a half in length was found on the upper surface of the first left temporal convolution. A small superficial patch of softening was found in the right gyrus supramarginalis. There was recent softening of the right optic thalamus, and shrinkage from old softening of the right nucleus caudatus.

Case 2.—A shoemaker, aged 50, admitted to the Arkansas State Lunatic Asylum, December 29, 1887. Was stated to have had a paralytic attack in 1879 or 1880, which left him able to get about. Early in 1887 he had a second attack which resulted in right hemiplegia with contractures. He could hobble about, but the hand was entirely useless. There was complete aphasia and word-deafness, the only articulate sound he made was something like "sagasso" which he repeated over and over. He understood gestures to a limited extent; gesticulated a great deal, but not expressively. He was greatly demented, filthy and obstinate. He was subject to pretty frequent epileptiform convulsions, after a series of which he died, July 30, 1888.

The examination was made twenty-one hours after death, in very hot weather, and the brain was extremely soft. The arteries of the brain were very atheromatous. A small spot of softening in the upper part of the first right frontal convolution was the only cortical lesion found. On transverse sections an extensive cicatrix from old softening was found in the interior of the left hemisphere. Owing to the extreme softness of the brain its relations could not be determined with accuracy, but the nucleus caudatus, external capsule and claustrum were extensively involved.

In this case, contrary to the general rule, the troubles of speech and the word-deafness were evidently due to interruption of subcortical connections.

Case 3.—The patient, a farmer, aged 48, was admitted to the Arkansas Lunatic Hospital, June 24, 1893, with the statement that he had been shot in the head on the 29th of the preceding May. About one-half an inch behind the left ear, opposite the transverse branch of the antihelix, was a small granulating surface. There was no evidence of paralysis and no defect of articulation. He complained of deafness of the left ear, but the hearing of the right seemed unimpaired. There was very evident defect of power to
understand what was said to him, and of expression, although he often evidently understood a question, and sometimes spoke a sentence correctly. The following is an example of his defect of speech: "I didn’t have no none nor nothing of the kind nor no good nor nothing else when I came here."

He invariably failed to name objects shown to him. (Shown a pencil) "That’s a cum, what I call it. "Tain’t right." (A knife.) That’s a comb; comb, aint it? card." (A watch.) "That’s a crost, aint it?" (Tries to read the time but fails.) Asked: "Is it a pocket book?" "No, sir; that’s a thing to wake with." "Is it a snuff-box?" "No; that’s a thing to keep your keys. Oh shocking! I won’t say it."

In reading he made similar blunders. Thus he read the following from a bill head: "Book-binding of all kinds a specialty," as follows: "Book-dinging of a kinder work a scale, aint it?"

He repeated words from dictation readily and correctly.
He wrote the names of himself and wife correctly, but could not write his post-office address, though he evidently understood what was wanted.

In copying he usually got some resemblance to the word. "Book-seller and Importer" he wrote "Bord-sellek and Im-penitert."

In writing from dictation much the same was true. For "knife" he wrote "snife;" for "horse," "money" and "kruche;" for "cattle," successively, "water," "catcun," "catun," and "wacon."

He realized his inability to express himself, and was much troubled by it; if he tried to talk for any length of time he would often get to weeping. On the morning of September 13, 1893, he was found to have committed suicide by hanging.

At the autopsy the left temporal bone was found to be perforated. A piece of lead, the flattened bullet, was found in the angle between the dura of the convexity of the left hemisphere and the falx cerebri, about one-half an inch from the apex of the frontal lobe. A superficial track of a brownish color, about one-half an inch wide and slightly depressed, extended from the wound, over the convexity of the brain, to the position of the bullet. A piece of bone of triangular shape was imbedded in the cerebral substance, opposite the wound, and surrounding it, the posterior two-thirds of the external temporal convolutions were softened and disorganized.
Case 4.—Man, aged 78, admitted to the Danvers Lunatic Hospital, July 29, 1893. Physician’s certificate stated that he had "been losing the faculty of memory and the ability to attend to the ordinary business affairs of life."

The notes of examination at time of admission are as follows: "Feeble and emaciated old man, but no local signs of disease noted."

"Completely confused. Unable to comprehend where he is, although his home is in the neighborhood and he is familiar with the place. Conversation quite incoherent. Restless and uneasy, but can dress himself with some assistance and look after his bodily wants."

January 29, 1894. "Has gained flesh and looks in excellent physical condition. Behaves in a reasonable manner, but can not express himself intelligently (aphasia)."

I have, unfortunately, mislaid the notes of my examination, made early in May, 1894, but my recollection, confirmed by Dr. Elliot, his attending physician, is that there was no evidence of motor paralysis. He talked freely and fluently, but what he said was an utterly unintelligible jargon. Although he evidently had good hearing he gave no evidence of understanding a word of what was said to him. He could, however, comprehend gestures to some extent.

Dr. Elliot states in note dated May 28, 1895, the day of his death, "trouble with speech continued, and it was noted that he appeared not to understand when told to do simple things, such as to put out his tongue," etc.

He died on the above named date, of carcinoma of the left kidney. At the autopsy the brain was found to be considerably atrophied, weighing 35 ounces. The left temporal lobe was distinctly smaller than the right, and the first temporal convolution and, to a less extent, the second on this side were very thin and of a yellowish color throughout and leathery consistency. Elsewhere the gray and white matter of the convolutions were normal in color, and the layers of gray matter distinct.

Case 5.—Man, aged 80, admitted to Danvers Lunatic Hospital, November 9, 1894. According to the account furnished at the time he was thought to have had a paralytic attack six months previously, and known to have had one two weeks before. Since then his mind has been feeble and his conversation rambling.

Following are extracts from notes:
Condition on Admission.—"Short, feeble and emaciated. Arteries atheromatous, and heart's action is decidedly irregular. Otherwise no abnormal signs noted.

"Perfectly quiet and inoffensive in his behavior. His talk is rambling and disconnected and he pays no attention to questions and is probably too deaf to hear them."

January 1, 1895.—"Talks to everyone but does not seem to hear anything that is said to him."

March 1.—"Has animated discussions with patients without appearing to hear a word they say, but upon examination it is evident that he can hear and understand ordinary tones of conversation, when he can be induced to attend to it. As a rule, however, his replies have no connection with questions asked him."

I examined him on the 1st of May, 1895. At that time I discovered no evidence of paralysis. He talked fluently and spoke many sentences correctly, but often used incorrect or original words. Asked about his health he said: "Had good raggage all my life. I don't know about the care of it." About his business: "Well, I've always set on the shoe business." "If I don't take anything to me to make little loose to me it hurts me."

He usually failed when he tried to give the names of persons or things and still more frequently would not make the attempt, though he evidently understood what was wanted. He certainly appreciated his infirmity to some extent, and was unwilling to expose it.

During the summer he improved considerably in language. His health began to fail in August and he died November 9th of exhaustion.

At the autopsy in addition to an atheromatous condition of cerebral arteries and moderate degree of atrophy of the brain, particularly in frontal lobes, two spots of old softening were found, one about 1 3/4 inch in diameter, at the posterior end of the right superior convolution, the other occupying the superior surface of the posterior two-thirds of the first left temporal convolution, extending on to the neighboring part of the island of Reil and, in its anterior portion, involving the whole breadth of the convolution and the upper surface of the second temporal. The brain weighed 38 1/2 oz.

The foregoing are all the cases of this kind that have come under my observation in which I obtained autopsies. In the following cases the symptoms were such as to leave no doubt in my mind that similar lesions existed.
Case 6.—A physician, aged 67, was admitted to the Arkansas Asylum, September 17, 1891. He was stated to have had three slight paralytic attacks, without loss of consciousness, following which one hand and arm felt as if "asleep" for a time. He lost the power of speech temporarily after the last, in July preceding his admission. About August 1st he became unable to express himself correctly, and used words of his own invention; seemed to lack intelligence.

The patient was a man of intelligent appearance and without evidence of motor paralysis. He talked volubly and with animation; his articulation was distinct but his speech was almost completely unintelligible, owing to inappropriate use of legitimate words and introduction of many not found in the dictionary, some of which occurred frequently.

Amongst these "fezidation," "fezination," or "fezitation," were the most conspicuous, e. g.: "I regard the whole thing as a fezitation of the engineer, the fezitation at first I did all over the country." Asked if his bowels were regular, he said: "With my ears. Brother, you mean? Brother one or two years, fezitation about once in twenty-four years." He was unable to name objects. When shown a half dollar and asked what it was, he said: "What name? Well, that'll be a fillions of a sillions, something like that, I can't tell exactly."

He was unable to repeat words. For "artillery" he said, "virginullus, or did you say?"

He did not appear to comprehend anything in reading, and when he tried to read aloud he uttered unintelligible gibberish containing no English words.

In writing he formed the letters fairly well. He succeeded once in a number of trials in writing his name correctly and showed a good deal of gratification. In writing he often named letters as he wrote them, always incorrectly. When asked to copy he could not be made to understand what was wanted.

He evidently comprehended very little of what was said to him. He put out his tongue and put his hand on his head when asked to do so, but it was impossible to make him understand what was wanted when asked to touch his nose with his finger. He caught the meaning of gestures pretty readily.

Apart from the word-deafness and aphasia, he showed some intelligence; was neat in his habits, took care of his person and
conformed to the regulations of the ward. He often played checkers, not very skilfully, but with evident understanding of the game.

February 18, 1893, he had an attack of left hemiplegia, which left him paralyzed on that side to such an extent that he never regained the ability to walk. This did not apparently affect his mental condition which remained substantially unchanged up to the time I left the asylum, in April, 1894.

Case 7.—A man, aged about 56, for a number of years sheriff of his county, was admitted to the Arkansas Asylum, June 8, 1892. Three months previously he had a rather slight attack of hemiplegia. He soon recovered from the paralysis, but showed signs of mental impairment; could not express himself perfectly and believed he was going to be robbed of his property. His health failed and he had lost sixty pounds in weight.

The patient, apart from slight divergent strabismus of right eye, showed no clear evidence of paralysis. He talked fluently without defect of articulation, but seldom uttered an intelligible sentence. The word "estates" occurred very frequently and "condition" and "authority" less often. Following are some of his sentences: "I am in no condition in the world; I have no authority."

"Have you got the estates so we can make some estate?"
"I am the liar, the proper liar of the estates?"

He evidently understood very little of what was said to him. When asked his age, his wife’s name, etc., he showed by his manner that he did not comprehend.

He would not attempt to write anything but his name, or to read. Named most of the letters in the title of a newspaper correctly, but could not name objects in general, although evidently understanding their use. Held them at arm’s length and acted as if he could not see distinctly. When shown a dollar he said: "That’s 50 cents’ worth; I can see part of it colonel."

He was emotional, often weeping when talking.

Was removed by his wife after a few days.

Case 8.—Woman, aged 66, admitted to Danvers Hospital, September 8, 1893, with the statement that she had been failing mentally for some years, and a few days before suddenly seemed confused, and soon after manifested delusions. A marginal note to preliminary history says: "May have had a slight apoplexy."
She was discharged as improved in the following May, and again admitted January 2, 1894, because she had no one to take care of her. Nothing is said either in the notes of her first admission or record of examination on re-admission, of any defect of speech, but when my attention was first called to her, although she seemed to understand what was said to her, she talked in a way characteristic of sensory aphasia of a moderate degree. The words “prominent” and “figuring” recurred very frequently,—e. g.: “My daughter is prominent in her health, she is very much in the health that she needs.” (Asked how many children she had.) “I have only these two, but others I figure on considerably and am very prominent with them, you know.” Her son is “in business that she likes to see and hear of; he is figuring on the business.”

She died September 8, 1895, of dysentery. No autopsy was allowed.

Case 9.—Woman, of Irish birth, aged 63, admitted to Danvers Hospital, May 28, 1895. About one year previously, while standing in her door, watching a procession, she suddenly developed the disturbance of speech found to exist at the time of admission. Seemed unable to recognize friends; had tried to commit suicide by jumping through a window.

On admission she was an intelligent-looking woman with animated manner and expression, very fluent in speech but almost entirely unintelligible; articulation was perfectly distinct, but her talk was a jumble of disconnected words. She utterly failed to name articles shown to her. A shoe, she called “one of her beds,” a knife “one of her peabods,” a bunch of keys “Mrs. Davidson—foldings.” Asked: “Is it a house?” “Yes, sir.” “Is it a wagon?” “Well I don’t know.” “Is it a key?” “Yes.” “Is it a chair?” “I guess so.”

She understood some simple directions as, to get up and walk, to pick up a pencil, to show her tongue, but could not comprehend what was wanted when asked to touch her nose with her finger, to put out her tongue, to touch her mouth, etc.

She seems to be illiterate, would make no attempt to write. She succeeded pretty well in repeating words.

When asked to sing “Wearing of the Green” she repeated the title but seemed unable to recall the tune. After a few notes had been sung she began humming something entirely different, but not devoid of melody.
She is still in the hospital and there has been no material change in her mental condition.

Examined on the 20th inst. said: "You ought to know the big trylings of the bales, the jales." Asked to say "geranium," she said "gerame," "omnibus," "omisibus," "omisis," "teakettle," "teakerbellie," "crucifix," "crucites." (Shown a bunch of keys.) "They're all dies." (A knife.) "That's a beltin, bellum." Failed to comprehend when told to put her finger on her eye; to put out her tongue; to take hold of my hand.

Case 10.—Woman, aged 66, English, admitted to Danvers Hospital, August 6, 1895. Mental impairment noticed about eighteen months, gradually increasing. Had an aortic regurgitant murmur of the heart on admission. Evident word-deafness and paraphasia; she remembered very little of what was said to her. Her speech was a mixture of inappropriate and original words. Could not name any object shown to her. Asked to name a bunch of keys: "Oh father put'em up, he made a fine mess of 'em." Her ear: "Hopa than sane." A watch: "Oh that's grander and grander." Can not sing a tune, read or write. No evidence of paralysis. Removed by her husband November 6, 1895.

Case 11.—Woman, aged 67, admitted to the Danvers Hospital October 11, 1895. On the 20th of September previous, while apparently in good health, she was asked by a blind brother the time of day, and replied that it was "28 waits." This was the first intimation of any trouble. Shortly afterwards she vomited and seemed prostrated, but did not lose consciousness and showed no paralysis. Was taken to the local hospital, where diagnosis was made of cerebral thrombosis. Kept there till October 10; was thought not to recognize place or persons when brought home.

On admission she seemed in good physical health, and showed no evidence of paralysis. She manifested an interest in the examination and comprehended gestures readily, but words very imperfectly. By repetition of the direction and correction when she used the wrong hand, she was got to put her right hand on top of her head, but could not be made to understand when told to pick up a pencil or sit on the edge of the bed.

Paraphasia was very well marked, e. g., "My heart is full of that." "I shall take my doors bye and bye." Could not name objects. Shown a pencil said: "Oh its a hat, isn't it?" An awl; "Its a mitty, isn't it?" A watch: "That's a hale light of peace
isn't it? I think I'm kind of cranky backy about my things." Unable to tell when objects were correctly named, assented when a key was called a plate, a spoon, etc. Asked to write her name wrote "Hay," then "H" repeatedly and "F" once. Asked to name letters, named only "O" correctly. Hummed part of "Auld Lang Syne" and two or three hymn tunes correctly, mostly without words. In place of "Nearer my God to Thee" she sang "And talk to me my goose." She realized her defective expression and was much annoyed by it.

She is still in the hospital and her case presents essentially the same features, though she has improved distinctly both in comprehension and speech. On the 20th inst., when asked where her home was, said: "Why, Mr. Bull, my mother, my mother's man." Asked her age: "Seventy-five I guess, I don't know, am I or am I not?" "I never painted my noise or done anything or not." "It is real hard to lose my piler; I never see anything like it," are other samples of her expression.

She repeats many familiar words correctly but fails on others, though usually getting some resemblance to the original. Asked to say "spectacles" said "petticles," for "telegraph," "heligram," "redigo," "redigraph." Seldom names anything correctly; called a chair a hat; a knife. "That's a nevus, a nevus rade." A pair of spectacles "apple, apple, pussy."

She understood simple directions pretty well though she usually carried them out with some hesitation; picked up and counted a bunch of keys by direction, making ten instead of eleven, the actual number; folded a newspaper: Asked to write her name, made a scrawl in which some of the letters of her christian name were recognizable. Read the heading of a paper "Boston Journal," but could not make out another word, tried to spell out some of the words, but miscalled many of the letters.

Case 12.—A married woman, aged 42, admitted to Danvers Hospital, November 12, 1895. According to her husband's statement she had always good health up to about a year previous, when she had an attack of grippe. She was not severely ill and apparently made a good recovery, but soon afterwards began to have convulsions, which had recurred up to the time of admission about once in six weeks. For a few minutes would be unable to speak, although conscious and able to communicate by gesture; then would fall and have a general clonic spasm. For a few days
after she would be unable to speak intelligibly, although seeming to understand all that was said, and going about her housework as usual; then would recover, to all appearance, completely. The last attack occurred about seven weeks before admission, and she had not recovered from the disturbance of speech; had done some work and seemed to understand what was said. Appetite and sleep were good, but she had lost flesh and complained of headache. Heart much enlarged, with double murmur. No evidence of paralysis was found. Knee-jerks could not be elicited. Pupils equal, reacted normally.

Mentally she seemed somewhat emotional, wept and laughed during examination without apparent cause. Seemed to understand all that was said to her; followed all directions promptly. She was markedly paraphasic, using inappropriate words and neologisms to such an extent that very little of what she said could be understood, e.g., "The lady that taught me that was custard up the teams." "Was unable to name objects. Shown a watch, "That's a sev.' A knife: "Oh, that's a knife, a pira." A pencil: "That's a knife, a curtain, a bloater." Her eye: "That's a good knife, my fork, plaster." Asked to write, she made some illegible scrawls, and gave it up, saying: "If I had my poursel, if I had my wind." Named the letters in the word "antikamnia," a, n, t, a, x, a, m, n, a, n.

Nothing abnormal was found on ophthalmoscopic examination. The urine contained a trace of albumen, and pretty numerous hyaline casts.

Provided with glasses she read much as she talked, read for "Second Book of Samuel," "The Sarah Book of Sarah."

November 17, about noon, she suddenly seemed weak and staggered in walking. Afterwards became much confused, disarranged bedding; denuded herself. She soon recovered and had no similar attack during her stay. Helped with fair efficiency in the work of the ward, and showed no marked mental disturbance apart from the aphasia. Removed December 21st by her husband.

In a letter recently received this patient's husband states that she has improved decidedly since her return home; attends to her household duties and goes out among her neighbors. Her condition as to speech is somewhat variable.

Case 13.—Fireman, aged 50, admitted to the Danvers Hospital December 4, 1895. Had an apoplectic attack about seven weeks
previously, and had since been apprehensive of harm. At admission he seemed weak but no paralysis was discovered.

Mentally he showed decided word-deafness and paraphasia. Could not name objects. When shown a watch said it was "about the same as I used to complain all the time." A cent: "Oh that's all ten pence, eleven pence, one pence." When told to put his left hand on the top of his head, rose from seat; told to put his finger on his nose, touched first one ear then the other. Made an illegible scrawl when told to write his name. Appreciated that it was not right, as well as that he could not talk correctly. Soon after he had an attack of unconsciousness, with some convulsive movements, lasting for some hours. Subsequently he seemed more confused and demented, his health failed and he developed pneumonia, and died April 1, 1896. No autopsy was obtained.

In addition to the foregoing cases which have been under my personal observation, I find reports in the post-mortem records of the Danvers Hospital of several cases in which lesions of the left temporal lobe have been associated with aphasic conditions.

Case 14.—Man, aged 62, admitted January 9, 1884. The physician's report states that he was found in a dazed condition, December 28; had aphasia and some paralysis of speech. Aphasia is mentioned several times in the notes of the case, without any particulars. Death April 13, 1884, from erysipelas, following an apoplectic seizure. At the autopsy the cerebral arteries were found extensively atheromatous. The cortex of the anterior portion of the right temporo-sphenoidal lobe and the adjacent island of Reil was softened. At the posterior portion of the first and second left temporal convolutions was a cicatrix about one-third inch in diameter, extending inwards to the lateral ventricle. A cyst was found involving the right internal capsule and nucleus caudatus.

Case 15.—A single woman, aged 41, admitted May 19, 1885. Suffering from right hemiplegia, total blindness, extreme dementia, and aphasic symptoms. With reference to the latter it is stated "She understands little or nothing. She can hardly give an intelligent answer to any question; talks incoherently, repeating for the most part words and phrases which she has heard from others." These symptoms were said to have come on gradually during the preceding two years.

At the autopsy, December 21, 1885, an extensive area of white softening was found in the left hemisphere, involving the posterior
third of the frontal and entire parietal lobe, and the posterior two-thirds of the first and second temporal convolutions, and extending deeply into the cerebral substance.

Case 16.—Fisherman, aged 57, admitted September 4, 1885. The physician’s certificate states: “Has had partial paralysis followed by aphasia.” In the description of his condition on admission there is no mention of paralysis; with regard to the mental symptoms it is stated: “Understands all that is said to him and his actions since admission have been rational though the confinement is very irksome. He has aphasia in a marked degree. Recognizes his condition and understands that it is the result of a shock. His phrases are very limited, e. g., “all right.” “I can’t talk.” “Yes.” “No.” Refers his aphasia to his throat. Died June 6, 1886, of erysipelas. There had been no improvement in his aphasis symptoms.

At the autopsy an area of atrophic and white softening half an inch in depth was found, involving the left gyrus angularis, island of Reil, the first and part of the second convolution. There was slight atrophy of the frontal convolutions, and the pia was adherent over the lesion described above, and also the lower portion of the ascending frontal and posterior part of the third frontal of the same side.

I do not suppose that a lengthy discussion of the foregoing cases is necessary. That the posterior part of the first left convolution is in some way specially connected with the memory of words is, I suppose, as well established as any fact in cerebral localization. Such being the case, lesions of the cortex of this region will impair both the comprehension of spoken language and the power of expression in speech. If the connections with the auditory apparatus are cut off there will be word-deafness without disturbance of the speech; if its connection with the motor speech center is interrupted, there will be paraphasia without word-deafness. Of course interruption of both sets of connections will have the same effect as destruction of the center itself, and this I judge to have been the condition in my second case. This was the only case in the series in which both aphasia and word-deafness were, so far as could be judged, absolute.

Conversely we are justified in reasoning from symptoms to lesions, and inferring, in presence of paraphasia, and word-deafness, damage to the first left temporal convolution or its connections. The
Cases of Paraphasia and Word-Deafness.

diagnosis between these symptoms on the one hand and inattention and incoherence on the other need not, under ordinary circumstances, present any great difficulty. It is well to proceed systematically in testing such cases, and the following points should be considered:

1. The ability to comprehend spoken words, best tested by directions to be followed by the patient.
2. The memory of words, best tested by requiring the patient to name object.
3. The ability to repeat spoken words.
4. The ability to read.
5. The ability to write, spontaneously or after dictation.
6. The ability to copy printed or written matter.

It will have been noticed that most of my cases showed marked impairment in all these regards. In most of them the word-deafness was apparently less pronounced than either of the other symptoms, and yet it may be questioned if the advantage in this respect was not much more apparent than real. It is much easier to understand a simple direction than a long and involved sentence, but in case of failure in the latter respect it is not easy to distinguish with certainty between word-deafness and lack of attention.

The nature of the disturbances of speech depends upon the locality and not the character of the lesions, but the mode of the onset may throw valuable light on the cause of the symptoms. Arterial thrombosis is the most common cause of these conditions, but they may be due to tumor, abscess, hemorrhage or traumatism.

Whether the symptoms specially referable to lesion of the center for word-memory shall be associated with others or not depends on the extent of the lesion. Owing to its greater distance from the motor region of the brain, disease of the temporal lobe is much less likely to be complicated with motor paralysis than in the case of damage to Broca's convolution, and it not infrequently happens that hemiplegic symptoms are either entirely absent or transient. This renders such cases more liable to be overlooked than cases of motor aphasia. If the recital of the foregoing cases should result in directing attention to the similar ones which are doubtless in the aggregate, pretty numerous in the hospitals for the insane of this country, my object will have been accomplished.
DISCUSSION.

Dr. Hurd: I have been very much interested in these cases which Dr. Worcester has described so carefully and with such wealth of clinical details. I think with him that many similar cases exist and the only reason the interesting symptoms which he has detailed are not detected is because patients are not always examined with sufficient care. His third case reminds me strongly of a case under my observation for the last two or three years. The patient was a machinist and a musician; rather above the ordinary station in life. He had a considerable force of character and was a man of some cultivation and refinement. Three years ago, when working at his trade he had an attack which was not clearly understood by his physician. It was considered to be a "congestive chill." He complained of headache and showed some symptoms of cerebral congestion and his wife afterwards noticed that he had difficulty in speaking. He called names wrong, and this difficulty increased progressively for several days. When brought to the Johns Hopkins Hospital he had a temporary paralysis of the right side with some anaesthesia. This symptom soon passed away and he remained in a condition of absolute word-deafness. He was unable to tell his name, where he resided, or to communicate with those about him, and yet he seemed to understand signs. If movements of writing were made to him he would undertake to write. He would put on his hat and perform many acts of a similar character from suggestion. After a time it was noticed that he would repeat words after a person. In the course of two or three weeks he accumulated a limited stock of words, but it was the opinion of the physicians who saw him that his memory of words was really automatic and that he learned more of what was said to him from reading the lips than from spoken words. He lost his ability to play the violin, but afterwards recovered it and could play simple tunes, although when he commenced to play you never knew whether he would play the tune desired or some other. He remained in the institution for some time and finally got so well that his wife took him home. A few days before he left I was struck with a circumstance in connection with the Sunday visiting. He had the liberty of the corridor and felt the responsibility of directing visitors where to go. If the visitor mentioned the letter of the ward as D, E, F, G or H,—he could not understand him, but if a card with the letter of the ward in large letters was shown
to him he could immediately know the destination of the visitor and point out the way to the ward. This was about two years ago. During the past winter Prof. Nichols became interested in investigating cases of paraphasia, and studied this patient's condition very carefully. I was surprised at his conclusions. He believed that his symptoms were more those of mental weakness than of an actual definite brain lesion because his degree of paraphasia varied so widely. Upon one day he could express simple ideas very distinctly, while upon another he had difficulty in expressing himself in ordinary words; that was largely a matter of fatigue. When he was fatigued in any way his ability to speak disappeared almost wholly. Unfortunately, as a result of slight overtaxing several weeks since, the patient had an attack of maniacal excitement and it became necessary to transfer him to the Maryland Hospital for the Insane. I shall be very glad to hear from Dr. Rohé in reference to his present condition. The ease with which his mental operations became deranged would seem to indicate that whatever his condition may have been originally his mind is at present materially and permanently weakened.

This suggests another idea. I think the impression sometimes exists among physicians in general practice that it is unnecessary for these patients ever to go into institutions for the insane. I am quite sure that many of them who are in the institutions for the insane need to be there and their comparative comfort is largely due to their surroundings. As a matter of fact, under the wear and tear of home life and the effort to get a living, many of these patients break down and have active mental symptoms.

Dr. Rohé: The patient that Dr. Hurd has referred to came to the Maryland Hospital in an excitable condition apparently maniacal, but in a very few days calmed down and became quite intelligent in his conversation. He apparently had delusions at first, but these soon subsided. While his disturbance of speech continued very marked, the subject matter of his conversation did not lead me to think that there was any definite mental impairment. I was quite prepared, when I gave up the charge of the hospital to Dr. Wade, to recommend his discharge from the hospital as a person who had no longer any special business there. I think that quite likely the exhausting investigation to which the professor of psychology submitted him may have had something to do with producing the mental impairment, but that very rapidly passed
away when he was at rest. One of the peculiarities of his speech was the frequent addition of the letter "s" to words. "I knows what I wants," "I can't tells what I wants," etc., was a way he had of expressing himself.

Dr. C. G. Hill: One point brought out in Dr. Worcester's paper might be emphasized and that is the suggestion that in patients suffering from paraphasia and other lesions of the speech centers the mental faculties seem to be more impaired than they really are. This is not due so much to the lesion as to the impairment of the faculty of speech. A person with a simple dislocation of the inferior maxillary presents such an insane appearance as to frighten the bystanders. I recall a case of disturbance of speech from bulbar paralysis where the aphasia was from motor lesions. He would weep or laugh on slight provocation and there was dribbling of saliva from the mouth. He presented such a picture as to cause his friends to think him insane, and there was no difficulty in getting two physicians to sign his certificate. After coming under my observation, although he was unable to express even yes or no by a nod or a shake of his head, I found that by supplying him with a card of letters and certain common words, he could make himself quite easily understood. When a question was asked, although he manifested no intelligence whatever by his face, he would fumble around and get his card and spell out accurately a long answer. He thus made his wants known. Under this practice with the cards his mind has really improved. He is not in any sense insane. His mental faculties are perfectly clear and he has no need to be in an asylum. Practically he is better off in the asylum, and so I have allowed him to remain there.

Another point in this connection is that the stupidity observed in many of these cases is often the result of indirect causes under which such patients commit suicide and become maniacal. I believe this condition is not due to the lesion per se in the special region of the speech centers, but to reflex disturbances of digestion producing auto-intoxication, or despondency on account of their affliction. I have a case under observation in private practice of a man who about a year ago had a stroke of apoplexy which left him slightly hemiplegic and with his speech centers disturbed. He was emotional, weeping and laughing on slight provocation. While I saw him from time to time he grew constantly worse. At first he was able to go about, but he became more and more stupid
and finally remained in bed and lost all control of his sphincters. From the fact that while he was able to be about and to attend to himself he was a most voracious eater, generally eating so long as his food was supplied, it occurred to me that auto-intoxication might be an element in his trouble. I gave him free purges and as he had a pretty good digestion I started off with two ounces of castor oil. This acted well and he improved very much. A few days later I repeated the dose. After the castor oil had been administered for a couple of weeks the patient was up out of bed, talked better, and when I last saw him he was out in his little garden preparing to plant his flowers; in other words, in such a condition that he did not require other treatment than an occasional purgative.

Dr. C. R. Woodson: I was very much gratified with Dr. Worcester's paper because of the thoroughness with which he has touched upon the various forms of aphasia. He has certainly very graphically described a number of cases and every physician who has had much experience in asylum work is fully aware of the fact that he has fully covered the ground. We find, frequently, that patients are unable to designate the article they desire to call for. When they want a cup they call for a box or something of that kind. It has been my experience with persons suffering from certain forms of aphasia that they are much better enabled to say the word they desire to say by showing them the object, and that they often repeat the word directly after it has been spoken. I have in mind a person who died in our hospital about three months ago. Fifteen months ago he had a right hemiplegia with paralysis of the left side of the face. He made a fairly good recovery and recovered from the aphasia. About a month or six weeks before he died he had a left hemiplegia and paralysis of the right side of the face. He was in the hands of a good physician and his case had been diagnosed as one of cerebral hemorrhage. He was brought to us in a greatly enfeebled and emaciated condition, with marked bulbar paralysis, and with as complete aphasia as I have ever seen. By showing him a knife and saying "knife" at the same time he could make a gutteral sound that sounded something like "knife." If you would simply ask him to say "knife" he could not say it. When asked to raise his right hand he was apt to raise his left, but if you persisted and raising your right hand he would raise his also. If asked if he
wanted whisky he would pay no attention, but upon being shown a glass of whisky he would make a bow. I was of the opinion that this patient had not had a cerebral hemorrhage and had not had a clot. He had very typical atheromatous vessels. He died of perforation of the colon and peritonitis. I invited his physician out to see the autopsy. He found both branches of the middle cerebral very much degenerated and ramifications of the vessels almost entirely occluded. There was no evidence of hemorrhage or clot. I have noticed in a large number of cases that where we have had well-marked aphasia we have had an absence of clots and hemorrhage. In the largest number of cases we have found arterial degeneration with occlusion of arteries going into the region of the third frontal convolution.

Dr. Dewey: I would like to ask whether Dr. Worcester noticed in these cases any uniformity with reference to the words which were retained, as to whether those earliest acquired in life were the ones still used in these cases. That, I believe, is generally the case. A patient, quite similar to several described by Dr. Worcester, whom I had in the hospital at Chicago, would invariably upon a visit from his wife say that his mother had been to see him. He could not speak the word "wife," but if asked whether his wife or mother came to see him he would indicate that he understood the difference. I took this to mean that the word "mother" was one that had been acquired earliest and had remained the most fixed in his memory.

Dr. Burr: What was the degree of paralysis with the total aphasia?

Dr. Worcester: There was about as complete a right hemiplegia as you often see; he was just able to hobble about and had no use of the hand at all.

With reference to the question raised by Dr. Dewey, I can not say that I noticed in these cases anything very definite about the words remaining. Nearly all the patients have a pretty extensive vocabulary; they use all sorts of words, only they use them out of their proper connection. Almost all use a great many words of their own invention, which are meaningless to others, and probably to themselves also, and some of them rather complicated as far as the number of syllables is concerned.

I do not know that I have anything to add, except that perhaps I ought to say a word with regard to the matter of the propriety
of maintaining such persons in institutions for the insane. In the first place, as I have said before, I think that a great many such cases, especially the lighter grades of this affection, are overlooked and misunderstood, and that many such persons, perhaps, are kept in institutions for the insane unnecessarily; but I think that every case should be judged upon its own merits and with reference to its own circumstances.

Of course, whether these patients, where there is no lesion manifest except the paraphasia and word deafness, are insane or not, is a question of definition. I do not call a person of sound mind who has entirely forgotten his native language; this is a kind of mental unsoundness, but it does not follow that he has any emotional abnormality or any delusions, or that he is deficient in judgment beyond what depends upon knowledge. In most cases, however, coming under my observation, there has been a more or less distinct diminution of mental power apart from the mere defect of speech. Of the two women who remain in the hospital at present, for instance, one is disabled in other ways, and is for the most part confined to bed. She is inactive; does not show any disposition to occupy herself in any way. The other has occasionally done a little light work about the ward, but she will not persist in it. She was an industrious woman before her disease, and this indicates a mental impairment apart from defective knowledge. In the traumatic case which I mentioned, the man showed very marked emotional disturbance. He finally committed suicide, doubtless through despondency, which was partially induced by appreciation of his condition, but still I think it must have been to a certain extent morbid. Such persons, as a rule, are incapacitated for earning their own living. If they have good homes, in most cases they can be looked after there; but if, as is frequently the case, they have no one to look to for support, the alternative comes between the hospital for the insane and the almshouse, and I think they are entitled to the shelter and comfort which a well-ordered hospital for the insane gives them.

Dr. Woodson: In those cases with marked paralysis I would like to know if the lesion was not confined to the trunk or branches of the middle cerebral?

Dr. Worcester: There was only one case of those I have mentioned here in which there was any marked paralysis. That was case number two in which there was hemiplegia. In none of
the other cases, so far as I remember, was there any distinct paralysis at the time the patients came under my observation. In the cases of aphasia associated with paralysis the lesion is usually in a branch of the middle cerebral artery. I suppose in the cases in which there is softening of the first temporal convolution it is also due to one of the posterior branches of this artery supplying the upper portion of the first temporal. But, as I said, the nature of the disturbance of speech depends upon the position of the lesion and not upon its character. Whether hemorrhage or thrombosis or tumor or abscess or traumatic injury, is indifferent so long as that portion of the brain is destroyed.

Dr. Russell: There is a medico-legal aspect of these cases that is interesting to us as experts. Within the last year or two I have been called twice to give an opinion as to the mental capacity of these cases. Both were cases of aphasia primarily, afterwards leading to more or less general paralysis. One case was a man about seventy years of age whose will was contested on the ground of lack of testamentary capacity. I had not seen the case myself; I was simply called to give an opinion in regard to the testamentary capacity. It is an interesting and important matter for us to determine whether or not a patient may have simple aphasia and yet at the same time be competent to make a will.
THE INTRA-CORTICAL END-APPARATUS OF THE NERVE FIBRES.

BY HENRY J. BERKLEY, M. D.,
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The exact histological appearance of the end-apparatus of the intra-cerebral nerve fibres does not seem to have been determined and described with the same clearness of detail that has followed the application of the silver methods to some other portions of the neuron.

Lenhossek (Feinere Bau des Nervensysts, 1895), writing at a late date, speaks of the free pointed endings to the nerve fibres. Even the great Spanish investigator, Cajal, in his "Nouvelle Ideas du System Nerveux, 1895," is not quite so clear on this point as he usually is, when he writes that the ascending fibres of the cortex, which have a vertical or oblique course through the cellular layers, have their points of contact with the protoplasm of the dendritic structures in the intervals between the short transverse processes (gemmulae), around which the fine ascending fibres twine; and entirely ignores the thought that the lateral buds may have any function in this act of transmission. Such a discharge of the nerve forces, from cell to cell, taking place at hundreds of indefinite points, would not fail to produce stimuli that would more often be aberrant than direct, and in all likelihood such an arrangement would produce the utmost confusion of thought and motion, a veritable incoördination of the cerebral functions, and would reduce direct cerebration to a nullity.

Cajal is by no means unfamiliar with the true ending of the nervous end-apparatus, for a few pages further on in the same book, in his description of the mode of termination of the collaterals of the great pyramidal cells, their finest branches are described as terminating freely by means of a nodosity. Furthermore he figures in his plates all the free endings terminating in a similar manner, be they collaterals, terminal branches from projection cells, or ramifying ones from the intermediary.

It would appear that the Spanish savant had overlooked one important factor when he takes for granted that the finer ramus-
cules of the nerve fibres are unprotected by any insulating covering. The researches of Flechsig, as well as my own, have shown that these fine branches are furnished with a thin layer of myeline nearly to their terminations, and beyond the medullary covering there is apparently a protective sheath of great tenuity, that is not easily recognizable by ordinary methods of staining, and which the silver method does not show at all. It is, therefore, more than probable that it is only at the free bulbous termination of the nerve filaments that we have naked protoplasm, and from this uncovered nervous substance, the dynamic forces generated in corpora of the nerve cells are discharged by contiguity on to the protoplasmic substance of other cells.

Thus, in contradistinction to the hypothesis of Cajal we have only comparatively few points at which the nervous forces may discharge themselves from axons to dendritic protoplasm, and these are situated at definite points on the terminal arborizations of the nerve filaments; for, otherwise, what would be the necessity for a terminal apparatus, were the nerve-conductors free to discharge their dynamic forces at any point at which they came into contact with the substance of a dendrite. The very close interlacing feltwork of dendrite and axon, especially in the outermost layer of the cortex, would alone necessitate some protective arrangement, for, seated as the cells and fibres are, most closely packed together, nay, in fact, at times touching each other, the constant overflow of stimuli from cell to cell would be almost continuous.

Granting that the ultimate fibrillae of the axons have a protective covering, we have still the protoplasm of the dendritic twigs that are unprotected from possible aberrant nerve excitations from the end-apparatus. But is this strictly true? Around the body of the cell we find an insulating mass of fluid, and as a capsule to the sac there appears a slight condensation of the tissue at this point, that takes the place of a retaining membrane. This membrane apparently ends where the first of the gemmules are thrown off from the ascending portion of the primordial process, and likewise at the location where the first buds appear on the basal dendrites. Does the insulating covering really end at this point? In absolute alcohol sections of the cortex of the cerebellum, taken vertical to the surface and stained with anilines, particularly the blue-black, it is quite readily demonstrable that
the fine membrane, which is now undoubtedly composed of thin glia threads, does not really cease at this point, but becomes attenuated, and continues to ascend and cover the protoplasmic prolongations of the cell. It would seem from this arrangement as if it was probable that the cells of the cortex are likewise furnished with an enveloping membrane. We consider, therefore, that the fine stem of the gemmule, at the point of branching from the dendritic stem, penetrates through an enveloping sheath, and it is accordingly only at the tips of the gemmules that we have actually free dendritic protoplasm. Thus it is only at the nearest point to that in which it is conceivable for the impulse from the end-ramiucules of the nerve fibre to come into contiguity with the free cellular protoplasm, that we find uncovered cellular substance.

This theory is in entire concordance with the anatomical structure of the part, and accounts for the fact that the twigs of the dendrites and the fibres touch each other frequently, and in a manner that appears to be perfectly indifferent for the different kinds of nervous substance, receptive and projective.

The silver phospho-molybdate method* usually stains with great distinctness the end-apparatus of the nerve fibres that have their origin both intrinsic and extrinsic to the cortex; the only ones remaining unsufficiently impregnated are those belonging to the peculiar cells of the molecular layer. So far as the end-apparatus of the collaterals from the pyramidal cells of all kinds are concerned, the terminations of the intermediary cells, the fibres entering from the medullated masses, all have the same end-apparatus, which consists solely of a simple, freely-terminating bulbous ending situated upon the extremity of the finest branches of the nerve fibres. (Figs. 1 and 2).

With the collaterals of the pyramidal cells, and the axons of the intermediary, especially the pluripolar ones, the method of terminating can very distinctly and definitely be determined. With the terminations of the association fibres it is equally distinct, but the difficulties of ascertaining to which class the fibre belongs is greatly increased by the length of the trajectory through the layers of the brain-rind, and indeed were it not for certain characteristic differences between the terminal apparatus of intrinsic and extrinsic fibres, it would be most difficult to determine where the latter

*Brain, Winter Number, 1896.
belonged, as it is almost impossible to follow the intrinsic fibres, owing to their sinuosities and length, through the entire thickness of the cortex.

These differences between the two kinds of fibres consist entirely in the final disposition of the terminal ramifications of the collaterals from the association, ascending fibres, and those from the axons of the psychical and other local cells.

The arrangement pursued by the first series is to break up into a number of filaments, usually at some distance from one another, and then these filaments redivide into a small number of others coursing over a short extent of territory, comparatively, each terminal filament bearing upon its extremity a globular or flattened bulb. The number of these bulbs upon each terminal branch of the association and ascending fibres from the inferior regions, is not numerous, seldom exceeding six or eight, and the form is that of an arborization of the nerve twig. (Fig. 2).

On the other hand the terminations from the collaterals of the psychical cells are much more numerous on the final branches, and show a very different disposition. The collaterals winding among the dendrites of the cells, oftimes closely applied to them, and twisting in and out between the gemmulae, seldom show any definite endings until the mid-portion of the layer of small pyramidal cells is reached. (Fig. 1). There they split up into a number of exceedingly fine branches, frequently running parallel with the course pursued by the apical or basal dendrites, and eventually give off at frequent intervals exceedingly short collaterals, which ordinarily only come off from the parent stem on the side toward the nearest dendritic process. Each of the short terminal rami scules ends in a bulb of precisely similar form to those upon the branches of the ascending fibres, that is either rounded or biscuit shaped, and these spherical apparatus are closely adjusted against the bulbous tips of the gemmules, at times the application being so close as to give the impression of actual contact; though it should be remembered that the slightest overlapping will produce that effect; and on the whole it is more probable that there is no actual contact, but that the axonal discharges of stimuli overlap the infinitessimal distance between bulb and gemmule; therefore, the gemmules and end-bulbs are fixed in their position, and not subject to changes resulting from contractile movements of the dendrites, or closer or further approximation in any manner except such as may result from vascular turgescence or anaemia.
The interpretation of the function of the terminal apparatus of the nerve fibres can not be made but in one way, namely, that the impressions conveyed from external sources to central cell, or from local cell to local cell, is not accompanied by a diffusion of the impulse through the entire cortex, or even at various points along the course of the finer branches of the axons, but at single points, perfectly definite in their distribution, and that these points are situated only at the extremities of the nerve fibre twigs, in the form of an histologically exact formation—the bulbous ending of the nerve fibre—which in itself constitutes the sole and only means for the carrying over of the cellular forces from axon to dendrite, and from cell to cell, and is in entire conformity with the conception of Waldeyer of the entity of the neuron, each cell standing as a unit in the nervous formation, and only in contiguity with others at definite points.

Fig. 1.—Psychical neuron showing the end-apparatus of a collateral against the dendrite of another cell. Human.

Fig. 2.—The form of termination of the ascending fibres of the cortex. Guinea-pig.
GYNECOLOGICAL NOTES.

BY R. M. BUCKE, M. D.,

I will not occupy your time with any general discussion as to the advisability of operative procedure among the insane, but will confine myself to a brief statement of a few plain facts leaving it to these to convey their own lesson. I will only say by way of introduction that in the work which we are doing we confine ourselves strictly to the removal of diseased tissue and organs, never interfering with healthy parts, so that the fact of the woman being a lunatic is scarcely taken into account, for the operations undertaken by us would be indicated were the patient sane, and she being insane they would be indicated on physical grounds even supposing they were sure not to lead to mental improvement.

The propositions that I desire to present to you to-day are mainly the three following: 1. Many insane women have disease of the uterus, ovaries, or both; 2. Such disease can nearly always, in the present state of surgical science, be removed by operative interference, and; 3. The removal of such disease is nearly always followed by marked improvement in the physical health of the patient, and very commonly by equally marked improvement in her mental condition.

If these propositions are true, the duty of every man who has charge of the insane seems clear—we ought undoubtedly to see to it that diseases such as are here referred to are removed, giving the patient the benefit of any improvement of health that may result therefrom.

Now as to the first proposition, namely, that many insane women have disease of the uterus or ovaries or both; I will say in its support that in the short time we have been engaged upon this work at London Asylum, we have examined forty-two women and have found such disease in thirty-eight—that is in all but four of the patients examined—in other words, in over 90 per cent. I do not claim, nor do I believe that these diseases exist in the same numerical proportion among the five hundred and thirty odd women in London Asylum, but I do claim that the result of these forty-two examinations is startling and suggestive. It should be under-
stood that a number of the above examinations were made under an anesthetic and were all systematic and thorough—such procedure is troublesome but no other is of any value.

As to the second proposition that such diseases can nearly always be removed, I will say that we have already operated upon thirty-four of the thirty-eight cases mentioned, and that in every instance the disease was removed. In support of the third proposition that, namely, improvement in mental and bodily health follows such removal of diseased tissue or organs take the following abstract of results in the thirty-four cases in which we have operated. Following immediately upon the operation there was physical improvement in eleven cases and physical recovery in fifteen—there was mental improvement in seven cases and mental recovery in fourteen. In all the cases of mental recovery and improvement, this was, as far as we could judge, entirely or almost entirely due to the operation.

Of the fourteen recoveries of mental health eight patients had been insane less than one year, one between one and two years, one between two and three years, one between three and four years, one between four and five years, one between five and ten years, and one between ten and twenty years. In the seven cases in which there was mental improvement after the operation, two had been insane between one and two years, two between two and three years, one between three and four years, one between four and five years and one between five and ten years.

There were five deaths out of the thirty-four cases operated upon. One of these followed, on the twelfth day, coeliotomy and removal of an ovarian tumor; another occurred seven months after the operation from the exhaustion of mania, the operation having little or nothing to do with it; the third took place on the fifth day after coeliotomy and the removal of a mesenteric tumor; the fourth followed, after two months' interval, vaginal hysterectomy and was not due to the operation, which was successful, the wound having perfectly healed; the fifth was directly due to the operation, abdominal hysterectomy, and occurred the third day after this.

The individual operations, with brief histories of patient, and result in each case, in tabular form, is herewith appended. It may be well to recapitulate the chief facts given in this table; for instance, the diseased conditions met in the thirty-four cases were as follows:
Endometritis........................................ Fourteen times.
Subinvolution........................................ Twelve times.
Lacerated cervix...................................... Eight times.
Chronic hypertrophy of cervix.................... Five times.
Erosion of cervix.................................... Four times.
Cystic cervix........................................ Twice.
Polypus of cervix.................................... Once.
Menorrhagia........................................... Four times.
Dysmenorrhoea........................................ Four times.
Retroflexion of uterus............................... Twice.
Complete procidentia................................ Four times.
Uterine fibroid....................................... Once.
Uterine adeno-sarcoma............................... Twice.
Laceration of perineum.............................. Seven times.
Cystocele............................................. Twice.
Rectocele............................................. Six times.
Ulceration of vaginal walls......................... Once.
Cysts of labia......................................... Once.
Ovarian tumors....................................... Twice.
Adherent tubes and ovaries....................... Seven times.
Solid tumors of mesentery........................ Once.

The operations performed (often several in one case) were the following:

Curettage............................................. Twenty-five times.
Divulsion............................................. Fourteen.
Trachelorrhaphy...................................... Five.
Amputation of cervix............................... Six.
Perineorrhaphy....................................... Seven.
Alexander’s operation............................... Twice.
Ventral fixation...................................... Once.
Ceoliotomy, and removal of tumors,
diseased ovaries and tubes....................... Four times.
Abdominal hysterectomy............................ Once.
Vaginal hysterectomy............................... Five times.
Freund’s for procidentia uteri................... Once.
Removal of hemorrhoids........................... Twice.
Enucleation of polypus............................ Once.

The credit for this gynecological work is due very largely to my second assistant physician, Dr. Hobbs, who became convinced after some years’ experience in asylum work that operations in certain cases should be performed—he and I at first obtained the assistance of gynecologists in the city of London, especially of Dr. Meek; later Dr. Hobbs thoroughly qualified himself for the work by studies under the most approved masters in New York, and he is to-day one of the most accomplished operators in Canada.
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S. Q.</td>
<td>Dec. 16, '93.—Chronic mania of four years' standing. Violent, noisy and destructive, fixed erotic delusions.</td>
<td>Tender prolapsed left ovary.</td>
<td>April 27, '93.—Cystotomy and removal of two cystic ovaries and cysts of broad ligament.</td>
<td>Recovered physically and mentally; little or no prospect of recovery without operation.</td>
</tr>
<tr>
<td>3</td>
<td>A. F.</td>
<td>June 12, '94.—A case of puerperal mania of two weeks' standing prior to admission. Insanity began one week after birth of third child. Most of the time patient was violent, excited and destructive. Bodily health fair. Mental improvement very slight at date of operation.</td>
<td>Subinvolution, endometritis and hemorrhoids.</td>
<td>Feb. 25, '93.—Curettage and incision and cauterization of hemorrhoids.</td>
<td>Recovered physically and mentally. Recovery doubtful if no operation.</td>
</tr>
<tr>
<td>4</td>
<td>J. P.</td>
<td>Nov. 29, '93.—Chronic mania of three years' standing; bodily health good; excited and noisy; habits filthy.</td>
<td>Subinvolution and tear of perineum.</td>
<td>Feb. 23, '93.—Curettage and perineorrhaphy.</td>
<td>Physical health improved; no change mentally.</td>
</tr>
<tr>
<td>5</td>
<td>S. Mck.</td>
<td>Dec. 11, '93.—Puerperal mania of two and half years' standing; bodily health fair. Mental condition variable, excited, talkative and cross at times; improvement had been very slight at time of operation; habits untidy.</td>
<td>Subinvolution and erosion of cervix with retroversion and prolapse of uterus.</td>
<td>Feb. 23 and Mar. 8, '93.—Curettage and Alexander's operation for shortening round ligaments.</td>
<td>Much improved physically and mentally but still in asylum.</td>
</tr>
<tr>
<td>6</td>
<td>A. S.</td>
<td>July 19, '93.—Chronic mania of two years and ten months' standing. Had acute attack eleven years ago lasting six months; bodily health good; mental condition variable, with excited periods.</td>
<td>Subinvolution and bilateral laceration of cervix uteri.</td>
<td>April 1, '93.—Curettage and trachelorrhaphy.</td>
<td>Recovered physically and mentally; recovery doubtful if no operation.</td>
</tr>
<tr>
<td>7</td>
<td>A. B.</td>
<td>March 25, '93.—Acute mania of two months' standing; with ecstatic delusions. Bodily health a good deal run down.</td>
<td>Endometritis and menorrhagia.</td>
<td>April 1, '93.—Curettage and division.</td>
<td>Recovered physically and mentally. Might have recovered without operation.</td>
</tr>
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<tr>
<td>8</td>
<td>H. C.</td>
<td>May 11, '77.—Chronic mania passing into dementia of twenty-four years' standing; physical health fair; was kept in bed latterly a good deal of her time for prolapsus uteri; habits filthy.</td>
<td>Complete proctentia uteri.</td>
<td>June 18, '75.—Vaginal hysterectomy.</td>
<td>Recovered physically; no mental improvement expected.</td>
</tr>
<tr>
<td>9</td>
<td>K. R.</td>
<td>May 11, '35.—Chronic mania of fifteen months' standing before operation; at times excited, using violent language; general health very much depreciated.</td>
<td>Enlarged, cystic and prolapsed left ovary.</td>
<td>June 25, '35.—Vaginal celiotomy and removal of ovarian tumor.</td>
<td>Recovered physically, improved mentally and is home on probation; recovery doubtful if no operation.</td>
</tr>
<tr>
<td>10</td>
<td>E. E.</td>
<td>Jan. 16, '95.—Chronic mania of five years' standing; religious delusions; conduct good, cleanly, and general health fair.</td>
<td>Subinvolution, laceration of cervix and tear of perineum.</td>
<td>July 2, '95.—Curettage, trachelorrhaphy and perineorrhaphy.</td>
<td>Recovered physically and mentally. Recovery exceedingly doubtful if no operation.</td>
</tr>
<tr>
<td>11</td>
<td>K. H.</td>
<td>Feb. 23, '95.—Acute mania of seven months' standing. Excited and violent for first three months, then quieted down somewhat; bodily health poor.</td>
<td>Subinvolution, dysmenorrhcea, retroversion and prolapse of uterus.</td>
<td>July 2 and 16, '95.—Curettage and Alexander's operation for shortening round ligaments.</td>
<td>Improved somewhat physically and mentally. Went home too soon, was brought back in a state of starvation and died shortly afterwards of exhaustion of mania. (Feb. 18, '96.)</td>
</tr>
<tr>
<td>12</td>
<td>J. L.</td>
<td>Feb. 1, '95.—Acute mania of eight months' standing; not very cleanly; noisy at times; bodily health poor.</td>
<td>Chronic hypertrophy of cervix uteri.</td>
<td>July 9, '95.—Amputation of hypertrophied cervix.</td>
<td>Recovered physically and mentally. Recovery doubtful if no operation.</td>
</tr>
<tr>
<td>13</td>
<td>A. McN.</td>
<td>June 8, '95.—Acute mania of two months' standing; excited and obstinate; general health poor. Patient aware of existence of tumor which caused her to worry very much.</td>
<td>Solid tumor of mesentery.</td>
<td>July 23, '95.—Celiotomy and removal of mesenteric tumor.</td>
<td>Died on fifth day from exhaustion, being acutely maniacal first two or three days after operation.</td>
</tr>
<tr>
<td>14</td>
<td>H. H.</td>
<td>April 5, '95.—Chronic mania of three years' standing; at times excited, violent and destructive to clothing. Habits uncleanly.</td>
<td>Menorrhagia and retroflexed uterus.</td>
<td>July 23 and Aug. 20, '95.—Curettage, celiotomy and removal of ovaries and tubes which were prolapsed and adherent, supposedly from rheumatism in childhood.</td>
<td>Very much improved physically and mentally. Improvement certainly due to operation.</td>
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<td>15.</td>
<td>J.W.</td>
<td>June 14, '95.—Acute mania of six months' standing; excited most of the time, physical condition poor, being much aggravated by a complete procidentia uteri.</td>
<td>Complete procidentia of uterus and prolapse of vaginal walls.</td>
<td>Aug. 1, '95.—Freund's operation with buried silk suture, sutures buttoning up vagina to support uterus. Operation failed, sutures cut out. Vaginal hysterectomy done 5th May, '96.</td>
<td>Improved for a time physically but recently sutures cut out with recurrence of prolapse. Vaginal hysterectomy a complete success physically—no mental change looked for.</td>
</tr>
<tr>
<td>16.</td>
<td>E.P.</td>
<td>March 6, '95.—Hysterical mania. Began three and one-half years ago, third attack; clean in habits while in asylum; scrofulous appearance, menstruation occurring every two weeks.</td>
<td>Dysmenorrhea and menorrhagia.</td>
<td>Aug. 14, '95.—Curettage and diversion.</td>
<td>Recovered physically and mentally. Might have recovered without operation.</td>
</tr>
<tr>
<td>17.</td>
<td>M.D.</td>
<td>July 7, '91.—Chronic mania of fourteen years' standing. Much excited up to a year ago when she became melancholic; complained much of pain during menstrual periods and would stay in bed two or three days; general health poor.</td>
<td>Dysmenorrhea, menorrhagia and laceration of cervix uteri.</td>
<td>Sept. 4, '95.—Curettage and trachelorrhaphy.</td>
<td>Recovered physically and mentally. Would not have recovered without operation.</td>
</tr>
<tr>
<td>18.</td>
<td>J.B.</td>
<td>April 26, '93.—Chronic melancholia of four years' standing; complains of all kinds of imaginary diseases in various organs; suffered much from hemorrhoids.</td>
<td>Tear of perineum and hemorrhoids.</td>
<td>Sept. 24, '95.—Curettage, Allingham's operation for hemorrhoids and perineorrhaphy.</td>
<td>Improved physically and mentally. Improvement certainly due to operation.</td>
</tr>
<tr>
<td>19.</td>
<td>H.T.</td>
<td>March 28, '95.—Recurrent mania of six months' standing; excited and talkative at times, bodily health good; dysmenorrhea every month.</td>
<td>Dysmenorrhea and subinvolution.</td>
<td>Sep. 24, '95.—Curettage and diversion.</td>
<td>Recovered physically and mentally. Might have recovered without operation.</td>
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<td>20.</td>
<td>C.J.</td>
<td>July 16, '95.—Acute mania, third attack, six months' standing; restless, excited and talkative up to time of operation; had to go to bed occasionally complaining of not feeling well and was very irritable; bodily health much run down.</td>
<td>Procidentia uteri and prolapse of anterior wall of vagina causing extensive cystocele.</td>
<td>Oct. 1, '95.—Vaginal hysterectomy.</td>
<td>Recovered physically and mentally. Would not have recovered without operation.</td>
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<td>21.</td>
<td>L. L.</td>
<td>Sept. 30, '95.—Chronic mania of three and one-half years; excited, stubborn, talks incessantly; delusions referring to genitalia; physical health fair.</td>
<td>Erosion of cervix, endometritis, retroflexed uterus.</td>
<td>Oct. 22, '95.—Curettage and division.</td>
<td>No improvement physically or mentally. (Operation not complete owing to violence of patient).</td>
</tr>
<tr>
<td>22.</td>
<td>E. S.</td>
<td>Dec. 15, '79.—Chronic mania of sixteen years' standing; physical health fair.</td>
<td>Polypus of cervix, torn perineum, fissures of anus.</td>
<td>Oct. 29, '95.—Curettage, enucleation of polypus, perineorrhaphy</td>
<td>Improved physically; no change mentally.</td>
</tr>
<tr>
<td>23.</td>
<td>L. W.</td>
<td>July 22, '05.—Melancholia of a year's standing; physical health poor, circulation languid.</td>
<td>Subinvolution, retroflexed and prolapsed uterus and lacerated cervix. Fatty tumor on arm.</td>
<td>Oct. 22, '05, and Jan. 7, '06.—Curettage, trachelorrhaphy, ventral fixation, removal of fatty tumor from arm.</td>
<td>Improved slightly physically; is improving mentally.</td>
</tr>
<tr>
<td>24.</td>
<td>M. L.</td>
<td>Nov. 16, '91.—Chronic Mania of five years and six months' standing; habits filthy; thighs flexed on abdomen and knees on thighs owing to chronic contraction of flexor muscles; physical health poor.</td>
<td>Complete procidentia of uterus.</td>
<td>Jan. 14, '95.—Vaginal hysterectomy.</td>
<td>Bed-sores formed in three weeks' time, gradually increased in spite of treatment, patient dying from exhaustion on March 16, '95. Operation itself was successful.</td>
</tr>
<tr>
<td>26.</td>
<td>J. E. W.</td>
<td>Oct. 7, '05.—Puerperal melancholia of eight months' standing, developing few weeks after baby was born and just prior to admission; great difficulty in nourishing her, stubborn, resistant; habits dirty, face covered with sores from constant picking; physical health poor.</td>
<td>Subinvolution of a loose flabby uterus.</td>
<td>Jan. 21, '95.—Curettage.</td>
<td>Recovered physically and mentally, which recovery if not due to operation, was hastened by operation and after-treatment.</td>
</tr>
<tr>
<td>27.</td>
<td>M. McN.</td>
<td>Nov. 14, '05.—Puerperal mania of six months' standing; violent, destructive, untidy, noisy; physical health fair.</td>
<td>Lacerated and hypertrophied cervix and hemorrhoids.</td>
<td>Feb. 4, '96.—Amputation of cervix, curettage and cauterization of hemorrhoids.</td>
<td>Improving physically. No mental improvement as yet.</td>
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<td>28.</td>
<td>M. W.</td>
<td>Oct. 17, '95.—Acute mania of five months' standing; excited, noisy, but quieter and more rational prior to operation; fair physical health.</td>
<td>Subinvolution, cystic and hypertrophied cervix and tear of perineum.</td>
<td>Feb. 11, '96.—Curettage, amputation of cervix and perineorrhaphy.</td>
<td>Recovered physically and mentally. Might have recovered without operation.</td>
</tr>
<tr>
<td>29.</td>
<td>E. P.</td>
<td>Dec. 6, '90.—Chronic mania of five years' standing; excited most of the time; physical health poor.</td>
<td>Large uterus four and one-half inches long, lined with a mass of gelatinous material apparently malignant.</td>
<td>Feb. 18, '96.—Vaginal hysterectomy.</td>
<td>Great improvement physically, some mentally. Would not have occurred if no operation.</td>
</tr>
<tr>
<td>30.</td>
<td>H. S.</td>
<td>Oct. 15, '92.—Chronic mania of six years' standing; excited and destructive most of the time; physical health good.</td>
<td>Bilateral laceration of cervix with cystic disease of ant. lip, also cysts on left labia.</td>
<td>Feb. 25, '96.—Curettage and amputation of cervix and removal of labial cysts.</td>
<td>No improvement mentally; physical health good.</td>
</tr>
<tr>
<td>31.</td>
<td>A. N.</td>
<td>April 26, '95.—Recurrent mania of fourteen years' duration; fairly well at times; physical health fair.</td>
<td>Laceration and hypertrophied cervix and tear of perineum.</td>
<td>March 10, '96.—Amputation of cervix and perineorrhaphy.</td>
<td>Recovered mentally and physically; from present appearance, expect recovery to be permanent.</td>
</tr>
<tr>
<td>32.</td>
<td>M. J. B.</td>
<td>Feb. 12, '92.—Chronic mania of four years and three months' standing; violent at times; habits filthy; physical health poor being very anemic from loss of blood.</td>
<td>Hard, enlarged uterus with soft masses of gelatinous material lining endometrium.</td>
<td>March 24, '96.—Curettage and packing preparatory to vaginal hysterectomy.</td>
<td>Improved anemic and weak and not yet strong enough for major operation. Hemorrhage stopped.</td>
</tr>
<tr>
<td>34.</td>
<td>F. R.</td>
<td>April 13, '95.—Chronic mania of fourteen years' standing; quiet and tidy; physical health falling slowly.</td>
<td>Large fibroid uterus and two fair sized growing ovarian cysts.</td>
<td>March 31, '96.—Abdominal hysterectomy.</td>
<td>Died on April 2, '96. Pneumonia of lower lobe right lung cause of death, patient being too exhausted to rally.</td>
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DISCUSSION.

Dr. Hinckley: I have been very much interested in Dr. Bucke's paper inasmuch as in two cases which I have sent away this year as recovered, recovery was due entirely to gynecological interference. One case, admitted September, 1894, was in a condition of almost profound melancholia with obstinate insomnia; the patient was unable to give scarcely an intelligible reply on account of her emotions. All her symptoms were attributed to her head, and none to her pelvic organs until in September a circumscribed peritonitis brought about an examination which disclosed a badly retroflexed uterus. An operation was performed by Dr. Ill of our city. A laparotomy was made, the uterus was torn from its old adhesions, and ventral fixation completed the operation. The patient recovered without a temperature over 99.5°, and in three weeks was sent home in an improved condition and has made a complete recovery.

The second case was admitted in January, and from the hypochondriacal conditions which she had at that time, we decided upon uterine investigation. We found a badly lacerated cervix with scar tissue extending to the internal os. This tissue was removed and the patient returned to her home vastly improved and is to-day a recovery.

I feel that this paper of Dr. Bucke's will awaken a great deal of interest in this matter. I believe that many cases come into our institutions in which gynecological interference would speedily produce a better condition of mentality.

We simply took the cases that seemed most likely to have uterine diseases. Wherever there existed symptoms or circumstances in a case that pointed in that direction, we examined. We did not by any means take the cases at haphazard. Out of forty-two examinations we found disease thirty-eight times.

Dr. Gapen: I can not forego the opportunity of adding my testimony to that of Dr. Bucke. While we have not as yet grouped our cases and are not as yet in a position to make so satisfactory a report as the Doctor has made, we have in the past two years been carrying on this work although not so thoroughly as the Doctor has done. We began in this way: I became impressed that more surgery in an institution so large as ours could be used to the comfort and advantage of our patients, so that, about two years ago, I associated with the institution a very
competent surgeon, and the staff were instructed whenever any possibility of a surgical operation proving of benefit to a patient presented itself that the matter was to be taken up. The surgeon came regularly every week. In a general way, much benefit was derived, not only by the female patients but also by the male patients, from the doing of many surgical operations which removed diseased conditions and helped patients on the road to recovery. This drifted into the more general examination of women patients, and we have as a result done a large number of hysterectomies and other operations of this class, and fortunately with but a single death. The fatal case was that of a young woman who suffered from a most exasperating erotomania. She had numerous fibroid tumors of the uterus, and both uterus and appendages were removed. All the other cases were successful, and in every case there was benefit so far as I can recall now. In one case there was a most remarkable recovery, and it impressed itself upon my mind as illustrative of what these operations may do. We had a patient who for seven years had been insane and had been regarded as one of our most hopeless cases. Removal of the ovaries was the operation in this case, and within two months she had perfectly recovered her reason and went home to her family apparently as well as ever she was in her life. I am very much pleased to see the thoroughness with which Dr. Bucke has gone into this work, and for my own part I can say that it gives me courage to go more deeply into the subject. Such operations however, I do not look upon as cure-alls, but class them with other surgical operations (including dentistry) as a means of removal of irritating or debilitating influences which retard recovery. Insanity is a disease of the brain.

Dr. Burgess: I would like to ask for Dr. Bucke's experience with regard to the proportion of women entering hospitals for the insane affected with uterine disease. About a year ago, in our hospital at Montreal, we added a gynecologist to our staff, and since then we have made it a rule that, in all cases where at all possible, every female patient admitted must be examined gynecologically. Of about fifty women we have found none with major uterine disease demanding major operations, and only five or six in which it was deemed advisable to curette. Of these five or six, I think, speaking from memory, only one seemed to be benefited by the operation.
I do not hesitate for a moment to say that where we find major disease in the uterus or its appendages, the disease should be operated upon. I only speak on the point of the proportion affected with such troubles.

Dr. Woodson: I am very well aware that removal of the cause is one of the first principles of surgery, but I apprehend that in the majority of cases the cause has not been removed soon enough. I do not pretend to say that where there is a pathological condition demanding an operation, either in the insane or in the sane, that the operation should not be done, for I believe that it ought, and it ought to be performed for the purpose of removing that particular pathological condition. For a number of years we have heard that the aural specialist cured all troubles, that the gynecological specialist cured all troubles, that the rectal specialist has cured all troubles, and that the genito-urinary specialist has cured all troubles. These specialists are all good in their place, and when operations or treatment peculiar to their branches is called for, they should be rendered with the view of removing that trouble. If an insane person has remittent fever he should have treatment for that disease; if tuberculosis, he should be treated for that trouble, and if, perchance, you build up the system you may help the patient mentally. A morbid condition of the brain gives rise to diseased thoughts, to diseased actions, to manifestations of insanity which are characterized by delusions, hallucinations, and insane acts. Within a healthy brain these do not exist. I have very little faith indeed in the cure of insanity by operations upon the uterus or upon any other organ, other than to remove a pathological condition that should be removed from a person, sane or insane. If removing the cervix or divulsing the cervix or sewing up the cervix would cure insanity, then the cure of insanity is very simple. If there is an indication for one of these three things I have nothing to say against it, but I do know that if you bring the gynecologist into the institution and commence examining the patients, half of the patients will want to be examined. The gynecologist gets a great many patients who have no need for a gynecologist, and he treats them and receives good fees for it; but that is something that ought not to be done either in or out of institutions. We are willing to admit that all of the troubles we have to deal with are reflex in origin.

Dr. Rohé: Opinion in this Association regarding the relation
of pelvic diseases to insanity in women seems still to be somewhat unsettled. I remember when I came before the Association for the first time, four years ago, in Washington, with considerable trepidation I must admit, and reported a small series of cases upon which I had had the temerity to operate, and ventured the opinion that some of them had gotten well and gone home as the result of operation, there was a good deal of sarcasm in the air if not openly expressed, and in the next issue of the American Journal of Insanity the distinguished editor referred in some way to the number of cases that had been operated upon, and related a story he had heard about two regiments during the war. I do not know that the story had any particular application, but the editor seemed to think it a fair argument. I did feel a little uncertain when I went away from that Washington meeting, but upon reflection I concluded that where I had experience I had a right to trust my own judgment rather than the opinion of those who had had no experience in that direction.

I am a little surprised at the position which Dr. Woodson has taken here to-night. When he says that when an insane individual, man or woman, has any disease of the physical organism it should be treated, but that no organ should be mutilated or removed when it was not diseased, he is endorsing the opinion of Dr. Bucke, although he seems to oppose it. The operations in the London Asylum certainly were not done upon women who had no pathological condition of the sexual organs, but for the removal of distinct diseased conditions. If mental improvement results it is a coincident result and one that is desired by everyone having insane people in charge.

The total number of my cases or of the number of women examined I do not recollect just at present. It has been the practice in the Maryland Hospital in the last four years, with very few exceptions, to examine every woman who has been admitted. Occasionally a very old patient has been admitted and it has not been considered necessary to make an examination. In two cases, I have regretted it afterward, because one of them died of cancer of the vagina, and another was found on post mortem examination to have rather extensive fibroid tumors. The proportion of recoveries, and I do not count physical recoveries because they must be expected to follow the removal of physical disease in the majority of cases, is from 30 to 33 per cent of the women upon whom I have operated. These
patients have been discharged as recovered mentally and they have remained well. In only one instance has the patient returned to the hospital afterward with a succeeding attack of mania.

I am very much gratified to find that such leaders of opinion in this Association as Dr. Bucke and others who have spoken here to-night have been impelled not merely to think about the subject but to actively deal with it. The tendency to simply decry doing anything because it is supposed that nothing needs to be done is, I think, a bad one. No one has a right, I do not care what his position in this Association or in the medical profession may be, to say that certain procedures are not necessary unless he knows by personal experience and observation that they are not necessary. The former ignoring of these conditions has been wrong, and the ignoring at present of physical disease is wrong, and no one has a right to say that nothing needs to be done for physical disease in the insane unless he knows that physical disease does not exist. He has not any right to say that it does not exist until he has satisfied himself by personal examination.

It occurred to me at once that Dr. Bucke did not mean that 90 per cent of the women admitted to the asylum had disease of the pelvic organs, but simply 90 per cent of a certain number of selected cases. But you can not always select your cases; you must examine all. It is getting to be the practice in many institutions to put the patients through a general examination of the lungs, kidneys, etc., as well as for delusions, hallucinations and other psychical symptoms, and an examination of the pelvic organs of women is simply a part of the general physical examination of the patient. When that is done, thoroughly and systematically, I feel that a much larger proportion of cases of physical disease will be found among insane women than is generally believed to exist by the asylum physician of the present day.

Dr. Burr: What Dr. Woodson meant to say I apprehend is this, that the specialist is too apt to be carried away by his enthusiasm and to find what he sets out to find. I believe the Eastern Michigan Asylum is a pioneer in the matter of appointing a consulting gynecologist; such an appointment was made a number of years ago. A very conservative man, Dr. Manton of Detroit, was appointed to the position, and those cases selected for his examination which seemed by outward signs to be favorable for gynecological interference,—where there was reason to suppose
that some disease of the pelvic organs existed. In a number of instances he found conditions upon which he saw fit to operate. Ovarian tumors were removed and various operations successfully done. His examinations have extended over a period of years and he is still the consultant of that institution. He has been careful, conscientious and painstaking, and has always proceeded with extreme caution in these matters. He has never, except in one or two instances, operated except for diseased conditions previously made out. He has found by no means so large a percentage of insane women suffering from pelvic disease as has Dr. Bucke. We have often-times been surprised at the results of his examinations, and with the advice he has given not to interfere. I can now remember but one case where recovery directly followed operation by the Doctor, and I am not sure that this patient would not have gotten well even had she not been operated upon. I am surprised at the large percentage of gynecological cases which Dr. Bucke has found. I feel sure that such a condition does not exist in the Michigan institutions.

Dr. Givens: The thought seems to be prevalent that because the uterine organs are diseased they must necessarily be cut away or removed. This is not so. It has been my good fortune to be a pretty constant attendant upon Dr. Kelly’s clinics at the Johns Hopkins Hospital this past winter. Dr. Kelly is perhaps one of the best equipped men in our country in gynecological work, and the distinct tendency in his clinic is towards conservative work. Because an ovary or tube is diseased it does not necessarily have to be cut away, and if one tube and ovary need to be cut away it is not necessary to remove the other tube and ovary, and if both tubes are diseased it is not necessary that both ovaries must be removed if the tubes are cut away.

I believe with Dr. Rohé that an insane woman ought to be examined in regard to the condition of her pelvic organs. She is not in the position of a sane woman; she can not always complain even if diseased. I can not tell how a physician is going to know what the condition of an insane woman is unless he can examine her, and with the very tender regard for the women that is observed by the best gynecologists this examination can be conducted without subjecting the patient to harmful annoyance.

I do not believe, however, that the relief of genito-urinary disease will be frequently followed by relief of associated insanity. If we
had a friend who was insane and he had a decayed tooth we would want that tooth attended to, although we would not expect that his insanity would be thereby relieved. The patient would be more comfortable. I believe that in all diseases all of the organs should be preserved, if possible. We are not able to measure or weigh the influence of any organ of the body in preserving the autonomy of the whole. Each organ not only has a function peculiar and special to itself, but also has a value in preserving the function of every other organ and tissue in the body.

Dr. Burr: A great many of our patients have led more comfortable lives and have been vastly improved by the surgical treatment of their diseases; but I am talking about positive recoveries attributable to gynecological operations.

Dr. Woodson: I did not think I accused any person of mutilating patients or of wanting to mutilate them. I am quite sure that I was as urgent in recommending operation where the condition called for it as any one could be. What I wanted to contend for was that you should operate to bring relief to the patient from the physical trouble he has, and not for the cure of mental disease.

Dr. Richardson: I have not had enough personal experience on this subject to speak advisedly. I rise to express my opinion from what slight experience we have had at our institution. It is our custom to make examinations of patients when they arrive, and this includes a thorough physical examination, and it includes an examination of the pelvic organs in such cases as give evidence of any sufficient disease to justify the examination. In this we are guided just exactly as we are guided in the examination of other parts of the physical organism. I do not suppose it is the practice in other places to make what might be called an exhaustive examination of every organ of the body in every case unless there is something that points to disease there, or some other reason that would justify you in subjecting the individual to such examination. There have been a good many cases where I do not think we would have been justified in making examinations of the pelvic organs because, in the first place, there was nothing whatever that pointed to disease there, and, secondly, because the social condition, or the age, or the form of mental disorder was such as to render it probably injurious or prejudicial. I have seen several cases in young virgins where I am satisfied that an examina-
tion, in order to ascertain the condition of the pelvic organs, would have been positively injurious. I can recall the case of a married woman who had been an inmate of an institution for some time. She was in good health, with no evidence whatever of any disease of the pelvic organs. Her friends became solicitous, and having been advised by some one that probably there was some uterine disease present, they insisted upon an examination. After suggesting that we did not think it was called for, we sent for a gynecologist, who made an examination with no other result than to increase her excitement and to start up a new line of delusions, including an assault upon her for improper purposes. For the time being, at least, there was a very great increase in her mental disorder.

We have a consulting gynecologist and surgeon who has done quite a number of operations in the institution during the past four years, some major and some minor operations, and our practice is to take his advice just as would be done in general practice. If there is a condition of disease in the pelvic organs which is presumably a source of irritation or a drain upon the system, we have the operation done; but I must say that I can not but be surprised at the proportion of mental recoveries that Dr. Bucke has reported. I do not pretend to question it. It is possible that the period of time has not yet elapsed that makes positive conclusions justifiable. As far as my experience goes, and in this I have consulted with a number of gynecologists who have had their attention directed to this field, I believe that the longer the period our experience extends over the more conservative will the individual become in prophesying very great mental improvement. I think that in this, as in everything else, there are broad general principles underlying the causation of insanity that do not restrict it to the condition of any one organ of the body, and that whatever causation lies in the condition of an organ outside of the brain must be a reflex cause that has resulted in actual disease of the brain before the insanity has developed, and even when the reflex cause has been removed, that which has been produced in the brain does not always by any means go with it.

There is one other source of danger that has come under my observation in three or four cases in which I have been consulted, and that is the danger of setting up a more acute form of mental disorder by operation than has existed before. I can recall at least
three cases in the past few years in which conditions of acute maniacal excitement have been set up where there was a predisposition toward nervous disease and mental disorder and in one of which there was some slight mental disorder. In the latter case the operation consisted in curetting and sewing up the cervix and perineum. She developed a very violent attack of acute mania after the operation, but passed through it safely, and ultimately got back to about the condition she was in before the operation, and although not entirely well she was sufficiently well to go home.

I heartily endorse anything that will improve the condition of the insane, physically or mentally. We ought not to throw cold water on anything that offers a prospect of improvement. The only thing that we ought to be cautious about is in engendering hopes that lead to disappointment, and we should avoid those points in practice that may lead to injury if carried to excess.

Dr. Russell: It is marvelous what attraction there is in operative procedure on the uterus and its appendages. Men not only seem to love to operate upon these poor organs, but love to discuss the subject as well. It occurs to me that our post graduate schools are a good deal at fault for this meddlesome surgery and cruelty to the female who is suspected of uterine disease. In Canada the young physicians from the provinces frequently go down to New York, Philadelphia, Baltimore and other places, and take post graduate courses in gynecology, and of course they come back fired with ambition to operate, and they set to work and believe that they make marvelous cures.

From the paper to-night we take it for granted that disease of the uterus and its appendages is a frightful cause of insanity. Now, experience in asylum work is this, that the ratio of insanity between the sexes is about equal. We do not hear of any such battle royal over the male organ and its appendages as we do over the female, and yet statistics prove to us that there are just as many insane men as there are insane women. If statistics are worth anything we must necessarily come to the conclusion that disease of the uterus and its appendages is not such a prolific cause of insanity as has been suggested here to-night by the paper and by the remarks made by several of the gentlemen.

I have a case in mind of a woman admitted to my asylum about four months ago. The certifying physicians stated that the
woman was suffering from uterine disease, and that if this were removed, the patient would doubtless be all right. They would have operated themselves but for her maniacal condition and lack of facilities for caring for a patient of this character. The patient was married and had borne several children. Acting upon their advice we examined this woman. We found a slight rent in the cervix and slight hypertrophy, but nothing which we considered would justify a surgical operation. The woman was allowed to remain in the asylum and be treated on general principles. I am happy to say that within three months this woman made an excellent recovery. Had we operated upon that woman, as her certifying physicians suggested, there is little doubt but that the operation would have gotten the credit for the recovery.

There is another thing that perhaps Dr. Bucke and others may have overlooked, and that is this: when the surgeon commences to operate in his asylum he is usually anxious to have the very best results, because he usually publishes them, so he proceeds in a very methodical and scientific way. The woman after operation is put to bed and subjected to the best clinical treatment, the best nurses in the asylum are detailed to care for her, she gets the best of diet, and is kept in bed for several weeks. This procedure in itself, as we all know, has a good effect upon a maniac, and it offers a very suggestive idea in another direction, and that is the benefit to be derived from special individualized treatment. I think that often too much is attributed to the operation and too little to the excellent nursing which the patients receive at their hands.

I hope that my friend Dr. Bucke will not take any umbrage at my remarks in this connection. I can re-echo the remarks made by Dr. Woodson very fully, that the insane woman should have the benefit of operative procedure for physical disease just as the sane woman should, but I doubt very much whether the result of operative procedure will warrant us in attributing to it such marvelous cures as we have had presented to us to-night by Dr. Bucke.

Dr. Brush: I do not think that Dr. Bucke or Dr. Rohé or anyone else proposes to claim that the diseases of the uterus and ovaries found in insane women are necessarily the causes of insanity. I think that both Dr. Rohé and Dr. Bucke have stated clearly that if they found disease of the uterus or its appendages which would be treated in patients outside the asylum they would
treat them in patients inside the asylum. If that is so, what is the use of discussing whether such a patient ought to be treated? If a patient has a disease it necessarily, when discovered, should be treated if possible. In reference to gynecology, my friend, Dr. Rohé, I know, regards me as worse than an agnostic. I have seen some gynecology in asylums and a great deal more outside of asylums. I have had some very good conservative gynecologists examine my patients and have been told by them that nothing need be done in cases where I was inclined to think something ought to be done. Only a day or two ago a lady came to call on me to say how well she was, both mentally and physically, after a hysterectomy. She was supposed to have recovered from insanity because of the operation. I have had to tell the operator that she never was insane. Nevertheless, the operation was clearly indicated, and would have been just as necessary had she really been insane.

There is another point, I think, in all this. Dr. Rohé has seen 30 per cent of his cases recover, and he thinks that the recovery probably was the result of his operation. Probably it was in many cases; possibly some of them would have gotten well any way. (Dr. Rohé: I admit that.) Probably Dr. Bucke says the same thing. Now, is it necessary to go further than to say that we have operated upon these women for some pelvic disease? Observation and the careful collation of cases will, in time, tell us pretty clearly how large a proportion of these cases were insane because of uterine or ovarian disease, and in how large a proportion the uterine or ovarian disease was merely coincident—but whether cause or coincidence—I venture to say that all of us can get together on the common ground of agreement that removable causes of irritation, should in proper cases be removed.

Almost anything that is done to an insane patient out of the ordinary will produce a change in many instances. Those of us who have been unfortunate enough to have patients attempt suicide by drowning, hanging or by other methods, have seen a remarkable change come over the patient's mental condition afterward, and that attempted suicide may have been the starting point for recovery. I think we ought to consider that element somewhat.

As to the relationship of insanity to uterine and ovarian disease, let us understand ourselves clearly—not that insanity is due in a large proportion of cases to uterine disease or that the operations which we make necessarily cause the recovery of our patients, but, as I
have intimated, that the operations may tend toward improving their physical comfort, and through physical comfort their mental condition.

I think the suggestion which Dr. Russell has just made has in it a very large element of truth, that the better care and the individualization of the case incident to an operation do the work in many cases.

Dr. Edwards: I trust I may be pardoned for speaking a word at this late hour. At the Michigan Asylum, at Kalamazoo, we have not found the same proportion of disease of the uterus and its appendages that Dr. Bucke has found. Of late years we have given a very thorough examination in every case where we had any reason to suspect that such disease existed, and if necessary we have examined under anaesthesia. Within the last five years, in that asylum, there have been five patients in which a major operation was done for relief of disease of the uterus. In three of these cases there was very marked benefit. The patients improved rapidly after the operation, and for several weeks or months appeared to be well. Unfortunately all three of the cases relapsed. One case in particular was that of a young woman from whom both ovaries were removed. After three months she was taken away from the asylum, and was so well that she obtained a position as attendant in another asylum. Within two weeks the arduous duties of the place broke her down and she was brought back to our institution. She gradually improved, and eight or nine months afterward was taken away by her guardian again, and at the earnest advice of her physician, a woman, she consented to another operation. At this the uterus was removed. After that she made a very nice recovery physically and improved very much mentally. This was done last August. Three weeks ago I heard that she was again distressed very much mentally. I should like to ask Dr. Bucke the length of time that has elapsed since these several operations were performed of which he speaks.

Dr. Bucke: I am very glad there has been so much discussion of this paper. I fear that my position in having the operations performed and in writing the paper has not been very clearly perceived. I am as much surprised as anybody at the results of the examinations made and at the results of the operations. I am not a gynecologist. I have been a superintendent for twenty years. A few years ago I was inclined to take the same view of this
matter that most of the gentlemen in this room now seem to take, namely, that much of the gynecological work was supererogatory, in fact that it was a species of impertinence. But I am here to-day simply to state facts. This I have done in my paper. I do not desire to interpret these, but would like each one to interpret them for himself. The detailed statement (which I did not read) gives the exact time at which the patient became insane, the exact condition before operation, the date of operation, and so on. It is quite likely that many of these patients will relapse. It would not at all surprise me if they did. The operations were not undertaken to cure the mental disease, but because the physical condition of the patient made them necessary or advisable. The mental improvement, when it occurred, I regard as an accident. We did not expect it. We did not dream of it occurring in anything like the proportion of cases in which it has happened. It may be in most of the cases more or less evanescent. If it is, that fact would not affect the position which I occupy to-day. I do not believe that 90 per cent of insane women have uterovarian disease calling for operation. I feel perfectly certain they have not. I think it is largely an accident that out of forty-two patients examined thirty-eight were found in such a condition that an operation was required. That they were found in that condition is an absolute fact. There has been no seeking to make a story in this matter or a wish to find disease. It is not that Dr. Hobbs alone found the conditions described; other, and first class gynecologists, able and disinterested men have in every instance examined the patients with him. The work has been done openly, and every step is capable of establishment. It would not surprise me if in making another forty-two examinations we should find very much less disease requiring interference, but should we find conditions requiring operations we will perform these, and will remove the disease if it is possible to do so, and whether the patient gets better or does not we shall have done the best we know how.

Such experience as we have had so far has convinced me that there is really more in this matter than I had formerly dreamed possible. The operation being so immediately followed by mental improvement in so many of the cases would convince, I think, any unprejudiced person that there is a real connection between the operation and the said mental improvement.
I would like to say a word about the operation itself. At the meeting two years ago this matter was discussed, and it was suggested that almost any major operation on an insane patient is likely to lead to improvement in the mental condition, and this is said to hold true whether the organ is healthy or diseased. I believe there is a great deal of truth in this. I can not account for it. We had a case of recurrent mania in a young man of thirty-five, a locomotive engineer, six feet high, finely built, a man whose life was valuable, and I was anxious to do something for him. He had attacks of mania lasting for weeks, smashed furniture in his house and threatened the lives of everybody around him. He was sent to the asylum more than once during the course of these attacks. In a few weeks after the onset he would be, apparently, perfectly well mentally, but he never became entirely free from a buzzing noise in his head. He had had a load of coal fall on his head, and it was scarred in the right parietal region. He himself suggested that we operate upon him. He said his life was of no value and that he would rather be killed by an operation than live as he was. After talking it over, we trephined him about three months ago. We took out a button and then with forceps we enlarged the opening to about the size of a fifty cent piece. We found nothing. The membranes were perfectly healthy. There were no adhesions. The bone had not been broken. I did not expect much result from the operation. The patient was put to bed, made a very good and rapid recovery; it was not many days before he was out on the grounds at work. He claims now that he is cured. He has been nearly three months without an attack, and he says that he knows that he is better now than he has been for years. The buzzing sound has all gone and he feels that he is a different man, that he is cured. I believe he is. We had another case a year or two ago cured by trephining. I can not account for these recoveries. Neither do I suppose that recoveries under such circumstances and after such operations would be the rule.
THYROIDS IN CATALEPSY.

BY JOSEPH G. ROGERS, M. D.,
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Within the last four years it has been my fortune to have in charge two cases of special interest on account of the long duration of cataleptic conditions, and, still more so, because of the promptly beneficial effects of thyroid medication after the complete failure of other methods of treatment.

The clinical history of the more remarkable case is as follows:

I. S. T., native of Indiana, age on admission, twenty-five years; farmer; height, 5 feet 10 inches; weight, 160 pounds; father intemperate; grandmother insane. In the fall of 1890, during or after an attack of malarial fever, he evinced mental aberration for about two weeks, with hallucinations and delusions of impending personal harm and legal involvement. Subsequently he was apparently well until the middle of January, 1892, (one year, about), when he was attacked by la grippe, speedily complicated by maniacal symptoms; being noisy, restless, sleepless, with delusions of dread, occasionally violent, (once fired a pistol at an imaginary enemy), very hilarious at times, laughing and singing without provocation, and then melancholy and dreamy.

He was admitted to hospital two weeks later, February 2, 1892, in fair physical condition, and showing no salient symptoms of mental alienation in conversation or conduct, but his letters to relatives, shortly after, indicated delusions of conspiracy and revenge. He soon became accustomed to his surroundings, took part in the ward work and amusements, attended chapel and the dances, and was agreeable, cheerful, contented, well-behaved, and gentlemanly. On June 9, 1892, was sent home, apparently in fair mental condition, but not discharged.

On October 14, 1892, he was returned to hospital in a state of great mental depression, which had existed for some time previously. For some weeks following, at times, he would lie for hours in a trance, neither speaking, moving, nor giving attention to ordinary external impressions, and, if forcibly aroused, would become at once violent and strike those about him. Intermediately he was
melancholy and silent, but would take some exercise and a sufficiency of food. The trance state, however, recurred more and more frequently, and on Christmas day, 1892, it became continuous, and nasal feeding was begun, because food placed in the mouth would remain unswallowed. (Meantime, however, he had been fairly well nourished.)

For three years continuously but little change in the case was manifested. He lay, during all this period, like a log; to all appearances, wholly oblivious to external impressions or internal sensations, uttering no sound and making no sign indicative of mental action, unless it were an occasional secretion of tears which was often noticed. For many months the limbs could be readily placed in any position without positive resistance and would remain as placed for some time, however grotesque the attitude; later they became less flexible and assumed a fixed position, which could not be changed without the use of great force, which was avoided.

Sensibility to touch and pain seemed to be almost annulled, the faradic current produced muscular contraction, but was not notably noticed by the patient.

The following observations were noted in August, 1894, by Dr. Robert Hessler, his present medical attendant:

"Lies immovable, rarely turning on one side. Arms and legs stiffly rigid, not sensitive to pin prick; hands closed; on attempting to extend the fingers forcibly, the joints creak and there is evidence of pain; palms and soles are slightly sensitive, a pin prick causing reflex contractions. Radial pulse feeble, temporal strong and varying from 75 to 80. Temperature in axilla, 97.5°; in mouth, 98°. Respiration, 19 and shallow. Micturition, twice daily and small in quantity. Defecation, usually three times a week, semi-solid. Sleeps at night (that is, eyes are closed), also for a few hours during the day. Eyes are usually open in the daytime; winks occasionally and when approached by the finger or when the hands are clapped near the head. The ordinary deep reflexes can not be determined satisfactorily, owing to the rigidity of the limbs. (Superficial reflexes absent). The inhalation of ammonia merely causes the eyes to close with few or no tears. With amyl nitrite the face flushes and pulse rises to about 96. No notice is taken of either quinine or sugar on the tongue; there is slight cyanosis of hands and feet, which are rather cold and clammy. Body fairly well nourished."
The conditions described in the above note continued without material change until November 1, 1895. During the first months of observation, tonics of various sorts, together with faradic electricity, massage and baths were diligently used, but being of no avail, all treatment other than good feeding, frequent bathing and careful attention to warmth of body, was finally stopped. He suffered no inter-current ailment; assimilation and excretion were sufficient and regular; there seemed to be no hopeful indication for any particular method of treatment, and none was attempted for many months, in fact, until the date last mentioned.

At this time, having been much impressed by the experience of Dr. Clarke of Kingston, as set forth in a paper read before this Association at Denver some time previously, I determined to test the efficacy of thyroids in this case and did so with results summarized from the clinical notes of Dr. Hessler, as follows:

Preliminarily, temperature was taken three times daily for two weeks and was found to be usually subnormal.

November 1, 1895.—Began administration of thyreoidin, P. D. & Co.'s tablets, represented to contain each one-half grain, the equivalent of five grains of healthy sheep's thyroid, giving it in the food and continuing as follows:

- November 1 to 5, 4 tablets daily.
- November 6 to 9, 8 tablets daily.
- November 10 to 14, 12 tablets daily.
- November 15 to 19, 16 tablets daily.
- November 20 to 23, 20 tablets daily.
- November 24 to 27, 24 tablets daily.
- November 28 to December 3, 28 tablets daily.

At this time the supply of thyreoidin was exhausted, and none was given for two weeks. The chief clinical events of the month of November are further noted as follows:

- November 6.—Active movements of the fingers, which continued from time to time.
- November 24.—Moved lips slightly as if whispering.
- November 25.—Blew his nose twice normally and whispered audibly.
- November 26.—Picked his nose with fingers.
- November 29.—Extended left arm almost straight. (Before treatment it had been flexed across breast for months so tightly as to cause absorption of subcutaneous tissues.)
The above are merely notes of a progressively increasing activity observed throughout this period.

Meantime the average temperature increased a degree or more, and became normal, while the pulse rate rose to 90.

Upon the suspension of the thyreoidin there was a rapid retrogression to the original conditions. On December 16 its use was resumed as follows:

December 16 to 20, 10 tablets daily.
December 21 to 24, 15 tablets daily.
December 25 to 28, 20 tablets daily.
December 29 to January 8, 25 tablets daily.
January 9 to 15, 30 tablets daily.
January 16 to 19, 35 tablets daily.
January 20 to 22, 24 grains daily.
January 23 to 26, 36 grains daily.

The remedy was then stopped on account of rapid heart action, (140), and other symptoms.

During this period of forty-one days of medication with the thyroids, the following manifestations were observed:

The temperature and respiration, which, during the interim, were again slightly subnormal, speedily mounted to the normal, and from January 18 to 26, rose somewhat above it, reaching, respectively, 100° and 20 respirations. The pulse rate remained at about 80 for two weeks, then (December 28) gradually increased, with wide daily fluctuations, until, on the 26th, it reached 140, soft, small and regular. The motor phenomena noted during the first period, which had ceased with the medication, were speedily re-established, and gradually became more and more pronounced and varied. Those most prominent were observed and noted by Dr. Hessler as follows:

December 18.—Scratched his head at intervals.
January 8.—Raised his head off the pillow.
January 11.—Restless; took off and replaced a ring from his finger.
January 17.—Was able to place him in a sitting posture; offered to him a cup of egg-nog, which I was about to give by the tube, to drink, and to the surprise and delight of those about him, he reached for it with his lips and drank it, but otherwise was per-
fectly passive. After this he was regularly fed in this way for a
time, the tube being laid aside.

January 18.—Picking nose.
January 21.—Sneezing and coughing.
January 24.—Very restless, tossing about in bed considerably.
January 26.—Pulse, 140; thyroids stopped.
January 27.—Temperature, 101°; pulse, 150; laughed audibly,
quite restless. In the afternoon the attendant, on entering his
room, observed a peculiar, intelligent, wistful look in the patient’s
eyes, which led him at once to ask him his wants, but there was no
response other than a continuation of the same facial expression.
Thereupon it occurred to him to offer paper and pencil. Much to
his gratification both were taken, and the patient wrote slowly
and tremblingly the following: “Sit up at times. I would like
to have my mouth washed out a little—may be I could talk—with
a toothbrush or soft cloth.” Just afterwards Dr. Hessler entered
the room and asked his wants, and he wrote: “A little cold
water to drink.” This he did, trembling all over. He was then
helped into a sitting posture, took a glass of water in his hands
and emptied it at once. Being asked as to further wants, he
wrote: “Sit up a while longer; it rests me some; little more
water.” He was then requested to write a few lines to send to
his mother, and he wrote: “I am sitting up now. I cant say
mutch, now itn hurts my eyes to look at Rittings. (Signature).”
In the course of the evening he wrote several sentences, as
follows:

“I wished my fingers (had) more strength.”
“I would like to have some more water; can’t get enough.”
“I would like to keep one of the pencils to keep.”
“I likd to rite lots of times when I had not a pencil.”
“Lites hurt my eyes at times.”
“Get me some more water.”

The attendant wrote the question, “Can you talk? Try.”
The reply written was, “No, I cant make a noise.”

At 7 p. m. he rose up, sat on the edge of the bed and called for
water in a voice audible by the attendant five feet distant. The
pulse being 150 and very weak, he was ordered to have ammon.
carb. gr. v. with f. e. cereus m. iiij every four hours. Later,
after drinking several times small quantities of water, on being
asked if he wished anything else, he wrote, “I believe I could eat
some bread and milk." This he got and ate with a relish, dipping the bread in the milk. This was his first variation from a liquid ration of milk and eggs for over three years.

The following dialogue, spoken on the part of Dr. Hessler and written on that of the patient, shows the mental state during the remainder of the evening of that date:

"You are drinking too much water."
"My skin is so dry that it takes more than two or three glasses to wet up the skin."
"You may have some in a little while."
"How long is a little while?"
"Ten or fifteen minutes."
He waited two or three and then wrote:
"I have waited ten or fifteen minutes now."
He got the water.
"What is the last date you remember?"
"1888."
"Do you remember anything after that?"
"Have you a little more milk?"
A small drink of milk was given.
"Do you want anything else?"
"Either milk or water," was the reply.
"Do you drink beer?"
"Give me a glass, let me try it."
He compromised readily on a little water.
"What sort of a lamp is that above you?"
He correctly wrote, "Incandescent."
After an interval, he whispered, "More water." This he was promised if he would answer certain questions.
"How old are you?"
"Twenty-four or twenty-five years old."
"In what year were you born?"
"I believe 1867." (Third figure uncertain.)
"In what State?"
"Indiana."
"In what county?"
"DeKalb county."
"Where are you now?"
"Hospital."
"Where is the hospital?"
"Logansport."
"Do you know me?"
He wrote "Sebring." Evidently confounding Dr. H. with an attendant whom he had known three years before named Sering.

During the night he slept and was quiet, but asked for water and sat on the edge of the bed occasionally.

At 7 a.m. next day the pulse rate was 140, respiration 20, temperature 98°. During the morning he wrote brief answers to several questions and some original propositions, for example:

"Have they any milk?"
"That medicine tased like pair juice."
"I had a Ravenous apetite."
"I dont feel as good as I did once, but I feel pretty well."

Several questions were handed him in writing, to which he wrote answers as follows:

"When did you come to the hospital?"
"1885." (Incorrect.)
"In what month?"
"June or July."
"Do you remember flowers being put on your table?"
"Yes."
"When your mother was here?"
"I dont remember much about that."
"Why did you not give some sign, say a month ago, when asked how you felt?"
"My memory comes and goes."
"How far back can you remember recently?"
"I cant tell."
"About how many days?"
"A week or more."
"I am getting tired; watter."

This was evident, and he was allowed to rest. In the afternoon he wrote a little with pen and ink, on a table, while seated on his bedside, remarking especially the view from his window as follows:

"looks nice out of doors. would like to be out a while. I can see the river looks nice; would like to take a boat ride, the river looks so nice from here. To look out of the window makes everything look cross eyed to me."
At 7 P.M., pulse was 120. He passed the night as usual. At 7 A.M. next day, the 29th, his temperature was 97°, pulse 128. During the day there was some further conversation, in which his part was written, showing memory to some extent of persons and circumstances belonging to the ante-trance period of his hospital residence. For instance, as follows:

"What ward were you first on?"
"Ward A."
"Who were your attendants?"
"Jos. Rogers, Principal attendant. cant tell who all were here. Was that beer made in logansport?" (He had just been regaled with a small draught.)

A newspaper was handed to him and the date pointed out, 1896. He at once took the tablet and wrote "twenty-nine years old," and then made the following calculation in subtraction:

\[
\begin{array}{c}
1896 \\
1867 \\
29
\end{array}
\]

He quietly looked through the paper for a few minutes. A jocular reference to Rip Van Winkle made him smile, but having lost so many years seemed neither to astonish nor worry him. Later in the day he covered four sheets with answers and queries, showing both a social tendency and a desire to reestablish himself with the times. The questions, "Who is President of the United States?" and "Who is Governor of Indiana?" showed his profound ignorance of recent events.

The next day, January 30th, he wrote but little, seemed dull and indisposed to mental action, but sat up in bed a while. Pulse 124, temperature 98°.

The history taken from the case-book proceeds as follows:

January 31.—Relapsing to former state; still sits up at times; does not write; 7 A.M., pulse 100, temperature 98.2°.

February 2.—Relapse complete. Lies quietly in bed without motion, just as if he had never awakened from his long sleep. The heart's action now having slowed to 76, the thyroids were again administered, 24 grains 3 times a day.

February 3.—Still, but takes ration of milk and eggs.

February 4.—No longer able to take the milk and egg. Feeding by nose-tube resumed, the medicine being given with the nutriment.
February 5.—Rolls about some; no response to loud inquiries. Nasal feeding unnoticed.

February 6.—Afternoon, able to drink his food. Can hold pencil and paper but too stuporous to write.

February 7.—Unchanged.

February 8.—Sat up in bed for a few minutes unassisted.

February 9.—Refused food, perhaps because of medicine in it.

February 10.—Eating but not well. Otherwise unchanged.

February 12.—Ate his supper (bread and milk) unassisted.

February 15-17.—Lies quietly in bed; does not write, but occasionally makes a few marks. Helps himself to food (soft diet). Sometimes smiles at remarks.

February 19-21.—Refused breakfast.

February 22.—Being irritated, doubtless by the coughing of a patient in next bed, he sat on his bedside, grasped a chair and exclaimed loud enough to be heard by the attendant in the next room, "I'll break this chair over your head." Ordinarily he does not speak at all.

February 29.—Patient has fallen off greatly in weight, lies quietly in bed most of the time, but sits up at meal time and occasionally during the day; eats well of a mixed diet; speechless and indisposed to write; excretory functions regular. The pulse rate having reached 160 the thyroids were again stopped. On resuming the treatment on February 2, the rate at once went from normal up to 106, and then gradually with sharp variations rose to the above limit, respiration and temperature remaining normal. During February there was a marked conjunctivitis requiring treatment. Several times a decided bronzing of the skin was noted, usually passing off in twenty-four hours. Also at times profuse, fetid perspiration.

During March no thyroids were given, the pulse went down gradually, but required two weeks to reach its normal rate, then respiration and temperature again became slightly subnormal. The relapse towards inactivity before noted when the remedy was stopped was not so complete, but still very notable. For a time mastication was difficult, the jaw being disposed to rigidity. On March 9th he voluntarily, with some assistance, got up and walked out to the sitting-room of the ward.

March 12.—General massage was commenced, once daily for half an hour.
March 15.—Somewhat brighter. Sits up a little. Speechless.
March 20.—Inactive, but sits up for meals in bed; now masti-
cates well; pulse still declining, (68).
March 28.—Unchanged, excepting that pulse rate is 65, tem-
perature 96.5°, respiration 16. The thyroids were again resumed,
five grains once daily with the supper.
April 7.—Slight improvement. Urea 1.6 per cent. Eating well.
April 8.—Made efforts to speak.
April 9.—Thyroids increased to ten grains daily.
April 11.—Whispered feebly and made futile attempts to write.
April 13.—Urea 1.5 per cent.
April 19.—Uses his hands to help himself, otherwise unchanged.
Temperature slightly subnormal, pulse 80 to 100, respirations 19
to 22. Dose increased to 15 grains daily.
May 1 to 4.—Thyroids exhausted.
May 5.—Resumed remedy in same dose.
May 7.—Increased to twenty grains.
May 13.—Activity slowly increasing; pulse and temperature as
before; weighs 77 pounds.
At this date the patient is very slowly improving under pro-
gressive doses, which at present seem to excite the heart less than
when first given. The tendency in this case to relapse whenever
the remedy is stopped is marked, but each relapse has been less
decided than the former.*

The salient points in the history of the second case referred to,
I have condensed as follows:

George H—, aged forty years, German, single, cabinet-maker,
intemperate; father insane; in August, 1891, suffered an attack of
acute mania, marked by restlessness, boisterous conduct, delusions,
etc., which passed off while in jail, (pending admission to hospital).
In August, 1893, was similarly seized, being noisy, incoherent, sleep-
less, destructive and very restless at times, having a morbid fear
of injury by some one not determined.

*Note.—On May 27th the patient walked to the administration building
and wrote a letter to his mother; since then he has been mentally almost
normal, and though physically weak, from long inactivity, has taken short
daily walks and rides, is able to talk in a feeble voice, and shows general
signs of having reached permanently a plane from which he may be reason-
ablely expected to pass on to a condition of health.

Longcliff, Logansport, June 8th, 1896.
Admitted August 24, 1893, in bad physical state,—emaciated, weak, with marked signs of pulmonary trouble, dejected, silent, still, averse to food. Maniacal symptoms no longer present, but disposed to weeping and lamentation at night.

October 18.—Continues to decline, respiration short and difficult; requires feeding and assistance in all movements; now answers no questions; does not utter a word.

February 12, 1894.—Has been confined to his bed for several months; is profoundly cataleptic most of the time, but swallows soft food placed in his mouth with a spoon. Recently was visited by friends; this roused him from his torpor and he talked freely in German with them, but evinced many delusions, such as that he was to be killed, that he was not allowed to leave his bed, etc.

May 8, 1894.—Has improved somewhat in physical vigor; takes more food, still more or less cataleptic, and always silent. Early in the morning of this date, when alone, got up, climbed over the top of a window which could be lowered seven inches, and eloped. He reached a neighboring piece of woodland before his absence was discovered, wandered about for several hours and was finally discovered standing on one leg on the railroad a few miles distant and returned to the hospital without uttering a word and decidedly cataleptic.

August 10, 1894.—Remaining in his room, usually lying rigidly in bed, sometimes standing in a grotesque attitude beside it; will maintain any position in which he may be placed for a very considerable time. Is fed three times daily with a spoon. Evacuations regular and normal excepting that they are scanty and at rather long intervals. He never speaks and acts only on loud command and then not promptly.

During 1895 no marked changes occurred; as a rule he remained in bed, but sometimes stood like a statue beside it. Several times he was dressed and placed in the sitting room of his ward; would occasionally talk for a time, but soon relapsed into his usual locked up state. He was fed soft food as before, sometimes helping himself, but to a limited extent only. He gave no apparent attention to ordinary surroundings usually and his dejections were without notice or any sort of consideration for the proprieties.

From December 16, 1895, to March 1, 1896, he was given thyroids, commencing with four tablets daily, two weeks later increased to six, of the thyreoidin of P. D. & Co., one-half grain each, and from
January 23, for the remaining period (five weeks), ten grains daily of Armour's desiccated preparation. On December 31, a diarrhoea began, requiring salol and opium to restrain it. On January 15, erysipelas of face and neck appeared, from which he promptly recovered under local treatment.

January 25.—Some gastric disturbance, and finally vomiting; constipated.

January 26.—Some faucial inflammation. Makes violent efforts to cough and clear the throat, and finally spat up a little blood. Was given a cascara laxative and a sedative expectorant, which was continued for a month. The thyroid treatment was at no time interrupted, however. A few days after its commencement an improvement was noted. Mental torpor and the disposition to muscular fixation began to diminish. In the second week he began to talk; at first hesitatingly, and with apparent timidity, but more and more each day. At the same time a disposition to move about was exhibited. On January 13, he put his coat on without assistance. Two weeks later, February 1, he was walking about the ward and sitting much of the time in the day room. February 4, he wrote a letter in German, in reply to one received, well couched as to language and rational and appropriate in all respects. In it he tells of having been ill for a long time, but, excepting a throat trouble and constipation, is doing well, and hopes for a complete recovery. About this time he spoke of remembering having laid in bed for a long time, of not speaking, of having an idea that he was compelled to lie still under a threat of being killed if he did not, and of now seeing the absurdity of it all. During February he steadily improved in all particulars, talking and walking more each day, and occasionally writing long and very excellent letters. March 1, he wrote a Low-German poem, composed ten years ago, as stated, but never before written down. About this time he began to make illuminated cards in colored inks, which were truly artistic, as an amusement.

March 4, he prepared a written history of his case, as remembered. In the afternoon he enjoyed a walk to the greenhouse and about the grounds with Dr. Hessler, the first outing in three years. Everything seemed new and interesting to him and, looking admiringly over the landscape, he exclaimed, "Die Welt ist doch so schön."

On March 9, he was transferred to a convalescent ward in good
physical condition. Here he still remains, amusing himself and others, attending all entertainments as a spectator, and occasionally assisting the florist among the flowers. Barring a dullness of hearing which is chronic, he is apparently a well man.

In a long interview, on March 30, he stated that his trouble had arisen suddenly; was the result of excessive drinking; had jumped out of sleep and screamed—remembered it clearly—no pain, no fear; everything topsy-turvy; recalled circumstances connected with his admission; said patients were very queer; soon lost appetite, became weak; imagined he should not eat; was eight days on F ward, then transferred to D ward; was here fed with spoon; would have eaten if required to do so; laid in bed because he thought he had to do so; did not answer questions because deaf; talked some with the doctor; often wished be could take some poison so he could die; was much surprised one day because he saw ice out the window; did not know it was winter; had lost track of time; on November 22, 1895, saw a paper, counted from that date on the window panes; stood on one leg, etc., because he thought he had to do so; recalled his elopement with a smile; did not know where he was; only wished to get away; remembered no circumstance associated with the periods of deeper stupor, but seemed able to recall, in a measure correctly, some of those belonging to his better conditions, and was greatly surprised when his clinical history was fully presented to him.

The deductions of importance to be made from the foregoing histories are:

1. That in conditions marked by inhibition of sensory, motor, and mental activity, without gross organic lesion, such as obtain in katatonia and in certain types of stuporous insanity and melancholia, we may expect benefit from thyroid medication judiciously used.

2. That the effects of thyroids in full dose bear a striking resemblance to many of the symptoms of Graves' disease, namely: orbicular weakness, consecutive conjunctivitis, skin eruptions, and temporary bronzing, without icterus of eyes, profuse local fetid sweats, subjective sense of heat and thirst, excessive metabolism, decided tachycardia, and the absence of any fixed relation between pulse rate, respiration, and temperature.

3. That, in so far, the theory of Möbius, that Graves' disease is due to hyperactivity of the thyroid gland, is strongly supported.
DISCUSSION.

Dr. Richardson: I think we all will compliment Dr. Rogers on the very thorough manner in which he gave us the description of these cases, and the very valuable addition he has made to the treatment of this form of disease with the thyroid extract. When I first learned of the Doctor's treatment of these cases, having a similar case in my care, a case of catalepsy in which the person had been in that condition for more than two years, I began treating the case with thyroid extract. We have not seen any effect whatever thus far, the treatment now having been continued three or four weeks, but it is possible that we have not carried it to the extent that we should have done to secure the results. After hearing the Doctor's paper I shall modify my treatment.

We have also used the thyroid in several other cases of insanity. In one case of Graves' disease it was used with injurious effect, and in no case that I can recall did we get any beneficial results—probably a half dozen cases altogether.

In the cases described by Dr. Rogers the improvement has been so directly connected with the treatment that we can not help but say that there is some connection between them. Of course the number of cases is entirely too small to draw any very positive conclusions from them, but it is a suggestion that is worthy of adoption by all of us.

Dr. Gilman: I wish to speak of a case of exophthalmic goitre in which I found this treatment very successful. The patient was a lady about 25 years of age, married, one child; had been insane for a period of about eighteen months. Upon admission the thyroid was nearly as large as one's fist. Her eyes protruded two-thirds of the way out of their sockets, and the heart's action was about 150 to 160. We commenced the administration of the remedy and almost immediately there was an improvement in the heart's action, which, of course, I hardly dared to expect. The treatment was continued over a period of several months with a steady improvement in every way, with decrease in the enlargement. At the end of six months there was no appearance of swelling whatever either visible or palpable; the eyes were in a normal condition and the heart's action between 70 and 80. She remained afterward in the hospital for about three months when she was discharged as cured mentally.
Dr. Bancroft: I have tried the thyroid treatment at Concord and I am very much pleased with the report of Dr. Rogers. I find three very definite physiological results. One is the increased and intermittent action of the heart; another is a rise in temperature, and a third is nausea and vomiting. This irregular and rapid heart action is something that I found quite serious, and in one case of melancholia in a young man not very strong, there was rapid exhaustion and death. I have always felt a little uncertain as to whether the drug did not hasten rather than retard the exhaustion that finally proved fatal. My experience was that we could not give over 40 or 50 grains of the Armour extract. In this young man the temperature increased slightly and the pulse ran up to 130, and I omitted the drug. After the omission of the drug he went into a state of exhaustion. In two cases the drug really seemed to effect a cure. One was a case of melancholia very much like the one which Dr. Rogers reports in which the individual had not eaten anything for months and was fed through a nasal tube. There was no action of the mind whatever. About two weeks after the drug had been administered she began to wake up very much in the same way that Dr. Rogers' case did; in fact his description seemed like our own case. She went on to improvement and recovery. One other case of melancholia seems to have been benefited in the same way and the individual has made a good recovery. It seems to me that we have a drug here that in some cases is capable of doing a great deal of good, but, unfortunately, you can never tell beforehand in what cases it will be beneficial. We have tried it in a number of cases at Concord but could not be sure what the results would be before giving it a trial. In some cases it is beneficial, and in some there are no effects whatever. I can concur in what Dr. Rogers says that in cases of functional mental disturbance without any indication of organic disease, cases of melancholia with stupor that do not seem to be doing well and cases of mania that are evidently functional in origin and seem to be passing into a chronic state, this drug does seem to be beneficial; it seems to start up a metabolism of the brain cells and produce favorable results.

Dr. C. G. Hill: The reports of the efficacy of the thyroid gland and its extracts in exophthalmic goitre seem to be very conflicting. These variations are probably due to the different pathological conditions found in different cases. In some cases of
exophthalmic goitre the proliferation of the gland has proceeded to the point of hypertrophy with an increase of the function of the gland, and in these cases the thyroid treatment would be injurious. In other cases the proliferation of the epithelium has destroyed the function of the gland, and in these cases the thyroid treatment would evidently be beneficial. I do not know of any way of distinguishing between these two pathological conditions, except by testing the efficacy of the treatment.

I have studied about fifty cases treated with thyroid extract and the conclusions I have reached are similar to those of Dr. Bancroft. The extract seems to have the power, in some mysterious way, of stimulating the mental functions, and it is efficacious and even curative in many cases of insanity regardless of its character, whether chronic with stupor, or one of acute maniacal excitement or subacute mania progressing towards dementia, providing the disease has not progressed to the point in which there is atrophy of the cerebral cells or of the neurons of which we have heard so much lately. Even in those cases where there is some atrophy of the cells or neurons, or physical destruction of the essential organs of the mind, the patient can be stimulated in many instances to a certain degree. A patient who has not spoken for years will in twenty-four hours talk volubly, swearing at things interfering with him. These cases relapse from time to time but are generally better for the treatment. In such cases we can not say that the atrophy is in proportion to the length of time that the disease has existed, so it is better to give them the benefit of the doubt and test the drug, and if found deleterious, stop it.

I have been particularly struck by the effect of this drug upon opposite extremes. A person with melancholia with stupor will be able to arouse himself, whereas on the other hand cases of maniacal excitement that can only be controlled by most powerful sedatives will, in a few days after taking the thyroid, become calm and composed and progress rapidly toward recovery.

If the physicians of this Association would tabulate their cases and report them in brief form, we could sooner or later arrive at some definite and interesting conclusions in regard to this thyroid treatment of insanity.

Dr. Burgess: At our institution we carried on a series of experiments, a record of which was published in the *Montreal Medical Journal*. The point I would like to call attention to is
this,—the risk attending thyroid feeding where there is any tendency to phthisis. In starting, our experiments were based on those of Dr. Bruce, who speaks of having five phthisical cases which were greatly benefited by the thyroid treatment. Bearing this in mind we put one patient in whom we suspected phthisis on the treatment. We can not prove it to our satisfaction, but in this case I have no doubt in my own mind that the thyroid feeding lit up the latent phthisis and led to the death of the patient in a few months. My own opinion, therefore, from personal experience is, that in cases where there is a tendency to phthisis, thyroid feeding is contraindicated.
THE PSYCHIC INFLUENCE OF THE NIGHT SEASON.

BY A. B. RICHARDSON, A. M., M. D.,
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The diurnal alternation of night and day is not without interest in its psychological influence upon the human race. The ebb and flow of energy that it represents is an element of vast importance in our existence. Day is the period of active energizing, night that of repose and recuperation. In the former there is a state of elevation, a natural confidence and a willingness to undertake whatever responsibility may present itself. In the latter there is just as truly a natural depression, a timidity and cowardice in confronting the obstacles in our path.

The accumulated inheritances of countless ages through this ever-recurring elevation and depression have stamped this wave-like characteristic upon every mental operation. The ebb and flow in mind activities is universal. It permeates every form of psychic energy. It gives coloring to our emotional states. It is seldom that in any individual or at any time we find an accurate ideal equipoise. We are either in a state of exaltation or of depression, either too confident and self-reliant, with vision too highly colored and enthusiasm too much exalted to be justified by the circumstances of our environment, or we are in the opposite condition of depression and timid cowardice, with little confidence in our powers and an undue extravagance in our estimate of the difficulties in our pathway.

Even when this becomes impersonal and is crystalized into the energy of nations the same tendency is seen. One extreme of opinion almost invariably follows another.

The pendulum of thought and psychic energy forever swings first to one extreme of its movement, then to the other. The world is, apparently, unable to calmly and deliberately maintain a correct status in opinion or practice. It is either too credulous or too suspicious, too indulgent or too intolerant, too confident in its knowledge or too ready to find cause for criticism and disbelief. How far this oscillation between antipodal points depends upon or is influenced by the diurnal withdrawal and return of the solar
influence is possessed of more than merely curious interest. It is not unworthy of a few moments' time and study.

Night is the withdrawal of the light and heat of the sun. No amount and no intensity of artificial illumination will replace this withdrawal. In spite of all the artifice and invention of man, night still reigns supreme. No matter how much we may attempt it we can not turn night into day. Although we may supply light and noise and the bustle and stir of day, it is still night. The tendency toward repose and a letting down of the armored guard that the activity of day brings with it, are still there.

There is a calmness and a soothing stillness in the air of night. "All is gentle, nought stirs rudely, but congenial with the night, whatever walks is gliding like a spirit."—(Byron.) There is a mystery in the season of darkness that inheres in the very atmosphere. However we may explain it, man's credulity is greatly increased at night. He is willing then to believe in the existence and power of supernatural agencies, that have no influence on him during the day. Night is the season of ghosts and hobgoblins. The dead then waken from the grave and malefactors return to further curse the scene of their former crimes. Whoever heard of one of these mysterious personages appearing to the ken of man in the daytime? No matter if the earth is enshrouded in the impenetrableness of a London fog, ghosts do not appear in it. Hobgoblins and night are inseparable, and the only sufficient explanation for this curious circumstance would seem to be that night has such influence over our emotional states that we are then ready to accept as sufficient evidence appearances that at other times would be wholly inadequate. There is an element of timidity and fear in our organization that is greatly enhanced at night, and this may largely account for our increased credulity at that time. Our belief is born of our fears. How many physicians are there who can not bring proof of this? Many of their night calls are due to the greater uneasiness of the patient, or his parents or friends, on the approach of night. They are affrighted then at symptoms that would not alarm them during the day, and hasten to send for the physician to relieve them of the fears that night itself has seemed to bring to them.

Again, in many cases of illness there is an actual exacerbation in the symptoms with the approach of night. This is notably so in children. This may have a double origin. It may be due to
the increased timidity of the individual at that time, and a consequent increase of the subjective sensations of the disease, and it may be due, at least in part, to the natural letting down of the power of resistance by the organism that we believe does occur during the night. Whatever may be the explanation the fact is indisputable, and there is not a mother who does not dread the approach of night when her child is seized with dangerous illness.

A still more interesting fact is the influence of the night season over our moral attributes. There is a letting down in that direction very similar to that seen in the field of the emotions. Byron says, "There is not a day sees half the business in a wicked way on which three single hours of moonshine smile. There is a dangerous stillness in that hour, a stillness which leaves room for the full soul to open all itself, without the power of calling wholly back its self-control." This could not be better expressed. The power of resistance to things evil is then diminished. Deeds of evil are then planned, and temptations then prove too powerful to be put aside. Darkness and evil deeds are closely allied, and not solely, we believe, because they can then be most effectually concealed, but because then evil runs rampant in the human heart, and the natural resistance to its control is then much impaired. Temptations to the young and the inexperienced are fraught with far greater danger to their well-being if they are presented at night. What would have no allurement during the day often has such a glamour thrown about it by the accompaniment of the night season that we fall victims to its wiles. It is at night that the siren and the demi-monde are abroad in the land. Why is it that they choose this hour rather than the day? Partly, doubtless, because then is the hour of recreation with many, but we believe also because then the guard over human passion is partly released, and their beguiling are therefore the more fraught with success.

The very mystery of the night, a mystery inherent in its shadows and its impenetrableness, is conducive to an expanding of the imagination. It is a beautiful imagery that finds in its shadows and its solitariness an enlargement of the vision rather than a curtailment; that sees in the darkness of midnight new worlds that the light of the sun has concealed from us; that finds in night a broadening of the field of the mind's vision, to which the very light of day had made us blind. Blanco White has well portrayed this in his lines:
"Mysterious night; when our first parent knew
Thee by report divine and heard thy name
Did he not tremble for this lovely frame,
This glorious canopy of light and blue?
Yet 'neath the curtain of translucent dew,
Bathed in the rays of the great setting flame,
Hesperus, with the host of heaven came,
And lo! creation widened in man's view.
Who could have thought such darkness lay concealed
Within thy beams, O Sun! or who could find,
Whilst fly and leaf and insect are revealed,
That to such glorious orbs thou mad'st us blind?"

There is an awe and a wonder in darkness itself and a sharpening of all our senses that renders every sound more clear and makes every object stand out in greatly heightened distinctness. The sense of hearing is more acute, the eyesight detects objects more readily, the touch is quickened, the whole being is more sensitive. Whether this be evidence of weakness, the hyperæsthesia of nervous exhaustion, or a quickening of every tissue in its instinctive strife for self-preservation, may be beyond us; of the fact we all have proof in the promptings of our own hearts. It has often been surprising to me that night has such an influence on the impressions that current events make on myself. If by chance I should have something unpleasant in my daily experience, as it may well be believed we do have at times, and if I chance to waken during the night, I have been much exercised and annoyed by the fears and mental distress that arise in my mind. The next day, perhaps, in thinking it over, I am astonished that I was so foolish as to let such anxiety take hold on me.

The most dangerous hours of the twenty-four to the melancholic are the latter hours of the night. The depression is then greatest, obstacles then seem most insurmountable, and the power of resistance to the suicidal impulse is then least effective. I have often found it necessary to give especial instructions to attendants in this regard. This all goes to demonstrate that the energy of the patient is at its lowest ebb during the night, that there is then a natural depression and timidity.

What is experienced by the sane, influences also the insane, and obstacles and misfortunes then mount highest in their vision. There is doubtless scarcely a melancholic who does not at one time or another have suggestions of self-destruction, and whether or not they will control depends entirely on the strength of the sug-
gestion. The particular hour of the night is often sufficient to throw the balance against the poor unfortunate, and in this sense it becomes an actual exciting cause of suicide. It is a fact that we should not lose sight of, and we are convinced that it has its basis in a psychological variation of the organism at this hour. Just as certainly as that there is a psychological condition of exaltation and sense of well-being, so also is there a psychological state of depression and irritation with our environment. It is not necessary to assume that this implies disease. It does not. It is simply an inevitable reaction such as is seen in all psychological phenomena. There is a coming and a going, a rise and fall, a season of joy and a sense of pain, and we are persuaded that the greatest factor that instituted and enforces this law of nature is the daily cycle of the earth on its axis, with its necessary presentation and withdrawal of organic life to that source of all life and energy, the solar center. In its presence we imbibe warmth, energy, confidence, life; in its absence we suffer the reaction of coldness, lowered ambition, lack of confidence and moral cowardice. A curious physiological fact and one not without its practical application.
ON THE DETENTION OF THE INSANE, AND THE WRIT OF HABEAS CORPUS.

BY JOHN B. CHAPIN, M. D.,
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The writ of habeas corpus and trial by jury are two principles incorporated in the Great Charter of England. The writ of habeas corpus has been defined in English law as "a process issuing out of a superior court, commanding the body of a prisoner to be brought into court." It had its suggestion in order to prevent, without a due process of law, prolonged illegal imprisonment, and the imposition of cruelties upon persons charged with real or fictitious crimes. It was intended to enforce the principle that "no freeman may be taken or imprisoned but by the lawful judgment of his peers, or by the law of the land." As the principle of the writ has been incorporated in the organic constitutions of all English-speaking people, the application of it has been so enlarged as to bring within its reach, not only persons charged with criminal offenses, but also all persons who are in detention, alleged to be improperly deprived of their liberty. This allegation may be the basis of a petition for granting a writ of habeas corpus commanding any physician in charge of a hospital to bring the body of a lunatic into court on presentation of *prima facie* evidence of improper detention.

The issue of a writ of habeas corpus might, in itself, convey an implication that some wrong had been committed, to rectify which the authority of a superior court was to be invoked. It might, at first thought, be regarded as a cloud on the reputation of a public or private institution, but it must be remembered that no judge can decline to issue a writ of habeas corpus on the presentation of a petition in proper form. The hospital physician, with a consciousness of the rectitude of his actions and purposes, may regard the service of a writ as an indirect impeachment of his official actions. A community may be shocked, and a curious, even morbid, interest aroused at the suggestion of the possibility that a citizen may be improperly and illegally deprived of his liberty. Reflection, however, should convince the hospital physician that his
patients lose none of their civil rights when they enter the doors of his institution. Inasmuch as no wilful, malicious act of hospital detention has thus far been disclosed, of which the public has any knowledge, the 70,000,000 of Americans that comprise our population ought to feel an assurance that their liberties are not seriously in danger from the two hundred well-disposed, law-abiding physicians who manage the institutions for the care of the insane of our country. Probably in the experience of many whom I am addressing, cases do occur where there are conflicting family and financial interests to be considered; where a reasonable doubt exists in the mind of the physician whether convalescence or recovery is fully established; whether a suitable, or any, home is open to the patient when discharged; whether the patient must, from necessity, at once, on his discharge, shoulder the burdens of bread-winning for himself and family, at a period when he does not and can not fully appreciate all the embarrassments that surround the conditions. It is true that many hospital cases are impatient of restraint or restriction of any kind. They comprise, mainly, the chronic class, and those described, for convenience, as paranoiacs. They are often restless, persisting in delusions evolved from the acute stage of their disease—are suspicious, and influenced by suspected conspiracy to an extent that their state is incompatible with all family and social life. They are committed to a hospital for safe-keeping and their own protection. It is the latter class—the so-called paranoiacs—that create trouble in any hospital, worry the administration quite as much as they annoy their own relations and the community of which they are often dangerous members. Every hospital physician must consider what relation he and the hospital with which he is connected shall hold to any one of these classes. To determine justly and wisely the question of continued detention or discharge of a patient, however classified, may call for a combination of the highest professional and judicial judgment. If the patient has made a good recovery, or has reached a stage of convalescence when, perhaps, recovery will be promoted by discharge, then no question need arise. It is undoubtedly true that many patients retain some of the delusions of the acute stages of insanity for a long period after a general and decided mental improvement has occurred, and seem about to drift into a chronic and stationary condition. At this critical period it repeatedly happens that removal from the hospital to new environments has been sufficient
to correct and remove delusions which were but a remainder of the acute stage. The average results of this course have been so satisfactory, and often so surprising, that, if the delusions are in themselves harmless, it is believed to be a wiser policy—dividing the chances of an erroneous judgment with the friends—than to retain a patient according to some rigid, inflexible rule, until every vestige of mental disorder has wholly disappeared.

In the varied experience of his hospital work the physician will receive appeals for discharge and complaints about unreasonable detention. These come from partly recovered patients, and others, as paranoiacs—those known to have dangerous delusions; who, on slight provocation, or without any provocation, are liable to violent psychical explosions; and another class with disordered, uncontrolled sexual propensities. It is a fact that many coming under this category are quite orderly in a hospital, and conform with some protests, to its rules and regulations. Some may be placed in this class for whom there does not seem to be any place in the world outside of a hospital, as they are without homes, natural guardians or friends to shelter, to advise, or to exercise any responsible charge of the case, and there is also an embarrassment often about the after-care. There are also financial questions and interests, as well as cross-purposes, disagreements, and contentions in families, about the necessity or propriety of continued detention in a hospital, which are important elements to be considered in many cases.

Toward all of the cases coming within the classes which have been briefly named, it is clear that the physician must form his opinion from a strictly medical standpoint, and maintain toward them a strictly professional relation. There are cases that must be and ought to be relegated to the judges of the courts. It is a most injudicious proceeding to assume such a paternal relation toward one of these cases as may lead a hospital physician to become a party to a case—to deny a patient the exercise of his civil rights—as well as a serious mistake to assume that the issue of the most gracious writ of habeas corpus is an imputation upon his official conduct, which must be met by a vigorous defense. If in the cases of some very objectionable patients who will not die, and no interposition of Providence is to be expected, perhaps a judicial process can not act too swiftly for the relief of the hospital and the hospital physician. Instances could be named where prolonged detention and errors of administration have worked
incalculable mischief to physicians and hospitals, and even influenced legislation very injurious to all interests concerned.

During my thirty years' connection with asylums for the insane in the State of New York, the writ of habeas corpus was not invoked in a single case. In the State of Pennsylvania, until 1869, there was no law providing for the commitment of the insane. Soon after the passage of the law of that year several patients were discharged from the Pennsylvania Hospital for Insane, notwithstanding the judges were clearly advised as to the true mental condition of the patients, by Dr. Kirkbride, then in charge. After three of the discharged patients had committed suicide, and other calamities had overtaken some, the community experienced a shock, and further resort to this method seemed to end for the time. In 1883, a new lunacy law was enacted, having been suggested by a public agitation of what were regarded as improper practices without sanction of any law. This law, among other things, made provision for unrestricted correspondence, and visits from counsel and lawyers.

During the past eleven and a half years eleven patients of the Pennsylvania Hospital have been taken into court by writs of habeas corpus at different times. It has been thought that it might be of interest to present a brief outline of these cases, and the disposition that was made of them, as a contribution to hospital experience and administration, which may be suggestive, and an aid to others. They have the greater value, perhaps, as showing actual experiences, and how the insane may even deceive members of the legal profession who were employed to formulate and prosecute the several petitions for the issue of the writs, on the hypothesis the patients were perfectly sane.

Case 1.—That of a gentleman employed in the Treasury Department at Washington many years—a lawyer by profession, gradually developing delusions of suspicion, conspiracy, persecution, etc. When admitted to the hospital he was in impaired health, suspicious of his food, of which he partook in small portions, thought the drinking water was poisoned, and generally was disposed to seclude himself, and to stand alone and apart from others, refused all communication with his mother and relatives, counting them among his persecutors. Learning that he could communicate with a lawyer, he made application for his services, which were rendered in framing a petition for a writ of
habeas corpus. For this service he paid the lawyer a check of over $200. On being brought into court he announced to his counsel that he would manage his own case and dismissed his counsel. After an examination of the admission papers by the judge, and hearing the testimony of the hospital physician, the relator was placed on the witness stand to give an account of himself. Commencing at a period about twelve years prior to his admission to the hospital, he began to recite his story, which was that he had been employed by the so-called "Electoral Commission" to prepare a brief for their use; that while walking about the streets of Washington he was invited to take a drive in a carriage, but soon, to his surprise, was taken to the Government Hospital for the Insane. This was only a beginning, as he alleged, of many conspiracies which had been prepared to punish him for his services rendered to the commission, and for his success in seating Mr. Hayes in the presidential chair.

He stated to the judge that on entering the hospital he soon discovered that Mr. Hayes was himself a patient in that asylum; and that he could not be mistaken, as he knew him very well. He represented that Mr. Hayes was in a very emaciated condition; that he was gradually undergoing decomposition; that in his presence the odor was insufferable; that a small quantity of beef-tea was brought for him, of which he partook, and in a short time died, and was carried out of the ward. On being asked by the judge if Mr. Hayes did not serve his allotted term, and lived many years afterward, he said it was not true; that a person who resembled him very much was placed in the presidential chair; that he (the relator) was the possessor of that secret, the possession of which had been to him a source of all his troubles. He also stated that after his discharge from the Government Hospital he went to the city of New York, and that there he discovered conspiracies were being formed to poison his food. Although he had a room at a hotel he partook of no food there, but changed his place for taking meals so that he would not be known and poisoned. While walking along the street with his hand-bag he hailed a car, the conductor of which did not seem to take any notice of him, and was about to proceed when the relator stated he hurled his hand-bag at him with such force as to knock him from the platform. For this offense he was arrested, his insanity suspected, and he was removed to Bellevue Hospital. From the
Bellevue Hospital he was removed as a State pauper and lunatic, notwithstanding he had $70 and a gold watch in his pocket, which were taken possession of by the authorities. The judge at this stage stated to him that he did not care to hear what had transpired so many years previously, but wanted to know what he had now to complain of, and what he had to ask of the court. He admonished the judge by stating he was a lawyer himself, and would pretty soon come to that point—at which the judge remained quiet for a short time. The patient went on to say that being invited to come to the city of Philadelphia, he was permitted to leave the custody of the New York officials, and allowed to enter Pennsylvania. On being placed in a station house in Philadelphia, he alleged he was visited by two persons who called themselves physicians, and in the course of the day was taken over the river to a place called the Pennsylvania Hospital for the Insane. The judge at this stage, growing impatient, asked him to come down to his present condition, at which he again informed the court he was a lawyer—that he knew what his rights were, and would very soon reach the consideration of that part of his case. The relator still going back to dwell upon his earlier history, the judge suddenly interrupted and remarked he was evidently not a proper person to be discharged from the hospital, and remanded him back, at which the relator entered a vigorous protest, but was removed by the officers, and returned to the hospital. On his return he was very much pleased with the success of his efforts in attracting the attention of the court and the large number of spectators, who seemed curiously interested in his case.

The hospital physician, in a day or two, stated to the patient that he evidently was dissatisfied in the hospital and with the officers, and as the court had declined to act upon his case, he (the physician) would make an attempt to see what he could do, and would request his friends to remove him, on which the patient remarked that that could not be done. On being asked how he could prevent it, he stated he would have a mandamus issued to prevent any such action, because if he were put out of the hospital he would have no standing in court, and his case would be lost. Subsequently, on being transferred to another hospital, much of this proceeding was repeated in court on the issue of a second writ of habeas corpus.

Case 2.—A lawyer suffering from paresis in the early stages, with exalted delusions—delusions of wealth, of his aristocratic lin-
eage and royal birthright, and that he was the owner of palace cars, railroads, steamships, etc. This patient, like the previous case (Case 1), communicated with a lawyer for the purpose of having his case brought into court on a writ of habeas corpus; and I might say of this person, and the other cases that I shall mention, that they had an opportunity of conversing with their counsel, all of whom expressed to the writer the opinion that they had not discovered any evidence of insanity, and that they believed their clients sane. On being presented in court, this patient announced to his counsel that he would manage his own case. The hospital physician, as usual, was summoned to the witness stand, asked the history of the case by the court, and, of course, was examined by the relator. In the course of the examination the judge asked the physician the nature of the disease, and whether the patient would probably recover. On being informed by the physician that, in his opinion, the disease was incurable, and in its ordinary course would terminate fatally in about two years, the patient laughed heartily and looked with a sympathetic expression upon the doctor's assurance in his case. This case, as others, attracted some attention on the part of the legal profession, of which he was a member, and the court room was soon filled with an interested company, who listened with surprise at his apparent rational appearance, his intelligence and the apparent ability with which he conducted his own case. During his oration in behalf of liberty he appealed to the judge that he might be permitted to return to his ancestral estates (as a matter of fact he was absolutely destitute of all property), and acknowledging that he had been exhausted in an active political canvass for an important judicial office, said if he were allowed to roam over his fields he would soon be restored. He betrayed but little evidence of his delusions in his manner, or in what he said. The judge was evidently embarrassed by his sympathies for this unfortunate person, and hesitated how to decide. He took a large number of letters which had been written by the patient, and announced he would present his decision with little delay. When the decision was announced, the writ was dismissed, and the patient continued in the hospital until removed by the authority of his friends to another State, where he died in the course of a year following.

Case 3.—A circuit judge of the United States Court residing in another State—suffering from impaired health, due to overwork and political excitement—had delusions that he would be removed
from office because of a change of administration; that he would be impeached, and, while holding a term of his court, became so violent in his language and so excited that the district attorney voluntarily arose and asked suitors to withdraw, or to suspend all pending litigations, which was assented to, and the term of court ended. During this episode the judge sat with his feet in a tub of ice-water, with cold cloths upon his head, vociferating and haranguing in a loud voice.

In the course of his first week's residence at the hospital he perused the rules and regulations and the State lunacy law, and drew up a petition to the judges sitting in the U. S. district court, that they would issue a writ of habeas corpus, and have him before them, which was done. On entering the court room, the two judges sitting proposed that the case should be heard in chambers, but to this the patient objected, preferring a hearing in open court. After hearing a statement of the case from the physician, and on reading the return made by the hospital and the admission papers, the judges were of the opinion, founded upon a decision in a similar case, rendered by Judge Cadwalader of the United States District Court of Pennsylvania, that it was not within their jurisdiction to act, but that the case came properly within the purview of a State court of Pennsylvania, in which jurisdiction he then resided, and directed his return to the hospital. Application was subsequently made to the State court, but the patient began to improve, and voluntarily declined any further proceedings, ultimately made a good recovery and returned home.

In this case the relator (the judge) sat at the bar of the court, and called in a loud voice to the marshal to bring him volumes containing decisions, for the purpose of proving to the court that they were acting erroneously, and appealed eloquently and pitifully to the judges that they would not again consign him to "the cell of a lunatic."

It is noteworthy that the three cases above were lawyers, and defended their own applications for discharge.

Case 4.—A person of weak mind, possibly due to inheritance. In his early life he made a homicidal attack upon his father, subsequent to which he was placed in a hospital of another State, after being adjudged a lunatic, by a jury, and a guardian having been duly appointed. During his residence in the hospital of another State he conducted himself quite well—at least was not disorderly. He
was permitted to have certain liberties of the grounds and the
neighboring country. During one of his walks, or strolls, he
attempted an indecent assault upon a woman, after which he was
deprived of his liberty. He was much excited by the additional
restraints which had been put upon him, communicated with a
lawyer, a writ of habeas corpus was issued, and after a patient
hearing he was adjudged an improper person to be at large. The
judge in this case took the precaution to prepare a carefully
written opinion, giving his reasons. Subsequently this patient
was transferred to the Pennsylvania Hospital for Insane. Having
under the law the right to address communications to persons
whom he might call his counsel, he availed himself of this privilege
from time to time. It is stated that at least fifteen lawyers have
visited him during his hospital residence, until at last he was
brought into court on a writ of habeas corpus. After a patient
hearing, the sitting judge decided that he should be returned to
the hospital, and announced that whenever a suitable person was
found to care for this patient outside of a hospital, he would again
consider his case. As the patient has not assented to any arrange-
ment of this kind he still remains under care.

Case 5.—That of a gentleman engaged in large financial opera-
tions, who had taken alcoholic stimulants in small doses, and small
doses of morphine, ordered by his attending physicians. He had
become irascible, had delusions about the fidelity of his wife,
suspicions of conspiracy connected with the physicians and many
other friends, and neglected his business and family relations.
On admission to the hospital the same conditions alluded to were
confirmed on examination. Without going into detail of the case,
which has no special medical interest, the patient, in due course of
time, improved very much, made a gain of thirty-five pounds in
weight, seemed well, but was impatient of further detention.
In consequence of the variety of opinions that were somewhat
distracting, on account of earlier threats of violence, as well as
for certain financial reasons, the hospital physician did not feel
disposed to undertake alone the responsibility of his discharge.
With the consent of his counsel, and the concurrence of the
hospital authorities, he was taken into court on a writ. He
presented himself on two successive occasions, when the sitting
judge stated he would suspend final action upon the writ, pending
his discharge on trial. The wisdom of this course was confirmed
by the resumption of his domestic and business relations, which have all been performed in a normal and most successful manner since his discharge, and the patient is well.

Case 6.—That of a man who suffered from occasional attacks of periodic insanity, and who was duly certified and brought to the hospital. At once he addressed letters to his counsel, who caused the issue of a writ of habeas corpus requiring the production of the patient in court, although he had been but twenty-four hours in the hospital. On being brought before the court the hospital presented the usual form of a return, and the physician stated they had no knowledge of the case, whereupon a conversation began between the judge and the patient, when the patient expressed his desire to go to the hospital voluntarily, if he could remain without a commitment, which the judge advised him to do. He remained a willing and submissive patient until discharged recovered.

Case 7.—That of a man suffering from acute delirium and mania from the alcoholic habit, who remained in the hospital in a state of acute insanity three months, when he convalesced, and became impatient of further detention. His wife and friends, apprehending a return of his former habits, and having been in peril by reason of his dangerous tendencies, declined to remove him on his convalescence. He appealed to the court through his counsel, and after a hearing was remanded to the hospital, the judge holding the case under consideration. In the course of the discussion of the case in the court room, the judge asked the question whether the patient was then dangerous, and how he conducted himself in the hospital. The reply was that he was orderly, quiet, and well disposed, but that on two occasions, when he had been out on trial he had drank freely, assaulted his wife by kicking; had been taken to the station house, and returned to the hospital by the police the next morning. The judge asked the question whether it was thought right that a person should be detained indefinitely in a hospital lest at some future time he might become drunk, in reply to which the physician stated he could not decide, that the question was more properly before the court. Subsequently the wife appeared at the hospital, and in conformity to her written request the patient was discharged.

Case 8.—That of a young woman—a stenographer—somewhat familiar, from her occupation, with legal proceedings, was admitted
to the hospital with a gradually developing form of insanity, in the nature of suspicions, conspiracies against her character, and sexual delusions in regard to a number of prominent persons. After admission, many of these suspicions and delusions of persecution continued to be manifested in her writings. On a petition of her counsel, whom she consulted, a writ of habeas corpus was granted, and her case was patiently heard. A number of her letters were also procured through her sister, and other letters which had been written in the hospital were presented to the court as a part of the case. After a hearing the court decided she should be returned to the hospital; thereupon, as it became necessary to manage what remained of her small estate, a commission de lunatico inquirendo was ordered. The jury in this case failed to find a verdict of insanity, on which the patient was discharged by the hospital authorities.

It is a further part of the history in this case that her savings, which had amounted to some $3,000, were reduced, through litigation and in other ways, to $300, and she subsequently committed suicide.

Case 9.—That of a young woman suffering from periodic mania. Had been frequently a patient in the hospital—usually going through a period of maniacal excitement, followed by a stage of irritability, fault-finding, suspicions, and depression, followed by recovery. During one of the secondary stages of her attacks she addressed a letter to her counsel, offering a fee of $1,000 if he could secure her discharge from the hospital. In this case the friends, who knew her peculiarities very well, determined to interfere for her protection at this stage. On a hearing of the case before two judges sitting in court the patient was remanded to the hospital and the writ dismissed.

Case 10.—That of a woman, with ample means, with gradually developing delusions of suspicion, involving estrangement from her relatives; the introduction of persons to her home who were strangers to her, and who partook of her bounty, with delusions about some imaginary inventions on which she was engaged, and living in a state, apparently, of positive destitution. A relative, feeling a natural solicitude, sought the assistance of the police, who went into the house with their surgeon. Although in the winter, they found the house cold, the heating apparatus out of order, and not working; the water fixtures frozen, leaking, and wrecked; and
the patient herself trying to keep warm with the aid of a small oil-
stove. In the house, occupying one room, with a large, open fire, 
was found the beneficiary of this woman's bounty, with his family, 
really managing the house, and indulging in all the luxuries that 
his appetite and propensities could suggest, at the expense of his 
benefactress, whose credit he seemed to think was without limit. 
The police placed the patient in charge of a friend, who had her 
duly examined and committed to the hospital. During her resi-
dence in the hospital there was some physical improvement, and a 
subsidence of the acute mental disturbance. At this time she 
invoked the aid of her former counsel and was taken into court on 
a writ of habeas corpus. After a patient and somewhat prolonged 
hearing the judge remanded the relator to the hospital until, in 
the judgment of the physician, she could be safely discharged and 
provided for, and directing that she be provided for in a manner 
becoming her social standing and her means. She eventually failed 
mentally and physically, and died in the hospital.

Case 11.—That of a paretic, with enlarged delusions, and a per-
son actually engaged in large financial operations. In this case 
there was a difference of opinion among the friends and physicians 
about the disposition and management of the patient. One party 
considered agreed that the patient should travel, and be separated 
from other members of his family; sent him to Australia, Samoan 
Islands, Japan and China, during which time the other members 
of the family did not know his whereabouts, and employed detec-
tives to get trace of him. The newspapers referred to the pro-
ceeding as the abduction of a millionaire. There were really two 
parties, or armies, acting, one to conceal any knowledge of the 
whereabouts of the patient, the other seeking to get trace and 
possession of him. During this period of travel for the health of 
the patient, a reward was posted for any information concerning 
his whereabouts. In the course of eighteen months or two years, 
the patient was brought to the Pennsylvania Hospital for Insane, 
when his whereabouts became known, as all parties interested 
were at once informed. Thereupon commenced proceedings in 
court to bring the patient before a judge on a writ of habeas 
corpus. At the hearing the judge remanded the patient to the 
hospital, there to be cared for, and further directed that the court 
of the county where the patient resided should cause a proceeding 
de lunatico inquirendo, in order that a guardian of the person and
property of the insane person should be duly appointed. The patient remained in the hospital until his death.

Nine of the persons whose cases are presented had availed themselves of their right to communicate by letter with legal counsel. Several addressed letters to a number of lawyers—one was visited by nine members of the legal profession, five physicians, the Committee of Lunacy; and communicated by letter with seven judges, five lawyers, and a number of citizens. This record was exceeded by one other patient. Seven of the lawyers who were trembling with apprehension, as they thought how the liberties of the people were jeopardized, either received or were promised a liberal compensation. The admission papers were found to be in proper form in every case. Ten were returned to the hospital, the judge properly making an order in one case that an inquisition should follow, in order that a custodian of the person and property might be appointed. In one case the judge assumed the responsibility, with the approval of the physician, of advising the discharge of the patient. All of the patients were of the chronic class, except two who were unwisely influenced by their legal advisors, and would have been discharged in due time as cured, and would have escaped the publicity that usually attends all court proceedings.

It should be specially noted that with one exception the mental condition of these persons was so apparent in the court room that the judges had no difficulty, without the opinion of a physician, in arriving at a conclusion. Some of the persons exhibited pleasure at the display of their delusions, yet the lawyers engaged in the cases expressed their own opinion of the "perfect sanity" of their clients, taking no account of the distress occasioned by the publication of their unfortunate condition. In one case the counsel asked a discharge on the ground that the relator was not a citizen of Pennsylvania, and was a resident of the city of Washington, but the judge decided that the presence of a person within the jurisdiction of the court was sufficient to commit to a hospital for the insane if the condition warranted.

The experience with the Pennsylvania cases would seem to demonstrate that no improper commitments had been made, and that conspiracies have not existed; and I am inclined to feel assured the effect upon public sentiment has been, on the whole, decidedly good.
The writ of habeas corpus was originally intended to prevent illegal imprisonments on frivolous charges, and detentions without a due process of law. The application of the writ of habeas corpus to lunacy cases was not, of course, originally contemplated, as hospitals for the insane did not exist. The hearing in the case of an insane person detained in a hospital devolves upon the judges the duty of determining whether, first, the admission was in conformity to law, and also whether the condition which called for the hospital detention still exists. It can not be expected that the final judgment of the courts will be infallible, as their opinions are not medical, but they will endeavor in their own way to ascertain what is the real condition of the relator, as was shown in the cited cases, and will not often make mistakes.

What constitutes a legal detention in a hospital, and a due process of law to commit an insane person, has been a question that has exercised the minds of the judges. In the State of Pennsylvania at an earlier day, it was assumed that it was necessary to show that a lunatic was unsafe to himself and dangerous to be at large in order to warrant continued detention. While these views prevailed, the discharges from the Pennsylvania Hospital, in the '70's, occurred. The Supreme Court of Pennsylvania, however, has since declared what is the law of that State in the case of Brickway, Pennsylvania Reports (State), decided November, 1875. In their opinion the judges of the Supreme Court say: "It is very evident from the record that this proceeding was under the sixth section of the Act of 20th April, 1869—a law passed to regulate the practice in the commitment of insane persons to the hospitals of the State. The Act materially modifies former laws on this subject. It is not confined to persons found guilty of offenses, or those dangerous to themselves, or to the community, or unsafe to be at large, but it extends to those whose welfare or that of others requires them to be restrained, or who manifestly stand in need of proper care and treatment (Sec. 6th and 9th)." The plain intent of this decision may be stated to be, that the question of continued detention must be determined by what is, on the whole, for the best good and interest of the patient, and as the judge may so determine. To warrant continued detention, it should not be necessary to show the patient is unsafe and dangerous, but it must appear to the judge, in the course of the hearing, that the welfare of the patient and that of others will be thus best promoted. This advanced senti-
ment is one of the recognitions of the medical character and function of our hospitals for the insane, which are created for the express purpose of detaining and treating the insane. Wherever these views prevail among the judges, or are sanctioned by judicial precedents, if the hospital does not appear as a party in interest in the case, if the commitment paper is correct and regular, no apprehension ought to be felt about a legitimate legal proceeding. Although annoyance may result, undue publicity be given to family and private affairs, and even injury be done to the patient, the hospital physician must discharge his duty wisely and without bias.

**DISCUSSION.**

Dr. Dewey: It is very true, as Dr. Chapin says, that these matters of the detention of patients under the care of institutions of which we have charge, are very properly to be passed upon by the courts, for the patients do not lose their civil rights by coming under our care. We are only too thankful, I believe, as a rule, whenever a court assumes the responsibility of the enlargement of any of those under our care and thus relieves us entirely from further solicitude with reference to them. The thing that is objectionable and carries with it a certain amount of injury to the institution and to ourselves as the responsible officers of it, is the inference which is generally drawn by the public when such action is taken, and for that reason a habeas corpus proceeding seems to be objectionable. Whenever a court releases a person who has been held in care and custody, no matter how properly the person may have been committed and how strictly in accordance with every requirement of law, and no matter how clear and unmistakable the insanity is to all who know the circumstances, the general masses of the people are of the opinion that there is another of those terrible cases in which a sane person has been incarcerated in an asylum, and the situation is an unpleasant one simply. There is no remedy for it that I know of except the broadening of intelligence among the masses of the people. I believe that work has been done, and still more should be done, on the part of this Association in enlightening the public generally as to the position we occupy before the law, as to the reasons why patients may often be released by habeas corpus without there having been anything wrong or censurable in any particular on the part of anyone connected with the institution and probably on the part of anyone outside the institution. The
various ways in which these cases come up should be, it seems to me, more fully brought to the attention of the public.

Dr. Godding: I rise to thank Dr. Chapin for what appears to me a very able clinical paper on the right of habeas corpus. The cases were true to the life as described by the Doctor. I think the brethren as a rule are too much afraid of the writ of habeas corpus. I have passed through several of them unscathed and yet as a rule with me the patient is relieved from further custody. That is the imperfection of the United States law which is simply a law for the treatment of the insane man, his insanity to be determined by a jury of thirteen under an old Maryland law going back nearly to the time of the revolution, Maryland law being the common law of the District of Columbia. I have always more or less patients for whom it would be a decided relief to me if the judge would assume the responsibility. Their friends are anxious for their release but my responsibility to the community is such that I can not conscientiously take the liberty of discharging them into the community.

The Doctor begins his paper with an interesting case which was under our charge at Washington, we having passed him on. In that case the man was not discharged as recovered but, I think, taken in the care of friends with the view of putting him in a private institution.

As I said, that class is always present with us and whatever may be the newspaper clamor of the hour, as a rule the superintendent is sustained in holding the patient, or, if the patient is discharged, it is on some technicality of the law which does not reflect on the officers of the hospital.

Dr. Woodson; I do not see that the liberation of an insane person from the care and custody of an institution, if done under process of law, can be any reflection upon an institution. The person in charge of the individual is commanded to appear in court at a given time. He has nothing to do with detaining or releasing. If parties desire to have the individual removed they are represented by counsel. We are simply there to act in accordance with the verdict of the court. I know there are many cases in our State and in many other States that are committed in an unconstitutional way. The constitution of the United States guarantees to every man the right of trial by jury. In our State a private patient can be admitted to the institution upon the
application of the person responsible for his support and the affidavit of two physicians, and if citizens were deprived of the right to resort to the writ of habeas corpus, it would be a very easy matter to incarcerate any person and a difficult matter to get him out. While it is not in accordance with the constitution it is a good deal like the man in jail who after relating his alleged offense to the attorney broke down and cried. The attorney told him he was foolish to cry for he could not be put in jail for such a trivial offense. "But," said the man, "don't you see I am already in jail?" It has been my invariable custom when patients write to lawyers about being taken out, to send the letters, so that they can not say that I have deprived them of a single right or privilege.
MENTAL DISTURBANCES ASSOCIATED WITH PERIPHERAL NEURITIS—A CLINICAL REPORT.

BY EDWARD N. BRUSH, M. D.,
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These cases are reported not because they are peculiar or unique in any particular respect for I believe numerous other cases could be reported, but for the purpose of emphasizing the relations between certain physical and psychical states and their dependence in many instances upon a common cause. The well known relation between alcoholic and other toxæmias and neuritis does not need to be dwelt upon in this connection. The resemblance, from a psychical standpoint, between the four cases which I propose to report to each other, and their further resemblance to the mental disturbances observed from various toxic causes, either from poisonous substances taken into the body or generated therein during physiological processes, seems most marked; this resemblance associated as they were with a common inflammatory disturbance of the peripheral nervous system, appeared to me so close that while I do not pretend to present any explanation for the parallelism especially as between the cases dependent upon a toxic nature and those due to traumatic influences, the cases seemed of sufficient interest to at least invite your criticism and explanation.

Case I.—F. T., a woman, single, age 55, was admitted to the Sheppard Asylum, April 29, 1892. Her family history was good except for the fact that the mother had died in a condition of senile dementia. The first mental symptoms were observed about three months prior to admission. The patient was observed to be in a state of great mental confusion, failing to recognize her surroundings, her physician and the members of her family. This condition greatly improved as far as her ability to locate herself and recognize those about her were concerned, but was succeeded by more active mental disturbance with periods of delirium and almost continual hallucinations. There was marked impairment of power and very great hyperæsthesia of both lower limbs. Pressure along any of the nerve trunks of the lower extremities excited exquisite pain. The patient could stand alone for a few min-
utes but soon sank to the floor in great pain. The muscles were soft, and when lying in bed the toes were inverted and feet flexed. On admission the patient was observed to be decidedly anæmic. There were delusions of apprehension, ideas of persecution and hallucinations of both sight and hearing. Careful inquiry into the previous history of this patient revealed what is not uncommonly brought to light by an attack of neuritis, that she had been for some time subject to constant and increasing use of alcoholic stimulants. For something over eighteen months prior to the attack she had been in failing health, suffering from what was supposed to be malaria, for which some one prescribed the somewhat common domestic remedy, quinine and whisky. After the onset of the mental disturbance it was discovered that this patient had acquired the habit of secret drinking to excess, being quite often in a very much confused condition during the day and probably never going to bed at night except in an intoxicated state, obtaining the liquor clandestinely through the connivance of a servant of the family. The mental symptoms in this case were at times like those observed in delirium tremens. Whenever food was given to her she saw disagreeable objects in it: fish, snakes and worms were seen in whatever was given to her to drink. Animals were found by her in her bed, and she saw lizards and other disagreeable objects crawling about the wall. She also heard persons plotting her destruction and for some weeks after admission used to appeal piteously to her nurses, both day and night, to be protected from them. She was kept necessarily in bed, whenever possible, her limbs kept bandaged in cotton. She was put upon generous diet, with at times forced feeding, and upon iron, strychnia, and arsenic. The neuritis somewhat rapidly improved, but the mental symptoms cleared up very slowly. At the end of two and one half-months she was still apprehensive, and as regularly as visited by any of the physicians of the staff asked to be protected, and if she would be safe. When upon the ward or out upon the grounds in a rolling chair she was suspicious. Wherever there was a group of patients conversing together, they were plotting mischief against her, and every unusual incident or sight was regarded by her as having some reference to her destruction. The active hallucinations of sight and hearing, however, did not continue longer than two months. At the end of three months this patient was removed by her father, the neuritis having practically recovered as far as could
be observed, and the mental symptoms so much improved that it simply required an occasional word of assurance to convince her that she was in no actual danger and that her ideas in this respect were delusions. She was taken to the sea shore. I am informed that she died two months subsequently of what was called acute tuberculosis.

CASE II.—A. M., age 39, single, woman, was admitted April 14, 1893. This patient’s mother died of phthisis and father had cerebral hemorrhage. This patient’s history as far as the use of alcoholic stimulants was concerned was similar to the first, she had been using whisky in excess unknown to her friends. For the past six months she had been an attendant upon an invalid sister who had recently died, and during whose illness she had been subjected to great strain and prolonged loss of sleep. A month prior to admission she developed neuritis in both lower extremities. The pain was almost entirely below the knees and principally in the feet. Ten days prior to admission she was admitted to the Johns Hopkins Hospital, from which place she was transferred to the Sheppard Asylum, upon the development of mental symptoms. On admission she was entirely unable to walk, the pain in the limbs was excessive, the feet were inverted and dropped, and any slight pressure along the course of the nerve trunks produced intense pain. This was not so marked along the sciatic nerve, but extended nevertheless as far as the hip. She insisted that her sister, who had recently died, was in the building, and became quite excited at times because she was not taken to her bed side. She heard people plotting about her and saw various objects in her room—persons, animals, pictures on the wall, etc. There was a constant sense of fear when left alone, and she was disturbed at night by dreams from which she awoke very much frightened. She saw a gallows being erected upon which she was to be hanged. She heard persons conversing in reference to tying her to a stake and burning her and had numerous other delusions of a similar character. None of her delusional ideas as in the first case were of long continuance; one was given up to be succeeded by another. The neuritis in this case improved much more slowly than in the first; she was kept in bed for several weeks. All alcoholic stimulants were rigidly kept from her; she was put upon full diet and iron; strychnia, arsenic and quinine were administered from time to time alternating each other. Early in July this patient’s mental condition
had so far improved that she was able most of the time to recog-
nize that the ideas that had so terribly harrassed her were delusional
in character and had no foundation, but even at that time she
was disturbed by doubts and not infrequently asked to be assured
that nothing was going to be done to disturb her. These doubts,
however, rapidly disappeared and in a short time was considered well
mentally. She was able to be up and about the ward and on the
grounds in a rolling chair during the summer. There was steady
improvement in flesh and strength, and by the middle of November
following her admission, she was able to leave the hospital and re-
turn to her home. There still remained, however, considerable im-
pairment of motion in both lower extremities, and there was some
pain if the patient attempted to walk any great distance. This
patient visited the hospital during the winter of '96 and reported
that she suffered from pain in her limbs for two or three months
after leaving the hospital, but that gradually as her health continued
to improve the pain and impairment of motion both disappeared.
She appeared at the time of her visit in excellent health mentally
and physically.

Case III. — J. L., man, age 42, married, occupation salesman.
Admitted July 9, 1895, with the following history: Six weeks
ago this patient began to learn to ride the bicycle at which he was
very persistent. The day following his first attempt he complained
of pain in the right leg which continued uninterruptedly for two
weeks when it became worse and sciatic neuritis developed with
the usual symptoms. In about one week he began to be restless
and depressed, talked confusedly about losing his position, ate and
slept insufficiently and showed considerable mental depression.
Two weeks prior to admission he went to his place of business on
crutches and remained there for five or six hours; was greatly
prostrated afterward. For a week before admission he had eaten
a very small amount, had been very restless, emotional and
apprehensive. He had taken large doses of sulphonal, hyoscine
and trional, to make him sleep. The night before admission he
had fifty grains of sulphonal without any effect being produced,
followed by \( \frac{1}{3} \) of a grain of hyoscine by the mouth. He has not
been able to recognize clearly his surroundings, asserting that he
was away from home on a journey or excursion, and frequently
mistook the identity of those about him. He has been at times
quite suspicious of his wife. On admission he was very emotional
and noisy, talking incoherently, calling to his wife and others to protect him and stay with him. He was calling constantly to be protected and was apparently in very great fear of some impending danger or harm. He was undressed with great difficulty and placed in bed. His pulse was 96, feeble, temperature but slightly elevated. He kept his right leg flexed at right angles, and his thigh flexed on his abdomen. The leg was quite sensitive to pressure and he complained of pain when he attempted to move it. There are blisters along the course of the sciatic nerve. The leg can be straightened by gentle manipulation. He was given at night a hyperdermic of $\frac{1}{1000}$ of a grain of hyoscin with $\frac{1}{100}$ of digitatin and a small amount of morphia which was followed by seven hours' sleep. This patient's condition grew worse for some ten days. It became necessary to feed him with a nasal tube. He was in a constantly restless, agitated condition, noisy to an extreme degree, at times, very incoherent, having hallucinations of both sight and hearing, and being controlled by constantly changing ideas, whose exact nature it was impossible to learn because of his incoherence, but they all had reference to his being in danger of destruction or of some injury. At the end of this period he began to slowly improve, and eighteen days after admission he was able to talk fairly clearly concerning his attack and to explain the character of some of his delusions. He was still very depressed and emotional, but showed a fair degree of self-control when left by himself. He complained of pain in his limb and a general feeling of weakness. The first of August he was able to walk with the aid of a cane, and was convalescing steadily. His depression rapidly disappeared, and his self-control improved although for several days he continued at times quite emotional, especially when in conversation with his physician or when visited by his friends. On the 29th day of August this patient was discharged recovered. The treatment in this case had been largely similar to the other two narrated. As soon as the patient was willing to take food it was pushed as much as possible, and from the beginning of the attack he was placed upon iron, strychnia and other tonics.

Case IV.—J. W., man, age 41, police officer, married, was admitted on the 27th of February, 1896. A brother had been insane. In the fall of 1895 while attempting to arrest some persons who where disturbing a political procession he struck his left knee against a projection on a street car while running, causing a slight
injury. This at the time disabled him slightly and added somewhat to the pain of the already existing sciatica from which patient had been suffering for some months. Neither the sciatica nor the injury however disabled him from duty, but shortly prior to his admission to the hospital he slipped upon the pavement and fell upon his left side severely bruising his limb. This injury rendered it necessary for the patient to be excused from duty and he was under treatment of his family physician. It was soon observed that the patient was becoming suspicious and at times threatening in his demeanor. It was difficult to induce him to take the medicine prescribed by his physicians because of fear of poison. He was suspicious of his wife and for some days refused to allow her to come into his presence. He complained excessively of severe pain while in certain positions, and when not in bed stood constantly, saying that he could not sit down. He was brought to the institution in an ambulance and had to be supported into the ward by two fellow policemen, as he was unable to walk for excessive pain. He talked almost constantly in a delirious manner, was very much confused, was easily led from one subject to another. He expressed delusions of suspicion and stated that various attempts had been made by his numerous enemies to poison him. He was placed in bed and given $\frac{1}{4}$ of a grain of morphia under the influence of which he soon went to sleep. The following day he was talkative and a good deal confused, and somewhat inclined to be boastful. He mistook his surroundings and the identity of those about him, but was able to correct himself in this respect by the aid of others. There was no paralysis or muscular impairment, but excessive pain along the course of the sciatic nerve. This patient improved slightly for a few days, but soon relapsed, became more talkative, threatening in his manner, and had hallucinations of both sight and hearing; he saw policemen looking in the window and heard them and other persons plotting against him, and was controlled by the idea that he was about to lose his position through his enemies. He had no recollection of coming to the hospital nor of anything that occurred after he was placed in the ambulance when he was brought from home. He was given iron, strychnia, and salicylic acid for varying periods. It was observed that the periods of active disturbance were preceded and accompanied by increased pain along the sciatic nerve, and that with the subsidence of the pain he became quieter mentally and more reasonable. A little less than a month after admission
he was removed from the hospital by his wife, though she was strongly advised against this step. I was informed by his former physician about the middle of May that his mental symptoms remained unchanged, but the sciatica was somewhat improved, and that he was out about the streets unattended.

It will be observed that two of these cases were undoubtedly of alcoholic origin; the neuritis is easily explained, and the mental symptoms were exactly those which are seen in cases of alcoholic insanity, and the termination such as would be expected in cases promptly placed under treatment. The cause of the neuritis in the other cases was not difficult of explanation, but why the mental symptoms; and is it a mere coincidence that their manifestations should so closely resemble the mental symptoms observed in the alcoholic cases? The agitation, mental confusion, delusions of apprehension and suspicion, hallucinations of sight and hearing, ideas of impending danger from poison or otherwise in any one of the cases might have been written down as clinical notes of either of the other three and have corresponded very closely to the actual manifestations which were observed.

I have, since preparing this report of cases, had my attention directed to a monograph, "La Psicosi Polineuritica," by Dr. R. Colella, Docent in Neuro-pathology and Psychiatry in the University of Naples, in which is contained the following bibliography of the subject:

Leyden: Ueber Neuritis und Poliomyelitis.—Zeitsch. f. klinische Medizin, Bd. 1, 1890.
Moeli: Alcoholismus; Psychische Störung; Atrophische Lähmung der extensoren am Oberschenkel.—Charité-Annal., VIII, Jahrgang, 1888, p. 552.
Charcot: Leçons sur les paralysies alcooliques.—Gazette des hopitaux, N. 99, 1884.
Korsakoff: De la paralysie alcoolique.—Mosca, 1887, (in russo).
Korsakoff: Gazette de Botkin, N. 5–7, 1889.
Ross: On the Psychical Disorders of Peripheral Neuritis.—The Journ. of Mental Science, April, 1890.
Blocq et Marinesgo: Poliomyélites et polynévrites.—Nouvelle iconographie de la Salpêtrière et Société de Biologie (Séance du 5 juillet, 1890.
STATE CARE AND STATE MAINTENANCE FOR THE DEPENDENT INSANE IN THE STATE OF NEW YORK.

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Among the many serious problems with which States and communities are confronted to-day, there is probably none that rivals in importance, whether viewed from a medical, social, economic, or philanthropic standpoint, that of securing, at a minimum of cost to taxpayers, proper care and treatment to the vast army of dependent sufferers from that most serious, most dangerous, and most far-reaching in effect of all diseases known to medical science—insanity.

Aside from its humane aspects, which must always be regarded as of primary importance, since the claims of suffering humanity take precedence of merely material or pecuniary policies, the financial side of the problem of suitable provision for the dependent insane, involving, as it does, even under the most economical methods, the expenditure of vast sums of money for lands and buildings, with their equipment and furniture, besides an enormous annual outlay for maintenance, repairs, renewals, and enlargements, may well command the most serious attention and organized coöperation of the legislator, the political economist, the taxpayer, and the humanitarian.

Provision for the dependent insane in the State of New York to-day represents a permanent investment by the taxpayers of, in round numbers, $23,000,000, while the average annual expenditure for maintenance, repairs, renewals, and enlargements amounts, in round numbers, to $4,500,000. The number of insane patients supported at public expense on October 1, 1895, was 19,369, and the number of officers and employees, 115 and 3,300 respectively. Applying this ratio of cost, which is a fair average, to the entire United States, the importance and magnitude of the subject at once become apparent.

Turning for a moment to a consideration of the humane aspects
of the question, it will be conceded that of all diseases which afflict mankind, insanity is by far the most frequent, most widely prevalent, and most far-reaching in its effects, whether as regards the interests of the afflicted individual, or of his family, or of the commonwealth; that a vast majority of its victims must, during its existence, be deprived of personal liberty and removed from their homes, to be cared for in institutions established and maintained at public expense; that among the dependent insane are to be found numerous representatives of all professions, trades, and occupations, whose financial, social, and intellectual status was previously of a high order, and most of whom were respectable, self-supporting citizens—many of them taxpayers—prior to the onset of their disease; that the commonwealth is in duty bound to provide these dependent sufferers with suitable shelter, food, and raiment, together with means of occupation and diversion, and competent medical care and supervision.

It need hardly be said that in the consideration of this question humanity should have the first place, but it must also be admitted that its economy must have a prominent place. Hence, it follows that that policy ought to be pursued which will, first of all, secure everything that is essential to proper care and treatment, and will, at the same time, limit the cost to such sums as the truest economy for the State would suggest. In other words, the dictates of humanity demand that the insane shall be amply provided with everything which medical science has determined to be essential to the recovery of those who are recoverable, as well as for the proper care, comfort, and amelioration of those who remain unrecovered.

These premises being granted, the question naturally arises as to the best method of attaining this desirable end, having in view the demands of humanity on the one hand and the limitations imposed by a due regard for economy in the expenditure of public funds on the other. In other words, how can the established requirements of a proper standard of care and treatment for the dependent insane best be fulfilled at a minimum cost to the taxpayers? For, aside from the question of humanity, the interests of true economy would demand that the utmost effort be made to secure to the insane that system of treatment and care which experience has shown is most likely to give the best results, whether as regards the percentage of recoveries, the improvement and well-being of the unrecovered, or the cost of maintenance.
As showing the importance, as regards taxation, of making every reasonable effort to minimize the heavy burden which insanity imposes upon the State, mention may be made of the fact that in the development of the wealth of a State the life of each individual has an estimated financial value of $200 per annum. On the other hand, the average duration of insane life is about twelve years, and the average annual cost of properly maintaining an insane person in a public institution, including interest on investment, is about $200. It appears, therefore, that every insane dependent represents a pecuniary loss to the State of approximately $400 for each year that he remains under care as a public charge. Hence, if the average longevity of the insane is twelve years, and the annual per capita cost of maintenance is $200, each insane person who fails of recovery during this period represents a loss to the State of $2,400; whereas, a sane person for a like period of time would represent a gain of $2,400. The mere presentation of these figures will suffice to suggest the importance, financially, of determining and adopting that system of caring for the insane which is likely to promote the greatest number of recoveries. But even though an individual contributed nothing to the wealth of the State when sane, it would still be in the interest of economy to provide for him, when he becomes insane, such environment and such treatment as will insure every opportunity of restoring him to the ranks of the wage-earners, or at least of enabling him to return to his home, and thus relieve the public of the burden of his support.

From the foregoing it is quite apparent that that method of care and treatment which will insure to the insane the fullest measure of benefit in these respects will, in the end, also prove the most economical. Such being the case, it becomes pertinent to consider the relative merits of the two systems of caring for the insane which have been and are still in vogue in this country, namely, "State care" and "county care."

These two systems—the one as conducted by the State and the other as conducted by counties or municipalities—having been fairly tested for many years and under favorable conditions, the comparative merits of each may be determined with sufficient accuracy. It will not seriously be claimed that both systems are equally good. Certainly one is demonstrably better than the other. Each one must be regarded as a whole, and is, therefore, not to be
judged by parts, or by sporadic instances of success or failure. If, in a majority of points of comparison, either system be found inferior, that system should be everywhere abandoned and the other one adopted in its stead. The sole question, therefore, is: Which of the two systems has been shown by experience to be productive of the greatest good to the insane themselves, and to the community at large?

Respecting the relative cost of each, it may be said, at least so far as experience in the State of New York has shown, that in every instance where local authorities have undertaken to establish and maintain an institution for the insane on a curative or hospital basis, like that of a State hospital, the standard of care has in no respect equaled, even approximately, that which the poorest of the State institutions affords. Many of the keepers of these county asylums in the State of New York freely admitted that if they were required to maintain a standard of care equal to that of the State institutions, their per capita cost would largely exceed the rates then charged by the State asylums for the chronic insane. In truth, it may be said that not one of the twenty or more so-called county asylums licensed by the New York State Board of Charities prior to the passage of the State Care Act in 1890, had proper facilities in any essential particular for the care and treatment of insane patients, most of them being only parts of the poorhouse proper, and without even a resident medical officer. They were merely custodial establishments, the inmates of which were maintained in substantially all respects on a poorhouse basis, and, frequently, in intimate association with common paupers. In a word, these unfortunate victims, many of whom were persons of respectability and refinement, were branded as incurable and then pauperized by consignment to these hopeless and cheerless surroundings. Even in the counties of New York and Kings, with their almost unlimited resources, the per capita weekly allowance for maintenance for their dependent insane has averaged from $1 to $2 less than that provided for the State hospitals; while in the smaller institutions of the interior counties, aptly termed "poorhouse asylums" before their existence was happily terminated by the enactment of the State care law, the allowance for support was still more niggardly, they being conducted for the most part on a scale based on the minimum amount for which body and soul could be kept together. The lay keeper of one of the largest of these county establishments
boasted to the writer that he maintained his insane patients for the munificent sum of 90 cents a week per capita. In connection with this subject may be mentioned a singular fact, and one that should have not a little weight in a consideration of the relative merits of the two systems, namely, that representatives of the State always display far greater liberality in appropriating moneys for charitable purposes than do local authorities. Experience has everywhere shown that the closer the relations between the appropriating power and the localities where the moneys so appropriated are to be expended for charitable purposes, the more parsimonious the policy, a fact which has always proved detrimental to the welfare of the insane when under county or local control.

While we may freely concede that there are individual instances of county or municipal asylums which maintain an excellent standard of care, and consequently that an indiscriminate condemnation of public institutions for the insane not under State control would be manifestly unjust, it must also be conceded that such instances are exceedingly rare—so rare, in fact, that they may be regarded as exceptions which "prove the rule." Certainly not one such instance was found in the State of New York. Furthermore, it matters not how high a standard of excellence a county or municipal asylum may attain, there is the ever-present danger of a retrogression through changes in management, likely to occur with every turn in the tide of local politics, as the history of substantially every county asylum will show, especially if it happen to have a city population within its bailiwick; whereas, in the State hospitals and asylums of a large majority of the States, permanency in the management and in the tenure of resident officers is reasonably secure, and not dependent on the favor of any political party, experience having abundantly shown that no institution for the care and treatment of the insane can be successfully conducted where partisan influences obtain. On the other hand, it is not claimed that the State hospital system, as it exists to-day, is perfect, or that it ever will be, for that matter. It is claimed, however, that the principle of State care is founded on the broad basis of science and humanity, and that when intelligently applied it stands for all that is best in the present state of medical knowledge on the subject; whereas, county care is characterized, as a rule, by the warping limitations of parsimony, coupled with the abortive results of ignorance and partisan influences.
The term "State care for the insane," as it is understood and applied in the State of New York, implies State provision and State maintenance for all of the dependent insane in State hospitals established and organized upon the following basis:

1. A division of the State by counties into hospital districts, the territorial extent of each district being determined by the number of insane to be provided for, and the capacity of the hospital located therein.

2. Each hospital to receive and care for all the dependent insane of its district, whether acute or chronic.

3. A healthful, picturesque, and accessible site, with an abundant supply of pure water, good drainage, and acreage sufficient for ornamental grounds and agricultural purposes.

4. Well constructed and conveniently arranged hospital buildings of a permanent character, equipped with modern sanitary appliances, as regards warming, ventilating, lighting, fire protection, cooking, bathing, etc., and structurally adapted to the care of both acute and chronic cases.

5. A skilled, sufficiently large, and liberally compensated medical staff, including a woman physician; also medical interns in each hospital, as adjuncts to the regular staff.

6. A corps of skilled nurses, trained in the hospital, in the proportion of not less than one to eight patients.

7. A liberal and varied dietary.

8. Sufficient and suitable clothing, bedding, and furniture.

9. Ample facilities in the way of medical and surgical appliances, also facilities for the industrial occupation, diversion, and entertainment of patients.

10. The selection and promotion of officers and employees in accordance with civil service principles, and a permanent tenure of office during fitness and efficiency.

11. A uniform system of medical and financial records for all the hospitals.

12. The removal of public patients from their homes, or from poorhouses, to State hospitals, by trained attendants of the same sex, at the expense of the State, and the statutory prohibition of all jurisdiction of superintendents of the poor over the insane, after they have been certified as such.

13. The whole to be under competent State supervision, and to be maintained by the State by means of a general State tax levied for that specific purpose. At the present time there are in the State of New York eleven State hospitals, exclusive of the one for insane criminals, with a daily population ranging from 500 in the smallest to 2,500 in the largest single institution, and all organized substantially on the lines above indicated.
County care, as exemplified until recently in the State of New York, is characterized, on the one hand, by a lack of substantially all the above-mentioned requisites for a State hospital, and, on the other, by the conditions of overcrowding, wretchedness, squalor, and neglect so graphically depicted in the extract from a report of the State Charities Aid Association which is quoted in another part of this paper.

Respecting the county-care system as it existed in the State of New York in 1889, the State Commission in Lunacy, in its annual report for that year, said: "The conclusion of the commission regarding the system of county care of the insane is that, however feasible in theory, in practical operation it has been found to have failed and fallen far short of the hope entertained for it when the act of 1871 sanctioning its trial was passed. As a system, it has developed inherent difficulties and defects which seem to be ineradicable, and which make its successful operation, in all essential respects, impossible. Such being the case, it ought to be abolished, and the policy of State care for all of the insane, both acute and chronic, should be reëstablished at the earliest practicable day. It can not be said that the system of county care has not had a fair trial. It has been in vogue since 1871 under exceptionally advantageous circumstances. During all that time it has had the advantages of State supervision, and yet it has failed to meet every reasonable or just expectation. If the system has been a failure for nearly twenty years, is it not reasonable to conclude that it is likely to be a failure for all time to come? It is not claimed that the system of State care, as now conducted, is perfect, but that it is steadily progressive, is humanely and intelligently administered, and that it represents all that is best in the present state of medical knowledge upon this subject; and whatever other criticism may be passed upon it, it certainly can not truthfully be said that the inmates of the State hospitals are not comfortably housed, sufficiently clad, properly fed, provided with sufficient attendance and care, and given medical supervision and treatment of an exceptionally high order."

The State Care Act, whereby the odious system of county care in the State of New York was finally annihilated, originated with the State Charities Aid Association, a voluntary, non-sectarian organization, founded in 1872, and composed of representative men and women of nearly every county of the State, whose worthy object is "to bring about reforms in our public institutions of char-
ity through the formation of an intelligent, educated, and organized public opinion." To the untiring efforts of this association, and especially to the chairman of its committee on the insane, Miss Louisa Lee Schuyler, on whose shoulders the mantle of Miss Dix, so far as regards the interests of the dependent insane in the State of New York, has so worthily fallen, is largely due the success of the movement which it originated, and which finally culminated on April 15, 1890, when its bill for State care and State maintenance of the dependent insane became a law by the formal approval of Governor Hill. This has been known ever since as the "State Care Act."

Referring to the condition of the insane under the county care system, the State Charities Aid Association, in its first annual report to the State Commission in Lunacy, in 1893, among other things, says: "Very early in our history we were called upon to define our position and decide whether the influence of the association should be thrown in behalf of State care or county care for the dependent insane. There was no hesitation. The memory of Miss Dix’s earnest plea, of Dr. Willard’s strong denunciation, of resolutions of medical societies, and reports of legislative commissions, the traditions of the entire reform element of the State—all were to be found on the side of the removal of the insane from the poorhouses, of placing them under the care of the State. Stronger than any theory born of tradition was the testimony of the visitors of the association, as eye-witnesses of the sufferings of these poor and neglected people. Hungry and cold, sitting in the dark through the long winter afternoons and evenings, 'because light was too expensive,' cowering in cells, stifling in attics, without proper medical attendance, overworked on county farms, or brooding without occupation in crowded wards, ordered about by rough pauper attendants, they were of all beings most miserable. Shall we soon forget the insane man, crouching in a dark cell, so small that he could not stand up in it; or the woman, in midwinter, nearly frozen by the broken window; 'It was useless to mend it, she always broke it again;' or the one tablespoonful of fish and one potato, called a meal, while water spilled in the same room froze upon the floor; or the foul wrongs suffered by those unprotected women; such cruelties one can never forget. That the worst abuses were corrected in many places, as the years went by, is a matter of record, and yet, eighteen years after our visitors began to know
what the inside of a poorhouse meant for the insane, as one reads
the first annual report of the Commission in Lunacy, written in 1890,
glowing with indignation as it recounts the sufferings of these poor
people, one is surprised to find how little progress had been made
in all those years. The system of poorhouse care has proved itself
radically defective. Thank God! this horrible system is now a
thing of the past."

The relative merits and demerits of the two systems can only be
determined by a consideration of the general results of each, with-
out reference to any particular institution, whether State or county.
If it appears that the principle of State care is wrong, or that, as a
system, it is inadequate, it should speedily be abandoned, no matter
how great the outlay has been; and, logically, the same ruling
would apply to county care, for it must be assumed that the people
of every commonwealth are willing so provide, for their dependent
insane everything which medical science has determined to be
essential for their proper care and treatment.

Among the objections raised by the advocates of county care
was the contention that the State could not legally assume control
of the dependent insane; that to do so without the assent of local
governments would be a usurpation of the latter's constitutional
right, as well as a violation of the principle of "home rule," the
local authorities in one county even going so far as to resist the
order issued by the commission for the transfer of its insane to a
State hospital by appeal to the courts, their contention being that
the State Care Act, which required them to relinquish the control
of their dependent insane to the State, was unconstitutional.
Suffice it to say that the law was upheld in every court from the
lowest to the highest.

The State is defined by Woolsey as "a community of persons
living within certain limits of territory, under a permanent organ-
ization which aims to secure the prevalence of justice by self-
imposed law." "The State," says Bluntschli, "is humanity
organized."

That the State is sovereign in all matters which are not in conflict
with the constitution and statutory laws of the Federal Government,
and that in its sovereignty it may rightfully undertake any enter-
prise that it can better manage for the general good than can indi-
viduals, are well-established principles which have been universally
recognized and accepted. The very word "State" involves the
relegating of locality to the background for the public good. The State predominates because of a universally recognized necessity, amply attested by all human experience, that localism for certain purposes must give way to prevent disorganization, and while we may concede in local affairs all that may properly be claimed for the principle of local self-government, there are interests with which only the superior powers and resources of the State can successfully cope. That the insane are peculiarly the wards of the State, holding a relation to it substantially similar to that of children to parents, and therefore not the wards of a county, or of a township, or municipality, is an equally well-established principle, which has repeatedly been enunciated by both common and statutory law, and upheld by judicial decisions. Granting the tenability of the position here taken, and it is assumed that this will not be questioned, it logically follows that the State has the right at any time to assume the custody, control, and supervision of her insane dependents, even though she may theretofore have permitted them, either in part or in whole, to remain under the control of municipal or county authorities. Furthermore, since insanity is a disease which, unlike every other, requires, as incident to its proper treatment, that the sufferer from it shall, as a rule, be deprived of his liberty, the State is justified in adopting special measures for the care and treatment of the insane which would not be warrantable in regard to any other class of its citizens.

"No State system for the care of the insane," says Stephen Smith, "can be considered complete in all its details which does not provide for an independent supervision of all of the insane and of the institutions devoted to their custody. This supervision should represent the sovereignty of the State in the relation of guardian to ward, and should be clothed with powers adequate to prevent wrongs and to secure the welfare of the objects of its care. This purpose can be effectually accomplished only by completely separating these institutions and their supervision from all other classes of public charities, and organizing them on a basis which secures direct and independent supervision by the State."

The movement for State care for the dependent insane in the State of New York, which culminated in the enactment of the State care law in 1890, and which was finally consummated in 1896, by the conversion of the New York City asylums for the insane, with their 7,000 inmates, into the Manhattan State
Hospital, was really begun in 1836, when the Legislature, in response to a petition from the State Medical Society for a suitable State asylum for the insane, established the State Lunatic Asylum at Utica, now the Utica State Hospital. Prior to that time the dependent insane, both acute and chronic, were kept in county and town poorhouses, there being no other public provision for them. Unfortunately it was provided in the original charter of the Utica Asylum that patients who failed of recovery after a given period of time might be removed to the poorhouse, upon the superintendent's certificate that they were "incurable," or "not likely to be benefited by further treatment in the asylum, and could probably be made comfortable in the poorhouse." The inhumane practice of removing these unfortunates from asylum to poorhouse, usually at the end of one year, continued under certain modifications, though with practically the same results, for upward of half a century, or until the creation of the State Commission in Lunacy in 1889, and the enactment of the State care law in 1890, notwithstanding the establishment during this period of five additional State asylums, namely, at Poughkeepsie, Middletown, Buffalo, Willard, and Binghamton, the latter two being for the chronic insane only. Thus, while the State had recognized the principle and, at least theoretically, adopted the policy of State care for its dependent insane, it had tolerated a system of county care in its worst form by permitting the removal from State asylums to county institutions, under the guise of incurability and harmlessness, the friendless, the violent, the filthy and infirm, and the feeble and helpless—the class of patients which, above all others, needs the fostering care and protection of the State. Under this pernicious system the so-called county asylums and poorhouses became filled to overflowing with insane patients, whose "treatment" was limited to a mere pretense of custodial care.

The establishment, in 1865, of the Willard Asylum for the Chronic Insane, now the Willard State Hospital, marked a second era in lunacy legislation, namely, that of State care for the chronic insane, but largely failed of its object, owing to delay in providing State accommodations for this class. It contemplated the removal of the chronic insane from all the counties to the custody of the State, excepting those in New York, Kings, and Monroe counties, where regularly organized asylums had been provided. The general lack of accommodations in the State asylums furnished a
basis for appeals to the Legislature by county officials and others for exemption from the Willard Act, and exemptions were accordingly granted to several counties by special acts. The State Board of Charities, a body then having jurisdiction over the insane, also sought and obtained legislative authority to license counties to care for their chronic insane under such conditions as it might impose. Under exemptions granted by that board, a majority of whose then members were advocates of separate provision for the chronic insane, either in State or county institutions, nineteen counties established so-called county asylums, which, with a single exception, were located adjacent to poorhouses, of which they were an integral part, being under the same management and on the same basis as regards medical service and the standard of care generally. One of the worst evils of this system, aside from the wretched surroundings and care to which it consigned large numbers of the dependent insane, was the practice of receiving recent and presumably curable cases directly from their homes, which was a clear violation of law. Furthermore, it substantially pauperized all who failed of recovery after a year's residence in a State asylum.

Referring to "the pernicious legislation of 1871," the State Charities Aid Association, in one of its reports, said: "County after county applied for and obtained exemption from the Willard Act. By October 1, 1887, nineteen counties had thus been authorized to keep their milder cases of insanity. It is true these exemptions were granted by the State Board of Charities under promise from the counties 'to give their insane just as good care as the State gave'—promises, alas! never kept. No longer, as of old, were the chronic insane to go from poorhouse to State hospital, but from State hospital to poorhouse. Gradually, year by year, and so slowly that we scarcely realized it, the poorhouse officials were tightening their grasp upon these poor people, until suddenly we were confronted by the alarming fact that the supervisors of one-third of the counties were arrayed in favor of the poorhouse system."

This was the condition of affairs when, in 1889, the State Commission in Lunacy was created, a step which gave a powerful impetus to the State-care movement. To the commission, among other things, was transferred the power hitherto possessed by the State Board of Charities in the matter of granting exemptions from the Willard Act. It is needless to say that the commission
promptly declined to grant any further exemptions to counties to care for their insane. On the contrary, in its first report to the Legislature it laid bare the wretched condition of the county institutions and their inmates, which a single tour of inspection had vividly revealed, and recommended the abolition of the county-care system and the transfer of the inmates of all the so-called county asylums to State hospitals, there to be maintained solely at the expense of the State.

This report, it is generally conceded, gave the death-blow to county care in the State of New York. The proposition to provide State care and State maintenance for all of the dependent insane, which had previously been advocated by the State Charities Aid Association, was favorably received by a large majority of the people of the State. It was heartily indorsed and advocated by the press, with but few exceptions, while substantially all of the managers and superintendents of State hospitals gave it their cordial support.

Strengthened by the report of the commission, the State Charities Aid Association, under the able leadership of Miss Schuyler, again, and for the third time, brought forward its bill for State care, and this time succeeded in passing it, in spite of "organized, vigorous, and determined opposition, emanating from supervisors and superintendents of the poor of exempted counties."

Of this law the American Journal of Insanity for April, 1890, says: "The State Care Bill, providing State care for all the dependent insane in the State of New York, became a law April 15, 1890. By signing this bill Governor Hill consummated one of the most signal triumphs ever achieved by humanity in the State of New York. All honor to those good men and women who have labored zealously, day in and day out, for the past three years to bring about this happy result. In the general rejoicing there will be no caviling as to who is entitled to the lion's share of the credit, though all must recognize the important part played in this great reform by the State Commission in Lunacy."

The important features of the State Care Act (Chapter 126, Laws of 1890), and of acts supplementary thereto, may be briefly summarized as follows: The abolition of separate institutions for the chronic insane; the designation of all the public institutions for the insane as State hospitals; the division of the State into hospital districts, and requiring that each hospital shall receive all of the
dependent insane within its district, whether acute or chronic; providing for the erection on the grounds of the State hospitals of additional buildings to accommodate the inmates of county asylums, then numbering nearly 2,300, at a per capita cost, including equipment and furniture, not to exceed $550, requiring county superintendents of the poor and others of similar jurisdiction to properly prepare patients for removal to hospitals by seeing that they are in a state of bodily cleanliness and comfortably clad in new clothing throughout, in accordance with regulations made by the president of the commission; providing that the removal of public patients from their homes or from poorhouses shall be done by trained nurses sent from the hospitals, and that female patients, unless accompanied by relatives, must be removed by female attendants, the cost of removal in all cases to be borne by the State; that after such patients have been delivered into the custody of the hospital officials, the care and control of county authorities over them shall cease; that thereafter no insane person shall be permitted to remain under county or municipal care, but all such shall be transferred to State hospitals without unnecessary delay, there to be regarded and known as the wards of the State; also absolutely prohibiting the return of any insane person from a State hospital to the care of county officials; requiring the commission, whenever deemed necessary to prevent overcrowding, to provide additional accommodations on the grounds of existing hospitals, or, if deemed more expedient, to recommend the establishment of additional State hospitals in such part of the State as in its judgment will best meet the requirements; providing that no money shall be expended by the managers of a State hospital for additional buildings or for extraordinary repairs and improvements, except upon plans and specifications approved by the commission; also, that no expenditure for any other purpose shall be made by the hospitals except upon itemized estimates approved by the commission; requiring the hospitals to submit to the commission monthly itemized estimates for their current expenditures, these estimates to be revised by it as to quantities, quality, and cost of supplies; requiring the commission to classify the salaries and wages of officers and employees of the hospitals on a basis of uniformity for similar ranks and grades of employment, the schedules of salaries and wages to be approved by the Governor, Comptroller, and Secretary of State; requiring uniformity in all official books and forms used by the hospitals;
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providing for the establishment by the commission of a pathological institute to be located in the city of New York and to be maintained for the benefit of all the State hospitals, the director of the institute to be appointed by the commission, after a special civil service examination, at an annual salary to be fixed by it, subject to the Governor's approval.

The Legislature of 1895 discontinued the practice of making special appropriations for the hospitals separately, for repairs, improvements, renewals, and enlargements, by increasing the tax levy for the support of the insane sufficiently to cover all these purposes. The commission is empowered to supervise the expenditure of this fund to the extent of determining the respective needs of the hospitals from time to time and apportioning to each from the general fund such sums as it may deem necessary, the money so apportioned to be drawn and expended under special estimates to be approved by the commission. During the past year steps have been taken for the care of insane convicts apart from patients held on criminal orders, by providing for the erection of a suitable hospital building for insane convicts on the grounds of one of the State prisons. This will remove from the Matteawan State Hospital a most troublesome class of inmates and at the same time relieve its seriously congested condition.

Since the passage of the State Care Act, in 1890, the three county asylums that were exempted from its provisions, namely, Monroe, Kings, and New York City, have been acquired by the State, and now constitute, respectively, the Rochester, Long Island, and Manhattan State hospitals. A second homeopathic State hospital has also recently been established at Collins, Erie County, thus making, in all, exclusive of the Matteawan institution, eleven State hospitals with a population, in round numbers, of 20,000 patients and 3,500 officers and employees.

The approval by the Governor, on May 12, 1896, of the bill entitled "The Insanity Law" has placed upon the statute books a consolidated revision, in one comprehensive act, of all pre-existing laws relating to the insane.

The insanity law consists of five main divisions or "Articles." Article I defines the meaning of the terms poor person, indigent person, patient, and institution, as used in the act. It also defines the method of appointment, qualifications, terms of office, salaries and allowances, and powers and duties of the commissioners in
lunacy. Article II defines the titles of and reorganizes the existing State hospitals on a substantially uniform basis, as regards the numbers and powers and duties of managers, the powers and duties of superintendents, stewards, and treasurers, and the monthly estimates, and methods of expenditure and accounting. It also provides for the licensing of private institutions by the commission. Article III relates to the commitment, custody, and discharge of the insane. Article IV pertains to the organization and management of the Matteawan State Hospital for Insane Criminals, and the commitment to and discharge of patients therefrom. Article V enumerates the laws repealed, and provides that the act shall take effect July 1, 1896.

One of the commendable features of this new law is that it definitely defines the powers and duties of supervisory and administrative officers, and distinctly fixes the responsibilities of each class, including the commissioners in lunacy, boards of managers, superintendents, stewards, treasurers, and all officials having to do with the commitment of the insane.

The Commission in Lunacy is charged with the execution of the laws relating to the custody, care, and treatment of the insane, not including feeble-minded persons and epileptics, as such, and idiots. It is required, among other things, to maintain an effective visitation and inspection of all institutions for the insane, both public and private, to examine into their methods of management, the condition of the buildings and grounds, the books and records, stores and food supplies, and the general and special dietaries; also to determine the fitness of officers and employees for their respective duties; to see, as far as practicable, all the patients; to grant private interviews to such as require it, and to inquire into complaints, if any be made. To this end the commissioners are given free access at all times to the grounds and buildings, and to all books and records of the institutions; and all persons connected therewith are required to give such information and afford such facilities for examination or inquiry as the commissioners may require. The commission is further authorized to make such recommendations respecting the management or improvement of the institutions as it may deem necessary or desirable, and to approve, as to form, the books of record and blanks for official use, which shall be uniform for all the hospitals; also to make such regulations respecting the correspondence of the insane in custody, as in its judgment will
best promote their interests, but patients shall be allowed to correspond, without restriction, with the county judge and district attorney of the county from which they were committed.

The commission is empowered to define the hospital districts and to modify the same from time to time to meet the requirements of the service. It is required to keep a record in its office of all qualified examiners in lunacy, and of all admissions, discharges, transfers, etc., of patients in the various institutions for the insane. It is also required to establish a pathological institute and to appoint a director thereof, who shall, under its direction, perform such duties relating to pathological research, as may be required for all the State hospitals.

The Governor is empowered to appoint, with the advice and consent of the Senate, a board of managers for each hospital, consisting of seven members, all of whom shall reside in the hospital district. The managers of the two homeopathic hospitals, however, may be appointed from any part of the State; also the Middletown Homeopathic Hospital is permitted to have thirteen managers.

Subject to the statutory powers of the commission, the managers are given general supervision and control over their respective hospitals. They are required to take care of the general interests of the hospital, and to see that its design is carried into effect according to law, and to its by-laws and rules which they may make. They must maintain an effective inspection of the hospital, visiting it at regular intervals for that purpose; keep a record of their proceedings, and send a copy of the same to the commission within ten days after each meeting; and make a report to the commission in October of each year, instead of annually reporting to the Legislature, as heretofore. Appointments by managers are limited to superintendents and treasurers. Each board of managers is empowered to appoint, subject to civil service rules, as often as a vacancy occurs, a superintendent, who shall be a well-educated physician, a graduate of an incorporated medical college, and of at least five years' actual experience in an institution for the insane. The superintendents and assistant physicians of homeopathic hospitals for the insane shall be homeopathic physicians, but such physicians shall not be eligible to appointment in or transfer to State hospitals that are not for homeopathic treatment. Superintendents and treasurers of State hospitals are subject to removal
by a vote of a majority of the board, for cause stated in writing, and after an opportunity to be heard.

Superintendents are empowered to appoint, subject to civil service rules and without confirmation by the managers, their co-resident officers, and all subordinate employees, the number of each class to be determined by the commission; also, to remove any resident officer for cause, stated in writing, after an opportunity to be heard. He may discharge any of his subordinate employees in his discretion.

The granting to superintendents of this power of appointment and removal of subordinate officers and employees recognizes a principle for which the Commission in Lunacy has long contended. In its first report (1889), under the head of "Official Responsibility," it said: "The superintendent or chief medical officer of every asylum should be clothed with the absolute power of appointment and removal of all officers subordinate to himself. It is doubtful if the best results can be obtained under any other system. As the law now stands, boards of managers or trustees of the State asylums have the power of appointment of the superintendent. The power is also given to them to appoint, on the nomination of the superintendent, all of the resident officers, so-called, that is, the assistant physicians, steward, and matron; and while the superintendent may, for cause, temporarily suspend a resident officer, the right is reserved to the managers to confirm or disapprove such suspension. Instances are not wanting of discord between the superintendent and resident officers. This is not as it should be. The superintendent should be held to a strict accountability for the acts of his subordinates, but he can not be so held unless he is possessed of the power of appointment and removal. The existing method tends to weaken discipline, to produce a want of harmony, and to create constant friction. The superintendent is appointed on the theory that he is competent for the position. If he is competent, he should be allowed to select and remove his subordinates. If he is not competent, he should not hold the position."

Under the new law the superintendent is the chief executive officer of the hospital, and, subject to the rules and regulations established by the managers, has the general superintendence of the entire hospital and its equipment, and the direction and control of all persons therein. He is required to maintain an effective supervision of all parts of the hospital, and to generally direct the
care and treatment of the patients. To this end he must person-
ally examine each patient within five days after admission, and regu-
larly visit all the wards or apartments for patients at such times as
the rules of the hospital shall prescribe. He shall also establish
and supervise a training-school for nurses and attendants.

Superintendents or their representatives (first assistant physi-
cians or stewards) are required to meet the commission in monthly
conference at its office in Albany, to consider the hospital esti-
mates and other matters relating to the care and maintenance of
the hospitals.

The steward, under the direction of the superintendent, shall
make all purchases and be accountable for the careful keeping
and economical use of all stores and other articles belonging to the
hospital.

Perhaps the most radical change created by the new law is that
which relates to the commitment and detention of the insane, a
change which doubtless owes its origin to the popular delusion that
commitments of sane persons to institutions for the insane are of
frequent occurrence. This change, it is proper to say, was neither
suggested nor approved by the Commission in Lunacy, nor, as far
as the writer is aware, by any of the hospital superintendents.
Furthermore, there was no demand for a change among the general
medical profession. On the contrary, it was generally conceded in
medical circles, and especially by those who are engaged in the care
of the insane, that the supplanted method afforded ample protec-
tion from danger of commitment of sane persons through wrongful
intent or corrupt collusion. The former method of commitment was
by the certificate of two qualified examiners, approved by a judge
of a court of record, discretion being lodged in the court to require
further evidence of insanity, or to call a jury to determine the
question. The writer, in his official capacity, has examined thou-
sands of cases of alleged illegal detention without finding one in
which the allegation was well founded. Moreover, during a period
of twenty-six years of professional and official connection with
institutions for the insane in the State of New York, not a single
authenticated instance of the commitment of a sane person from
bad motives has come to his knowledge. And while it may be
said that mistakes in the diagnosis of insanity, as in other diseases,
occasionally occur, such mistakes are exceedingly rare, as shown
by the hospital records, and, when made, are speedily discovered
and corrected. In connection with this subject, attention is called to the fact that under the new law the commitment becomes a judicial order, instead of being, as heretofore, a mere approval by the judge. This should afford a protection to medical examiners against damage suits for "false imprisonment" or malpractice.

Under the new law no person can be committed to an institution for the insane except upon an order of a judge of a court of record, such order being granted upon a verified petition containing a statement of facts upon which the allegation of insanity is based, and a certificate of lunacy signed by two qualified examiners in lunacy. Notice of application for the order of commitment must be served upon the person alleged to be insane, at least one day before making the application, but the judge may dispense with such personal service or may direct substituted service to be made upon some other person to be designated by him. He may also, in his discretion, require other proofs in addition to the petition and certificate of the medical examiners, or a hearing may be had by the judge to whom the application is made, upon the demand of any relative or near friend of the alleged insane person. Furthermore, if the person alleged to be insane, or any friend in his behalf, is dissatisfied with the final order of the judge or justice committing him, he may, within ten days thereafter, appeal therefrom to a justice of the Supreme Court other than the one making the order, who shall cause a jury to be summoned and try the question of insanity in the manner as in proceedings for the appointment of a committee. This provision for appeal, it is feared, will be likely to prove a troublesome feature of the new method of commitment, for the reason that it involves a publicity from which the friends of insane persons will naturally shrink, and thus deprive the latter of the benefits which only prompt treatment in a hospital would afford. Besides, it removes the determination of a grave medical question, especially in obscure and difficult cases, from the hands of presumably competent physicians, and places it in those of a jury of laymen. There is one redeeming feature, however, in this provision for appeal from the order of commitment, namely, that before such appeal shall be heard, the person making it shall make a deposit, or give an approved bond, for the payment of costs of the appeal, if the order of commitment is sustained. Another feature of the law which it is feared will tend to delay the taking of steps for the commitment of patients, except in cases of markedly manifest
insanity, is that, in case the alleged insane person is determined to be not insane, the court may charge the costs of the proceedings to the person making the application for the order of commitment.

Finally, it must be admitted that the new law as to commitments embodies many desirable and commendable features, as a careful perusal of it will show. It is not impossible that experience in its practical operation will demonstrate that its objectionable features are far less harmful than was anticipated; and if its operation should result in dispelling the groundless belief which now obtains in the public mind respecting the ease and frequency with which sane persons are incarcerated and detained in institutions for the insane its defects may well be overlooked.

Having thus cursorily outlined the legislation had for the insane in the State of New York since the creation of the Commission in Lunacy in 1889, it is pertinent to inquire into the results of this legislation, both as regards the welfare of the dependent insane and the interests of the taxpayers. In other words, what beneficial results, if any, have been attained in the general care and treatment of the insane and in the methods of management and condition of the hospitals established and maintained for the care of this unfortunate class of citizens? Also, what benefits have the taxpayers derived from the substitution of State for county care of their dependent insane?

Among the more important improvements as regards methods and conditions which have accrued to the institutions for the insane and their government, under the new order of things, may be mentioned the following:

1. A complete registration in the office of the commission of all qualified examiners in lunacy. 2. A complete registration of all persons committed to institutions for the insane, both public and private, with data as to condition, status, results of treatment, etc. This registration already embraces about 35,000 cases of insanity from which intelligent deductions, as well as comparisons in treatment, cost, etc., in the various hospitals may be made. Valuable information is thus made readily available which heretofore could not be obtained from a single source, nor without great difficulty. The collection of this information has been greatly facilitated by the adoption in the institutions of a uniform system of records and statistical returns. 3. Provision for the transfer, by order of the commission, of patients from one institution to another without re-
commitment. This elastic feature of the State care law enables the commission to locate patients in hospitals which are most accessible to their friends; also, to equalize the pressure for accommodations in the State hospital system. 4. Limiting the maximum charge for private patients in State hospitals to $10 per week, and providing that no patient shall occupy more than one room, thus securing to the insane "the greatest good to the greatest number," and, at the same time, doing away with class distinctions, which were formerly a source of much complaint. 5. A successful effort to induce or compel friends of patients, who are legally liable therefor, to reimburse the State for the support of such patients. From this source in one year, at a cost of about $4,000 the commission, through its agents, collected the sum of $60,000. Formerly many patients who were abundantly able to pay were committed to the hospitals by county officials as public patients, the incentive being political or other influences. 6. The adoption of regulations for the removal of patients from their homes or from poorhouses to the hospitals, which require that all public patients, on delivery to the State, shall be in a condition of bodily cleanliness, and clad in new and comfortable clothing throughout. This requirement, the propriety of which will be obvious to experienced minds, has recently been contested by the Charities Commissioners of New York City, on the ground that it was unnecessary and unreasonable. The higher courts decided that it was both proper and reasonable: 7. The removal of patients from their homes, or elsewhere, by trained attendants sent from the hospital, women patients, in all cases, to be accompanied by a woman attendant or nurse. The observance of this rule insures both decency and humanity in bringing patients to the hospitals, besides effecting a large saving in cost as compared with the former method of transfer by county officials. 8. Removal of the legal distinction between acute and chronic insanity by designating each State institution for the insane as "hospital" instead of "asylum," and organizing them all upon a curative basis, thus inculcating the hospital idea. The abolition of this distinction has had a most beneficial effect upon the inmates of these institutions, which were formerly set apart for the chronic insane, as well as upon the interest and zeal of their medical officers and nurses, as attested by their superintendents. 9. A regulation regarding the correspondence of the insane, which provides that each patient who desires may write at least
once in two weeks; letters, for any reason, not forwarded to destination must be sent to the office of the commission for examination; letters addressed to officials in the State having jurisdiction in lunacy cases must be forwarded to them unopened. This rule is designed to disarm the criticism that is so often made respecting alleged suppression of patients' correspondence by hospital officials, and at the same time to afford patients who regard themselves as illegally detained or ill-treated, an opportunity to communicate through proper channels with the outside world.

10. Provision for paroling patients, under certain conditions, for a period of thirty days, during which they may be returned to the hospital without recommitment. This affords opportunity for testing the fitness of certain patients for final discharge, and to others for occasional visits at home. 11. A regulation requiring that patients on admission to a hospital shall be immediately informed of the nature of the institution, and the fact that they are detained there under legal commitment. 12. The opportunity which the law affords to all patients of a hearing by the visiting commissioners apart from any officer of the hospital. 13. A rule restricting the issuing of licenses to conduct private asylums to reputable physicians of experience in the care and treatment of the insane. 14. The general adoption in the hospitals and private institutions for the insane of a uniform dress for nurses' and attendants' wear. 15. Provision for the clinical teaching of insanity in the State hospitals, by admitting to the wards thereof students of medical colleges situated in their vicinity, as well as of practicing physicians, who may desire the opportunity of clinically studying mental diseases, under such restrictions as the superintendents may impose. Under this rule seven medical colleges now avail themselves of the facilities offered by the hospitals for clinical teaching. Also the establishing of a quarterly bulletin, conducted mainly by the superintendents, and designed to represent the clinical and pathological work of the State hospitals and of the Pathological Institute. 16. Provision for the appointment of medical interns in each of the State hospitals, in addition to the regular medical staff, thus providing a training-school for medical officers from which the regular medical staff may be recruited. 17. A civil service regulation requiring competitive examinations for appointment of resident officers in State hospitals. This provision has resulted in removing all of these positions from partisan influences,
and opening the way for promotion, by merit, of experienced assistant physicians and other worthy officers. It is believed that the letter and spirit of civil service requirements are more carefully observed in the State hospitals than in any other department of the State government, and that under its operation the hospitals are as free from partisan influences, both in the matter of appointments and in the tenure of office during efficiency and fitness, as it is possible to have them under a republican form of government. 18. A material increase in the average rates of salaries and wages of all grades of service, also an increase in the proportion of medical officers, nurses and attendants, including a woman physician, on the staff of each hospital. The schedule of salaries and wages recently fixed by the commission provides, in nearly all cases, for promotion in pay at regular intervals, independently of favoritism. 19. The gradual introduction of women nurses on the men’s wards, such nurses to be paid the same wages as men. 20. A material extension of accommodations for attendants and nurses in detached buildings, and the employment of a corps of night nurses, especially in the care of disturbed and filthy patients. 21. The establishment of training-schools in all the State hospitals, with a scheme of examinations to be conducted by a committee of superintendents, which shall be alike for all the hospitals. 22. Provision for the employment of dentists for patients whose teeth the medical officers may determine to be in need of attention. 23. Provision for ophthalmological examinations by specialists in that department of medicine. 24. An allowance of $100 per annum to each hospital for the purchase of medical books; also a liberal and varied subscription list to medical journals, magazines, and other periodicals, for the benefit of the staff and others. 25. An effort to improve the cooking and serving of food by the employment of a chef in each State hospital, in addition to the ordinary corps of cooks, whose duty it shall be to generally oversee the cooking in the various kitchens, and to instruct the subordinate cooks and trained nurses in the preparation of food. 26. The adoption of a schedule of food supplies prepared by Prof. Austin Flint, including a per diem ration allowance of each article. The schedule is designed to serve as a basis for the hospitals in estimating for such supplies, and also as a guide for the commission in its revision of such estimates. It should be understood that the schedule contains only staple articles of food, such as are in daily use, and does not include
fruits of various kinds and many other articles of food which are regularly allowed in the monthly estimates; neither does it include "special" or "extra" diet for the sick and feeble, which may be prescribed in the discretion of the medical officers. It has been the aim of the commission, within the limit of funds at its command, to encourage the purchase of a better quality of food supplies generally, and to this end, in its conferences with the superintendents, its practice has been to insist upon a higher grade of such supplies whenever the grades called for have seemed to be below standard, especially as regards beef, butter, flour, sugar, tea, and coffee, etc.

27. A marked improvement in the methods of bathing, by the introduction in nearly all of the hospitals of "rain" or "spray" baths; also the introduction of hand-towels in the convalescent wards, and other sanitary comforts and conveniences.

28. A requirement that, so far as the commission may deem it feasible, the hospitals shall enter into joint contracts for the purchase of staple articles of supply through competitive bids, the contracts to be let to the lowest responsible bidders.

Respecting what has been accomplished in the direction of improvement in the hospitals themselves, and for the promotion of the welfare and comfort of their inmates, as a result of the adoption of the policy of State care, a perusal of the annual reports of the hospitals will show that the condition of these institutions, as regards organization, equipment, sanitary condition, fire protection, clothing and furniture, food supplies, discipline, nursing, means of diversion and occupation, and medical service, has been steadily progressive, and that the standard of care generally is materially higher than it was prior to the enactment of the State care law.

The superintendent of the Binghamton State Hospital, in his report for 1893, refers to the improved conditions in that hospital under the new system, in the following striking language:

"Analysis of the table showing the causes of death, and comparison with similar tables for preceding years, afford extremely gratifying results. The reduction in the death-rate is not only gratifying when computed on the number admitted, but is also highly satisfactory when based on the average daily population, for on this basis, during the past ten years, it has fallen from 11.73 per cent in 1883 to 6.35 per cent in 1893. The question naturally arises: To what is this remarkable improvement due? To you who have seen the institution grow from a poorly equipped, crudely
furnished, poverty-striken asylum for the chronic insane into the splendid hospital of to-day, supplied with modern sanitary appliances, provided with good food and raiment for its patients, diversified occupation and amusements to engage their hands and minds, and kind nurses to watch over them, the question needs no answer. Improved surroundings, humane care and treatment, freedom from mechanical restraint, and the largest personal liberty consistent with safety, are the agencies through which the change has been accomplished. Up to the year 1890 it was with exceeding difficulty that the bare necessaries of life could be procured for our patients, but when in that year the State care bill became a law this hospital, scarcely recognized by its sister institutions, was suddenly galvanized into life, and under the beneficent provisions of that act it received a new impetus which enabled it to rise rapidly to high rank in the State. Under the old law anything was good enough for the broken down chronic cases it sheltered; under the new law the arbitrary distinction between acute and chronic insanity was legally annihilated, and the doors of the hospital were opened to all for whom admission was sought from the eight counties constituting the district assigned as its bailiwick."

In 1893 the Legislature enacted a law providing a general appropriation for the support of the State hospitals as provided in the State Care Act, and putting upon the commission the responsibility of supervising the expenditures of the hospitals through a system of itemized monthly estimates to be formulated and revised by it. It was not to be expected that when the State should assume the entire expense of maintaining the hospitals, involving an annual outlay of millions of dollars, it would continue the former method of expenditure by local officials, with practically no uniform system, and without supervision by some central authority which should be independent of local influences. In other words, when the policy of the State became fixed in respect to paying the whole cost of maintaining its dependent insane, it became self-evident that the former financial methods could not be adapted to the new conditions, and, consequently, that the need of some central supervision and control of the moneys to be expended for that purpose would be imperative.

In entering upon the work of supervising the expenditures of the State hospitals the commission was deeply impressed with its duty to the dependent insane, on the one hand, and with its respons-
ibility to the taxpayers on the other. It also realized that it must necessarily encounter difficulties in the beginning, in putting into practical operation a new law, which necessitated an entirely new financial system, involving a radical departure from methods which had been sanctioned by long usage and time-honored custom, and under which the funds received by the hospitals from various sources were expended under the supervision and audit of local boards of managers.

In the inauguration of the new system it was inevitable that misunderstandings and friction between the commission and the hospitals should arise. The superintendent of the Utica State Hospital, in his report for 1893, pointed out this danger in the following most prophetic language: "The transition from the old order of things to the new will not be accomplished without friction. Soon, however, the machinery must adjust itself to the new requirements. And surely one may safely leave the future to take care of itself, if, in meeting the new problems that will arise, we pause to ask ourselves the simple question whether the end we have in view is the application to our every-day work among, and in behalf of, the insane of the humane principle that underlies the State Care Act, and which alone made its passage possible."

It would also be surprising, if, in the application of a financial system of such vast magnitude, and involving such widespread interests, mistakes in minor details should not have been made by the body having the matter in charge. That such mistakes were made the writer freely admits, but he believes that with the better understanding of things which has come about between the hospital authorities and the commission, now that the new financial system is in successful and practically frictionless operation, no one who is conversant with the situation to-day and with the results attained would deny that the policy of the commission, as a whole, has been a commendable one. Furthermore, it may be said that the present method of expenditure and accounting, as embodied in the system of itemized monthly estimates, now that it is fully understood, is acceptable to substantially all of the hospital superintendents. In fact, several of the superintendents have assured the writer that they would not desire to return to the former methods if they were permitted to do so. It is not claimed that the new system is, unlike other human agencies, without imperfections. It is claimed, however, that its already demonstrable advantages over the system
which it superseded are so great as to convince even the most skepti-
cal of its former opponents of its superiority in both its humane
and its financial aspect.

The following excerpt from the report of the superintendent of the
Binghamton State Hospital for 1895, not only reflects the views of
superintendents in respect to the new method, but indicates the status
of existing relations between the hospitals and the commission:

"The operation of the hospital under the State care law has
been highly satisfactory. Difficulties incident to the experimental
stage of a new system have disappeared, and the friction which at
one time threatened serious complications has entirely subsided.
The new financial scheme, inaugurated by the State Commission in
Lunacy, has been found not only practical, but much more system-
atic and convenient than the method previously in use. The great
powers vested in the commission, under the new law, have been
wisely exercised, and it is pleasing to be able to record that many
of the supplies that the hospital has obtained under the estimate
system have been superior in quality to articles of a similar kind
previously used. This has been notably so with such articles as
beef, butter, and sugar. During the entire year we have used
none but Chicago dressed beef in carcasses of not less than 600
pounds, and of the best quality. Our butter has been made by the
separator process and has been purchased directly from the best
creameries. The use of brown sugar has been entirely discarded,
and in its place only white granulated sugar is now used. With
our cold-storage buildings equipped with refrigerating apparatus
enabling us to keep the meat rooms near the freezing point, the
butter room at a much lower temperature, and the fruit rooms at
any desired degree of cold, we have been able to preserve perish-
able provisions, and to save considerable money by purchasing
when prices were low."

The superintendent of the St. Lawrence State Hospital, for the
same year, says:

"Our relations with the State Commission in Lunacy during the
past year have been harmonious and pleasant. The new system of
supervision of accounts has become a matter of no embarrassment
and very little friction, and seems to work very well."

Anent this subject the superintendent of the Utica State Hos-
pital in his annual report for 1895, under the head of "Official
Relations," says:
"Relations with the seat of government, through the State Commission in Lunacy, have become more intimate in proportion as successive acts of the Legislature have involved a growing centripetency. It is a pleasure to note a nicer gearing of the parts of the vast and complex piece of machinery and to experience the employment of ball-bearings, as it were, where formerly there was some friction in transmitting motion. Official visitation was had by the Commission in Lunacy on October 13, 1894, and May 18 and 23, 1895, and on my part frequent communication (almost daily by letter, and monthly by conference) has been had with the office of the Commission in Albany."

In concluding this subject, it is gratifying to be able to state that the prevailing opinion among superintendents and the commissioners in lunacy to-day, in respect to the monthly conferences between the two bodies, at which various questions respecting methods of management are freely discussed—and many of them practically determined by the superintendents themselves—is that these conferences have been productive of great good to the hospitals as well as to the commission; also that they have finally resulted in the establishment of harmonious relations between the superintendents and the commission, which was "a consummation devoutly to be wished."

Respecting the benefits derived by the taxpayers from the new methods, it may be stated that the total saving effected by the estimate system in its first year amounted, in round numbers, to $300,000 over the previous year under the old system. In other words, the per capita cost of maintainance for the fiscal year 1892-3, exclusive of surplus funds expended by the hospitals just before the estimate law went into effect, was $216.12; whereas, in 1893-4, the first year under the estimate system, the per capita cost dropped to $184.84, a reduction of $31.28. Multiplying the daily average number of patients by this last sum makes the difference $275,453.68, which, added to the item of $25,000 paid by the State for the transportation of patients from their homes to the hospitals (an expense not borne by the hospitals under the former system), makes a total of $300,453.68. These figures apply only to the eight State hospitals then in existence, the support of the asylums of New York and Kings counties, containing approximately one-half of the dependent insane, not having as yet been assumed by the State.

The new constitution, which was adopted by a decisive vote of the people of the State of New York in 1894, and which became
the organic law of the State January 1, 1895, elevated the Commission in Lunacy to the dignity of a constitutional body, thereby placing it beyond the power of the Legislature to terminate its existence, and vested in it exclusive jurisdiction over all institutions for the insane, both public and private, a jurisdiction which theretofore had been jointly vested in the commission and the State Board of Charities. The adoption of this constitutional provision must be regarded as a final recognition by the people of the necessity of placing the supervision and control of their insane and the institutions established for their care and treatment upon a more substantial and comprehensive basis than had heretofore obtained, while at the same time securing to this class of dependents a more enlightened and humane system of care, as well as greater protection against possible wrong in their commitment and detention, by completely and permanently separating them from other objects of the State's charities, and providing for their supervision by a central authority, which shall be independent of local influence and clothed with practically plenary power to remedy defects or abuses whenever and wherever such may be found to exist.

Thus the people of the State of New York, actuated by the conviction that "nations are never impoverished by the munificence of their charities," having finally and unequivocally determined and provided for the control and care of all of its insane who are unable to obtain private care, through a well-devised, permanent and comprehensive system of State supervision and State maintenance—a system which contains within itself the essential elements of self-perpetuation and practically unlimited extension, and which makes it obligatory upon all counties, as well as to their financial interests, to place all of their dependent insane in State hospitals under the absolute control of the State.

DISCUSSION.

Dr. Wise: After the gracious acknowledgment of Dr. Mac-Donald, it behooves me as an element of that friction to which the doctor refers, to add my evidence of human frailty and human liability to err. At the outset of the execution of the State Care Act, there was a contention upon the principle which placed an unlimited authority of such magnitude in a central board which depended upon political appointment. I still believe there is a difference of opinion and a reason for a difference of opinion upon
that point. As far as the practice in New York State has gone, however, or, at least, as far as our experience has gone, we have no reason to feel that political preferences have had the least influence in the determination of any question that has been presented to the State Commission. The possibilities are in futurity, and with it I suppose we have nothing to do. It strikes me, however, that a work of such great magnitude, and one that will attract public notice, from the fact that it deals with such a large annual expenditure, is, in the fact of its greatness, itself a safeguard; and I am inclined to think that even as matters now stand a commission in lunacy, after the time of the present board has expired, will have to submit to a public demand for honest expenditure and righteous action.

The second contention was in regard to the inflexible interpretation on the part of the commission of the powers they held by statute, and I am very glad to say, as Dr. MacDonald has admitted, that there has been a drawing together of the hospitals and the commission, until now the utmost harmony exists, and there is no difference of opinion whatever, as far as I am aware.

I think, too, that the powers of the commission have been exaggerated in the public mind. Superintendents have a greater independence than they ever had, as Dr. MacDonald stated, in the appointment of their co-resident officers; and for the employees of the hospital they have the entire responsibility without interference from any source.

I think too that the public estimation of the amount of restriction on the part of managers has been exaggerated. As far as I can see the managers are only restricted in the expenditure of money, and it was inevitable that when the State appropriated this immense amount of money to be expended annually upon the insane, there should be provided some further methods than heretofore existed for the supervision of such expenditure. The commission holds the same relation to expenditures of State hospitals that the Governor holds to bills passed by the legislature. They have a power of approving and disapproving. They can not originate expenditure; that still rests with boards of managers.

The monthly conferences that have been referred to have been of great value. I am willing to second all that Dr. MacDonald has said with regard to the advantages that have accrued from the system of State hospital care under the new State care act. I
believe that in the main, the recent changes have operated for the public good, and to the benefit of the insane. There have been mistakes made by the commission and misapprehensions held by superintendents, but it is refreshing to hear the mistakes admitted and condoned, and the apprehensions allayed. The State of New York is setting an example for the world in the care of the insane, which is probably the best and only commendation that the present system of supervision needs.

Dr. Burr: In regard to the matter of appeal to which Dr. MacDonald alluded, I thought it might be of interest to mention a supreme court decision in Michigan recently in reference to a case of paranoia. The inquiry was made in the Probate court of Ingham county and the case excited great popular interest. The Judge appointed two medical men to listen to the facts brought out by the inquiry and to certify at the end if in their judgment they found the patient sane or otherwise. They certified, after thirty days' inquiry, that the patient was insane. The Judge made the record but hesitated to grant an order for patient's removal to an institution pending an appeal to the Circuit court. The matter reached the Supreme court eventually and it was there decided that an appeal in such a case was not proper, the reason being that injustice would be worked to the patient, to the friends of the patient, and to the community, if appeal could be had in these cases and matters drawn out indefinitely. I think the decision is of great importance.

One other matter that I thought of in connection with the Doctor's paper. In addition to changing the names of institutions for the insane to hospitals, why should not the words "lunatic" and "lunacy" be done away with altogether? They carry no medical significance and are based on a misconception of the nature of insanity. They should be done away with in medical writings, in the titles of institutions, and elsewhere where they have been used.

Dr. Hurst: I am anxious to make an inquiry about State care. Many who have been interested in State care as opposed to county care have been troubled with the fear that States would eventually grow weary of the great expense of State care and would sooner or later give it up. In Michigan, where I formerly resided, I can see a tendency in that direction. County institutions are being fostered which ten years ago were not able to get any footing. I wish to ask Dr. MacDonald whether in his judgment there is any possibility that States will weary in this charitable labor and will revert in whole or in part to county care.
Dr. MacDonalE: To answer Dr. Hurd's question, I would say, that in the State of New York there is now a very strong public sentiment in favor of State care. The people of the State were never so familiar with the subject as they are to-day, and I think that any attempt to agitate the question of a return to county care would be frowned down by the people at once and especially by the press of the State. In my opinion there is not the slightest danger, so far as our people are concerned, of any relapse in this matter. The people are willing to appropriate liberally for the support of their insane, and to provide everything that medical science has determined to be necessary for the proper care of these cases. They naturally want to feel assured that the funds they appropriate shall not be misapplied and that the State gets "value received" for the moneys expended. I think we have reached that point in the scrutiny of the expenditures of the State hospitals that they will be kept within reasonable limits, and I would repeat that I do not think we are in the slightest danger of a return to the county care system in New York.

There is also a healthy public sentiment in the State of New York, backed up by the press pretty generally, in opposition to the introduction of partisan influences into the management of the State hospitals, and I would say respecting the fear which has been expressed of the possibility of some future commission in lunacy undertaking control of the expenditures or to control the appointments in the State hospital service in the interest of any political party, that it could scarcely adopt, as regards itself, a more suicidal policy. The present commission feels that it would not only destroy its usefulness, but would jeopardize its existence if it had control of the purchases and the patronage, so-called, of these institutions, as has been falsely alleged in certain quarters. Furthermore, for my own part, I would resist to the utmost any attempt to subject the hospitals or the work of the commission to partisan control, and, failing to prevent it, would resign my commission.

Respecting the point touched upon by Dr. Burr, in reference to the new "Insanity Law" in New York which provides among other things, for appeal from the order of the court in cases of commitment, I would say that I regard this as an unfortunate feature of the law. Just now, in New York, we are passing through what might be termed an "habeas corpus era." Recently two well-marked paranoiacs have been released on writs of habeas corpus having been pronounced sane by juries; and as a con-
sequence the press is now clamoring for the release of cases; but we all know, at least those of us who have been in the service for any length of time, how the pendulum swings, and it only needs the occurrence of a homicide by one of these cases for the press to swing over to the other side and demand such cases shall be kept locked up.

In regard to the writs of habeas corpus, I think there has been a feeling among some of the medical officers in charge of hospitals, and especially those in charge of private institutions, that they are to be dreaded, and frequently there is a disposition to evade them by discharging the patient in advance lest their detention might be a reflection upon the hospital. I have always counseled those in charge in these cases to retain them if they regarded them as insane, and to make a return to the writ and appear in court and express an opinion, and then leave the responsibility with the court. If a judge sees fit, upon such information, to discharge the patient, let him take the responsibility. In my judgment the discharge of a patient, or a dozen patients, from a hospital on a writ of habeas corpus is no reflection whatever upon the superintendent. In the new insanity law, which will go into effect on the first of July, provision is made that in case of habeas corpus the court must summon the medical officer having charge of the patient and take his testimony and also put in evidence the case book history before deciding. Heretofore courts have been inclined to ignore the opinion of the medical officers and frequently have refused to allow the case book history to be put in evidence. It seems to me that having done this, if a court is still willing to take the responsibility of discharging a case, the hospital superintendent should be content to let it do so.

Not long ago I was conversing with a prominent judge in our State who had approved of the finding of a jury that a person brought before him on a writ was sane. He told me that he was satisfied the man was insane, "but, said he, what could I do when a jury found him sane." I asked if he had not the power in such case to set aside the finding of the jury, or to direct it to find a verdict in accordance with his judgment. He said "Yes, but what are you going to do in the face of the press?" "As a matter of fact," said he, "all our judges are moral cowards and are afraid of the press." This struck me as a most remarkable statement and one that was probably incorrect. Most of our judges are not moral cowards nor are they afraid of the press, though some of them may be.
THE DISORDERS OF THE MUSCULAR SYSTEM IN INSANITY.

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Insanity, viewed in its broadest clinical relations, may be defined as a reflex psycho-somatic manifestation of a diseased nervous system.

In the vast majority of cases it will be found that the presidial functions of the entire nervous system, as regards internal organs, the muscular system, circulation, respiration, digestion and secondary metabolism, are all involved in the symptom complex of insanity.

One of the practical means of advance in psychiatry therefore lies in the faithful study of the bodily phenomena of insanity. In pursuance of this idea, and as the continuation of a series of articles already published on the somatic symptoms of mental disease, viz., on "Disorders of Speech," "Modifications of Respiration," "Pneumogastric Disorders," and "The Pulse in Insanity," this present paper on "The Disorders of the Muscular System in Insanity" is now presented for the consideration of my hearers.

Attention will be directed first to the striped muscles, constituting the voluntary muscular system, which serves all purposes of adaptation to external relations, and then to the unstriated muscles, those of organic life, as found in the viscera and vascular supplies of the organism.

In the first place, then, it is well to recall for one moment the main anatomical and physiological points in the nervous mechanism which presides over the innervation of the voluntary muscular system. The prime source of motor innervation for the voluntary muscles is the cortex of the brain. The motor impulses originating in cortical areas are conveyed downward by the nervous fibres which converge to form the pyramidal tracts and by the latter to the motor cells of the anterior cornua of the spinal cord, and from thence by the anterior roots to the motor nerves and to their peripheral distribution in the voluntary muscles. Thus, the local
pathology of the disorders of the voluntary muscular system may be, as will appear more fully later on, disease of the brain cortex, as in the degeneration of cortical areas in general paresis; solution of continuity of the fibres which go to form the pyramidal tracts, as in internal capsular lesions in organic dementia; morbid changes in motor cells of the anterior cornua of the spinal cord, as in the sclerotic processes of alcoholic dementia; or disease of the peripheral nerves, as in the multiple neuritis of toxic insanity.

The above are the main points of localization in the morbid anatomy of the muscular disorders to be mentioned. Some of these disorders, however, are of unknown pathology throughout their entire course, and still others, like the paralysis of hysterical insanity, though functional at first, through prolonged vasomotor and trophic changes finally pass into the category of affections having distinct organic lesions.

The description of these muscular disorders will now proceed somewhat in the order of the frequency with which they are encountered in actual clinical practice, and the first one to receive attention is atrophy.

Atrophy of voluntary muscles is much more frequent in insanity than is supposed, and careful measurements and tests as to muscular dimensions should form a part of the daily clinical study of insane patients. The general loss of bodily weight, which is almost universal in all acute stages of insanity, is largely due to general atrophic changes in the voluntary muscular system. Even in the chronic stages of mental disease the malnutrition of striated muscles may proceed so far as to amount to a tropho-neurosis, which is only a part of the more general neurosis of which the insanity is the expression.

The most rapid atrophy of muscles takes place in delirium acutum, whole groups of muscles wasting in an incredibly short time. There are recalled in this connection cases of typhomania (which, by the way, seems to be less common than formerly)—instances of large and powerful men in whom at the end of some days, and in spite of every effort to sustain nutrition, the atrophy was so great that, as an attendant once well expressed it, "the muscles seemed to have all melted away."

In various acute toxic insanities muscular atrophy may result from lesions of trophic centers, and in alcoholic dementia especially it is common from sclerotic degeneration of the motor cells of the
anterior cornua of the spinal cord. In the diathetic insanities muscular atrophy is a not infrequent symptom. Thus, there is arthritic atrophy in cases with gout and rheumatism; atrophy from focal or disseminated lesions of nervous centers in syphilitic insanity; atrophy in cancerous or tuberculous cases from disease of joints or bones or deep-seated burrowing abscesses which evacuate pus, which passes into the sheaths of muscles and by long-continued contact excites fibrillary atrophy. In the scorbutic diathesis from changes in the blood and extensive intramuscular hemorrhages atrophy may result, just as it may be a sequel in post-febrile insanity from rupture, hemorrhage, and abscess in degenerated muscles. And in this connection it is apropos to call attention to the great frequency of deep and diffused abscesses among the insane from diathetic, toxic, traumatic, and other causes, and to suggest the early and thorough evacuation and antiseptic washing out of the same in order to avoid the possibility of muscular atrophy as well as other disagreeable sequels.

Incidentally it is here to be noted that inflammation of muscles, though a rare affection, is relatively frequent in rheumatic and syphilitic and in other forms of insanity. It may be due to accidental traumatic injuries or to toxic influences. It may have a chronic and subacute form, manifested by repeated lumbago, torticollis, and pain and soreness of the muscles of the extremities on slight exposure to cold or dampness or on unusual fatigue. This myositis may also have an acute and severe course, followed by deep-seated abscesses, and then it may be mistaken for phlegmonous erysipelas or cellulitis. The skin over the inflamed muscle will be edematous and red, and blood and serum will be effused on section; but pus will not be evacuated, but will gravitate diffusely in muscular sheaths, according to the position of the limb, and may finally become a cause of atrophy.

Again, muscular atrophy in general paresis and alcoholic dementia follows polyneuritis, just as it is the result of the multiple neuritis of the various toxic insanities. Space will permit only the passing mention of the common existence of muscular atrophies in idiocy, imbecility, and cretinous insanity. In senile dementia there is sometimes premature muscular atrophy with actual neuritic degenerations, and a point of practical clinical importance in these cases is that there is a corresponding cutaneous atrophy. Through muscular wasting the skin is in close apposition
with bony prominences, and such is its tenuity that on slight manual pressure there is danger that extensive abrasions may arise.

Muscular atrophy may also be of traumatic origin. Through accidental falls or blows, such as seem more or less inevitable among the insane, there arise severe contusions, which may be attended with so much swelling and loss of motion as to suggest fracture at first. The patients from advice or choice remain in bed and inhibit all motion of the injured part, to avoid pain at first, but finally out of mere habit or delusion, and the result is atrophy.

Among demented, stuporous, and bedridden cases of insanity atrophy often comes from simple disuse. These supine and helpless patients when left to the natural course of muscular events sink into fixed attitudes of flexion and adduction, and in course of time loss of motor function and atrophy of muscles result. The prophylaxis of this form of atrophy is friction and passive movements of limbs and the avoidance of permanent postures in this class of patients.

Another disorder of the muscular system in insanity which is very common, and has a varied pathology, is tremor. These tremors may be coarse or fine, they may be partial or general, they may be constant or interrupted, they may be present only on intentional effort; and whatever may be their clinical character, they almost invariably cease during hours of repose.

In general paresis there are three kinds of tremor which are to be distinguished from ataxic disorder and from fibrillar twitchings of muscles. In the first place there is a fine and rapid tremor having a probable average of ten oscillations per second, which is present most of the time, though it may escape superficial inspection, and which exists independently of purposive muscular movements. It is found chiefly in advanced stages of general paresis, and is doubtless due to widespread organic lesions of nervous centers. The second kind of tremor is coarser and belongs rather to the class of intention tremors, or at least is most evident on intentional muscular efforts, and it will be readily observed as the patient extends the hands and separates the fingers. The third kind of tremor is still coarser than the one just mentioned. It may be described as a grossly exaggerated tremor, and, though it may not be positively and exclusively of psychic origin, it is apt to be most manifest in the hands of the patient during movements of great emotional excitement.
Space will not permit a discussion of the various tremors present in alcoholic insanity. They assume a variety of interesting forms, and when permanently present they are of unfavorable prognostic import, as pointing to disseminated organic lesion of cerebro-spinal nervous centers. The various toxic insanities have tremors differing somewhat in type, that of hydrargyrism being especially pronounced in character, though that of nicotinism may be almost equally well marked. One youth under my charge, who was insane from great excess in cigarette smoking, had a fine tremor which was almost constant, while in another case of like origin the tremor was notable only during movements requiring special co-ordination.

The insanity of auto-intoxications also may be accompanied by tremor increased under strong emotion or on intentional efforts.

In the tremor of senile dementia the head as well as the hands is often involved, and this is a symptom which augurs ill for the recovery of the patient.

There is another class of tremors found in the functional psychoses, and most frequently in debilitated, ill-nourished, or neurasthenic cases, due solely to the failure of cortical motor cells to furnish the physiological quantum of continuous efferent motor impulses, and a similar tremor from defect of cortical innervation may occasionally occur in very youthful subjects in the insanity of childhood and in states of arrested mental development. It is of interest to note that this tremor in some degree keeps pace with the general rhythm of psychic processes, and it will be found accordingly more rapid in mania than in melancholia. Emotional tremors so frequent in insanity are too well known to call for special description here.

Hastening on, with a mere illusion to the tremor of tabetic types of insanity, to the tremor of cases with paralysis agitans or with disseminated cerebro-spinal sclerosis, to the tremor of organic dementia with descending degeneration of the pyramidal tracts, and to the tremors of sudden brain anaemia from vasomotor spasm, there next comes under consideration a much grosser disorder of the muscular system known as contracture.

Contractures are so common among insane patients that a lengthy description of their familiar features is hardly necessary, and attention will be directed here more especially to their etiology. One of the most common causes of contracture in
dementia, stupor, or melancholia is the fact that in these states the flexors act in excess of the extensors, and through delusion or entire lack of spontaneity on the part of patients their limbs remain in permanently flexed positions. Now, if no correction of this flexed posture habit is made it will not be long before the physician will be called upon to recognize the pathological fact that the muscles of limbs continuously flexed and disused undergo first shortening, then degenerative tissue changes, and finally permanent contractures. If the patient has been long bedridden the foot will be found flexed on the leg, the leg flexed on the thigh, and the thigh flexed on the abdomen, and sometimes nothing but a severe operation—anaesthesia, the free use of the tenotomy knife, and the overcoming of ankylosed joints—will relieve the contractures; so that "an ounce of prevention is worth more than a pound of cure" with these subjects whose physical condition often will not justify the severity of the operation necessary for their relief. Another familiar example in this same category is referable to the forearm group of muscles, and in this instance by permanent contracture of the digital flexors the finger tips are fairly buried in the palms of the hands and there is almost invariably a simultaneous forearm flexion. The posture habit of crossed knees sometimes causes contracture in a way not wholly parallel to the above, as there is superadded the influence of pressure partially interrupting circulation and nervous innervation.

The etiology of another class of contractures is to be sought in the central nervous system. In organic dementia the early and late rigidity of paralyzed limbs is followed by structural contractures from descending degenerations of the motor tracts, and they occur likewise in syphilitic, alcoholic, or epileptic and paretic insanity, from disease of the pyramidal tracts, and it is probable that the permanent contractures of hysterical insanity are due to a like cause. In the above forms of insanity there are also exceptionally observed a variety of spastic conditions of the muscles due to sclerotic changes in the lateral columns of the cord. In alcoholic insanity also, as in other toxic forms, contracture may be the sequel of multiple neuritis. In idiocy contractures are very common as the result of early encephalitic processes. In rheumatic insanity contracture at times follows the arthritic affection, just as in general paresis it may be secondary to arthritis deformans.

Another muscular disorder which the alienist often encounters
among his patients is spasm, which may be clonic or tonic, and which for want of a better term will here be extended to embrace a variety of allied affections common among the insane. One of the most notable forms of spasm is that which causes the familiar symptom of the grinding of the teeth, which may be thus almost completely worn away, and the tongue and buccal mucous membranes may be severely bitten, more especially in the final stage of general paresis. This is a bilateral masticatory spasm of muscles supplied by the motor branch of the trigeminal nerve. It is found also in phthisical insanity with basilar meningitis, in delirium acutum, in idiocy, in hemiplegic dementia, and in syphilitic insanity with basal gummata. It is well to know that there may be actual paralysis of this motor branch of the trigeminal nerve in the terminal stage of general paresis, and that the inability to masticate in these cases is due to this fact and is not merely ataxic in nature.

There are frequently observed, among the neurasthenic insane more especially, fibrillar spasms, which consist in the independent clonic action of the separate fibres or strands of muscles. These fibrillar spasms occur usually in the orbicular, facial, or forearm muscles and often recur at more or less rhythmic intervals of a few seconds or moments during all the waking hours of the day for weeks or months together. Their pathology is probably local irritation of cortical cells in motor areas representing the muscles affected, and it might be considered as so proven should they be reported in a case of insanity from trauma capitis with lesions of motor cortical regions and with spasmodic muscles exactly corresponding to our knowledge of the crossed innervation of the brain cortex, and of localization of motor centers.

Another kind of spasm of some interest, though of superficial importance, because usually artificially provoked in origin, is met with in patients under the tension of persistent delusions or emotions, as in melancholia attonita and like states. When such a subject is urged to speak or otherwise aroused, the only response may be a series of spasms of one or several muscles of the face, neck, or pharynx. The condition of these patients is one of extreme mental inhibition, and when it is suddenly interrupted there is a spasmodic liberation of motor impulses, chiefly in the regions of the mimic facial muscles. Permanent forms of unilateral convulsive tics of face and neck muscles are not infrequent and also
bilateral spasms of clonic form, especially of the eyelids, as in facial habit chorea, only greatly exaggerated in character. Nictitation is more common than nystagmus. Typical blepharospasm may exist for weeks or months together.

A man insane from alcoholic excess came under my care with clonic unilateral spasm of the right sterno-cleido-mastoid accompanied by a loud inarticulate noise. The noisy part of this phenomenon was regarded as an instance of vocal-impulse tic engrafted on a spasmodic muscular tic, as in my observation of the insane the conjunction of psychic tics and of convulsive tics occasionally occurs. Echolalia and coprolalia may coexist with this muscular disorder, the patient repeating what is spoken in his presence or uttering some profane or obscene word at the instant of the spasmodic movement. There are also slow rhythmic tics and a variety of athetoid movements in which the fingers move slowly or briskly even in the same case, according to the amount of emotion present. The sudden twitching of muscles or groups of muscles known as subsultus tendinum, which in its simple form is wont to occur on the verge of sleep, often becomes a very troublesome symptom among the insane, recurring throughout the day and preventing sleep at night, the patient being awakened with a spasmodic start almost like an electric shock.

Confirmed clonic spasm of the muscles supplied by the external branch of the spinal accessory nerve is sometimes found in hysterical and epileptic insanity, and other muscles of the neck and arm may become involved. Clonic spasm of the diaphragm is met with in hysterical and hypochondriacal cases very often, and in my observation it has occurred also as a persistent antelethal symptom in both organic dementia and general paresis. Clonic lingual spasm is not a very rare symptom in general paresis, and it may somewhat interfere with speech or mastication, the tongue sometimes being severely bitten.

The clonic spasmodic disorders of choreic insanity are to be named here also, though want of space will not permit their special description, but it is important to state the general principle that the younger the patient the more apt is the insanity to reveal itself through the medium of the muscular system, and it is safe to estimate that in the insanity of childhood disorders of the muscular system exist in seventy-five per cent of all cases.

There is a whole chapter of spasmodic clonic affections in general
paresis. Some of them occur during any of the stages without loss of consciousness, and others during the paretic seizures with loss of consciousness. In the latter case the clonic spasm begins usually in the face and extends to the arm and then to the leg. This customary order of protospasms is often interrupted in general paretic seizures, however, the spasms skipping from one side to another and from one muscle to another, in ocular, facial, brachial, and crural regions, in a most remarkable manner. There is no certainty in these seizures that the conjugate deviation of the eyes will be toward the side of the lesion. Nystagmoid motions often precede any other spasmodic ocular movements in these seizures.

The tonic spasms of insanity, in contradistinction to the clonic ones above described, are very numerous. One of the most common is spasm of the orbicularis palpebrarum, which may persist for days or weeks together. Tonic spasm of the sterno-cleidomastoid and trapezius muscles is a common symptom, especially in its milder forms, usually spoken of by patients as stiff neck. Tonic œsophageal spasm and pharyngeal spasm are not very rare, and the latter in hysterical insanity may be so severe and continuous as to interfere seriously with the alimentation of the patient, and in these cases also œsophagismus and gastric spasms may cause obstinately repeated emesis. In ascending cases of general paresis these pharyngeal spasms may be very annoying. Laryngeal spasms also occur, and some years ago, in my article on "Laryngeal Hyperkineses," read before the New York Neurological Society, a case was recorded of laryngeal spasm continuous for two years as a premonitory symptom of general paresis, which finally terminated fatally in typical form. There are also to be enumerated here diaphragmatic and abdominal spasm, intestinal and gastric spasm, phantom tumors from muscular spasm, prolonged chasmus and aphthongia.

Strabismus in its various forms must also receive a word of notice. It is common in all types of insanity with severe organic brain lesions, and it is my impression that permanent divergent squint especially is of unfavorable prognostic import.

Cramps of all kinds are among the muscular anomalies to be noticed, the gastrocnemius being perhaps the most frequent site of the disorder, which may be very painful or a persistent cause of insomnia, especially in neurasthenic and alcoholic insanity. There are, moreover, in alcoholic and in other toxic cases, spastic
states of the muscles of the legs, more particularly due to the sclerotic degenerations of the spinal cord. There are also the various cataleptoid and tetanoid states of muscles, requiring more space for description than can be accorded in the brief limits of this article. Suffice it to mention the tetanoid rigidity of muscles in post-hemiplegic insanity, the tonic and spasmodic pedal extensions in alcoholic dementia, the catalepsia spuria of hysterical and pubescent insanity, the “flexibilitas cerea” of stuporous and epileptic cases, the tetanoid seizures of the final stage of general paresis, and the saltatory cramps of acute delirious mania.

To complete this pathological array of symptoms of the voluntary muscular system in insanity, there remains finally to be described the group of pareses and paralyses. The differential diagnosis of these pareses and paralyses is a complete test of the physician’s knowledge of neurological pathology, as the utmost skill is required to determine whether the source of the muscular disorder is in lesions of cortical motor regions, efferent conducting fibres, internal capsule, pyramidal decussation, spinal motor cells, anterior nerve roots, or in the spinal nerves or in their peripheral distributions. These muscular disorders may occur in syphilitic dementia at any of the points mentioned. In arrested mental development they arise from encephalitis; in general paresis they are chiefly cortical; in all the toxic insanities they may proceed from spinal cellular degenerations or from peripheral neuritis; in organic dementia from thrombotic or embolic softening and internal capsular lesions; in senile dementia from vascular atheroma and atrophy of brain cortex; and in alcoholic dementia from sclerotic interruptions of the fibres of the pyramidal tracts or from the pressure caused by subarachnoid or intraventricular effusions; and they will be found to be sometimes functional, or at least of undeterminable morbid anatomy.

These pareses and paralyses may assume every variety of form, such as hemiplegia, paraplegia, crural or brachial monoplegia, or loss of motion in facial, ocular, orbicular, and sphincter muscles.

The paralysis of muscles supplied by cranial nerves is especially common in syphilitic dementia, the monoplegias are frequent in organic dementia, the paraplegias are wont to occur in hysterical and alcoholic insanity, while hemiplegia appears in epileptic dementia; and a combination of these affections is to be witnessed in the various types of general paresis. It will be found on closer
study, however, that the paralyses of general paresis are more apparent than real—that the muscles have not lost power to act singly but in co-ordination with one another, and that it is ataxia and not true paralysis which gives the impression of loss of voluntary motion. The disorder of the muscular mechanism of speech in general paresis is also essentially ataxic, proceeding first from disease of cortical cells, and later from bulbar lesions of the facial and hypoglossal nuclei and of nerves of innervation of lips, tongue, and vocal organs. In typical paresis the gait also is ataxic throughout, but in ascending cases it is tabetic at an early stage, and in occasional instances of sclerotic lesions of the lateral columns the gait becomes markedly spastic, just as in alcoholic dementia. It is possible in the same case of general paresis to have these three typical anomalies of locomotion illustrated—first, the true paretic gait from disease of cortical motor cells; second, the tabetic gait from lesions of the posterior spinal columns; and third, the spastic gait from sclerosis of lateral columns. The clinical fact, however, is that in fully developed general paresis the defects of gait vary considerably from time to time, and bear an intimate relation to the nature and number of the convulsive seizures. There are to be mentioned here, also, certain remarkable cases of insanity, in which there is static ataxia as well as complete locomotor inco-ordination. These patients can not stand or walk alone, and on trying to do so they have violent random movements of arms and legs and of head, neck, and body, and if not firmly held by the hands of nurses they are apt to suffer severe falls or injuries.

The pareses of insanity have a diversified etiology. They may spring from failure of exhausted cortical centers to evolve sufficient motor impulses, or of efferent nerve fibres to conduct them, or they may be the sole result of mental inhibition in melancholic states with great mental tension. They appear in various forms of insanity, and may affect any or all of the muscles. They are less apt to escape diagnosis in the extremities than in some other muscles, and attention is directed here to their frequency in the levator and tensor palati muscles, in the pharyngeal constrictors, in the œsophageal muscles, and in the tensors of the vocal cords. Pro-lapsed or deviated palate, various forms of dysphagia, and marked changes in vocal tone are very common from this cause. In hypochondriacal and neurasthenic insanity these pareses are often the outcome of delusion, and may be very persistent, affecting, as a
rule, only one extremity; but in hysterical insanity they may be interchangeable, involving one or both upper or lower limbs, and in almost any imaginable order. The paresis of the muscular organs of speech is occasionally very pronounced in neurasthenic cases and in states of brain exhaustion from overwork, and the ignorance of this fact has led many a physician into gross error in mistaking these functional speech defects for those which spring from organic brain lesions. There may be paresis of speech muscles in the hypochondriacal insane, not alone from strong prepossession by an idea or an emotion, but from force of imitation also, just as stuttering may be likewise acquired by sane persons. Muscular disorders from force of imitation are to be witnessed, especially in epileptic insanity, and St. Vitus' dance, tarantulism, and spasmodic muscular disturbances have always been prominent phenomena of historic epidemics of insanity. Again, there are intention pareses as well as intention tremors among the insane.

There remain to be brought to notice a few functional abnormalities and some sensory disorders of the muscular system. One of the decided anomalies in muscular functions is the inco-ordination so common in many forms of insanity. It is by no means confined to tabetic, paretic, senile, or toxic cases of mental disease, in which well-known cerebro-spinal lesions may act causatively. Inco-ordination in the functional psychoses may be associated with cortical anæmia from vasomotor spasm, or with stomachal, aural, or cardiac vertigo, or with powerful mental inhibition, or with loss of the muscular sense. The symptom is none the less real, however uncertain its etiopathology may be. This inco-ordination may show itself in neurasthenic insanity, for instance, in gait, speech, handwriting, or any of the highly specialized acts. It is also to be seen even as static ataxia, as a modified form of Romberg's symptom, or it may present itself as pseudo-astasia abasia. Another functional change in muscles is their abnormal reaction to external stimuli. The mechanical muscular excitability may be shown by slight blows over muscles to be sometimes increased and at other times diminished in epileptic, hysterical, and paretic cases; and in phthisical insanity a slight tap on the body of muscles may provoke a tonic contraction for a very perceptible period. In the acute stages of certain forms of mental disease the reflex irritability may be increased to the degree of general convulsibility. The electro-muscular reactions are not infrequently abnormal in in-
sanity, both as regards the use of the faradic and of the galvanic current, and the reaction of degeneration is occasionally to be witnessed. The electro-muscular contractility is diminished in idiocy and in profound dementia, and the electro-muscular sensibility may be lost in hysterical and in some other forms of insanity.

In health the muscles of the body in repose are not completely relaxed, but they are in a permanent state of tonicity, which is known as the "tonus muscularis."

In insanity this physiological muscular tone may be increased, diminished, or lost.

As a general rule, the tonus muscularis is increased in states of exaltation and diminished in states of depression, and in deep melancholy and stupor and in the final stage of general paresis it is lost. The lack of all expression in the face of some insane patients is due partly to this absence of normal tone of facial muscles.

A careful study of the muscular system among the insane will often reveal to the expert eye certain permanent signs of neurotic degeneration. These muscular stigmata degenerations consist in asymmetrical lateral development of the muscles of the face, limbs, or body. In addition to this inequality in the size of muscles, there is often inequality in the innervation of the same on the two sides of the body, and this disparity in facial muscles causes an asymmetry of expression characteristic of the insane physiognomy.

A final abnormality in the functional activity of the whole voluntary muscular system may be termed the automatism of insanity. The largely reflex and mechanical nature of the semeiology of mental disease has never yet been sufficiently expounded. Additional light would be thrown on that which is to be said did space here permit some explanation of the psychic automatism of insanity, but this must be reserved for a separate article, and muscular automatism alone will be here briefly noticed.

The fixed attitudes of the demented in whom, through predominant action of flexor and pronator groups of muscles, the extremities are flexed, the body inclined, and the head bent forward on the chest, and other characteristic postures retained for weeks, months, or years, at first possibly in obedience to delusions but finally mechanically, constitute permanent examples of passive automatism. This passivity may be so great that positively no movement of hand, foot, or head is spontaneously initiated, and
the passive automatism becomes absolute. On the other hand, the repetition of the selfsame aimless movements for months and years together is characteristic of active automatism. The head, body, or limbs may be constantly moved to and fro, or from side to side, or rotated, during all the waking hours, the monotonous motions ceasing only during sleep, and reappearing at the earliest moment of awakening, just as in the automatism of idiocy. These automatic acts may be simple, complicated, or rhythmical, and they exist in great variety. In the first instance they may originate in some motive or delusion, but eventually they become insignificant of any idea, and simply represent the automatic escape through motor channels of such nervous energy as is daily evolved in cerebro-spinal centers. The constant swinging of the foot with crossed knees, the incessant friction of some part of the clothing, the stationary rocking from one foot to another, the shuffling in one position, walking in a circle, stereotyped movements of the head with humming or strange noises, rhythmical stroking of the head or face, rubbing of the hands together, measured time-beating with hand or foot—all these are instances of active automatism. In a somewhat unique case under my observation, the automatic rotary friction of one thumb nail on the other had resulted in epithelial hypertrophy, so that the nail had attained several times its natural size both in length and thickness. The most complicated automatic acts form a part of the symptomatology of epileptic insanity. In fact, post-epileptic automatism reveals an astonishing variety of highly co-ordinated and even most skilful acts unconsciously performed. In mania, also, with acute exacerbations and entire loss of mental inhibition, both acts and ideation become largely automatic, and the efferent peripheral and sensorial stimuli play upon the central psychomotor mechanism of the patient as upon an instrument. All ideas and feelings tend to issue at once through muscular channels, and by intense cortical irritation tumultuous emotions are spasmodically liberated and are expressed in incoherent and disorderly movements or in automatic laughing and crying. In some demented and with insane children the inco-ordinate and aimless muscular movements are more nearly to be compared with those which arise automatically during the early months of infancy. The ceaseless and purposeless muscular activity of certain idiots and imbeciles is also nearly allied to the spontaneous hyperkinesis of infancy.
The sensory disorders of the muscular system in insanity must be briefly noticed.

There is physiological proof that man has six senses. The muscular or kinæsthetic sense, like the others, has cortical representation, possibly in Rolandic areas, as it conveys to consciousness impressions of the resistance of external objects, and of the muscular effort essential to overcome the resistance, and also of the relative position of the limbs in space. The loss of the kinæsthetic sense in general paresis accounts in some cases for the pseudo-astasia abasia, and also for the fact that paretics often fail to know the position of their arms or legs in bed, and that they can not estimate the force required to lift things. In hysterical insanity with paralysis the muscular sense is lost, and it is generally impaired in epileptic insanity.

Muscular anæsthesia is not infrequent in epileptic and paretic cases, and muscular analgesia is so marked among some insane patients that the infliction of injuries and even the most extensive self-mutilations may be painless.

Muscular hyperæsthesia is also to be found in neurasthenic insanity, causing exaggerated muscular reflexes and giving rise to delusions as to the size of the body and limbs. It also accounts in some acutely hypochondriacal and melancholic cases for the sense of weight and soreness of the muscles. The extreme restlessness and the "anxietas tibiarum" of melancholia agitata is in part due to muscular hyperæsthesia.

Myalgia in its various forms is very common among the insane, who complain of stiffness, soreness, and pains in the muscles of the arms, legs, neck and back.

Lumbago and pleurodynia are not so common as temporal, frontal, and occipital muscular pain, and the nuchal muscles of all others seem to be the most frequent seat of this sensory disorder. In occasional cases of hypochondriacal insanity myodynia is the most constant symptom.

In conclusion, there remain to be mentioned the disorders of the involuntary muscular system of organic life.

The pathological variations of vasomotor innervation of the muscular coat of arteries in insanity account for many important symptoms. Thus there may be increased or diminished intravascular blood-pressure and many rhythmic variations in pulse character, best determined by sphygmographic tracings, as described in my
The whole question of muscular reflexes and pupillary reactions in insanity, though naturally a part of our subject, has been purposely omitted, because it has already been adequately treated by other writers.
The final summation of conclusions deemed to be legitimately drawn from this paper is as follows:

The organic lesions of the cortical, bulbar, or spinal centers and of the peripheral nerves in insanity cause frequent disorders of the muscular system.

Functional diseases of cerebro-spinal nerve centers in insanity are likewise attended by functional muscular disorders.

The incoherence, excitement, and general psychic disorder of insanity are reflected directly through the voluntary muscular system.

The deep derangement of vital functions and of internal organs in insanity is accompanied by disorders of the muscular system of organic life.

All these muscular disorders constitute a most essential part of the somatic symptomatology of insanity, and as they are of the greatest value both in the diagnosis and prognosis of mental disease they deserve a more complete clinical study than they have hitherto received.

**DISCUSSION.**

Dr. Hurd: I have been much interested in this paper of Dr. Kellogg which in some respects resembles a paper published many years ago by J. Crichton-Browne * entitled a "Plea for the Minute Study of Mania," in which he spoke of the muscle disorders which appeared in connection with maniacal excitement. The paper was not as thoroughly worked out as this as it was confined almost wholly to the muscle disorders accompanying mania. In the paper under consideration we have an extension of a similar method of inquiry to other forms of mental diseases.

I am inclined to think that many of the conditions spoken of are muscle degenerations due to gross disease. Some of the conditions of course are to be explained on the ground of neurasthenia. Many similar ones occur in the non-insane. Dr. Kellogg made no allusion to the condition of muscular system known as catatonia. I hoped he would explain this condition.

THEN AND NOW, BEING PICTURES FROM THE PAST.

BY W. W. GODDING, M. D.,
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When a man has been for more than a generation identified with the care of the insane, and for upwards of a quarter of a century the responsible head of a hospital for lunatics, and, if you further add that his picture and obituary appeared in the Journal of Insanity six years ago, you have made out a prima facie case that he is dead, or ought to be. Should such a person rise to read a paper before you to-day it would be only right for him to state what reason he has for breaking the silence which "oblivion, with her poppy," blindly and kindly was scattering above him.

The trouble with me is that without sufficient excuse I am violating all the proprieties—I continue to be very much alive. True, the years have for a long time been running against me, but it is some other fellow who has grown old. Through all disheartening labors, in disappointments and discouragements, with life disillusioned and disenchanted, I have kept the faith, I have not been "disobedient unto the heavenly vision;" the light of the morning has not faded, and from the hopes that met me on the threshold of my life-work I have not yet parted company. Good, so far, but how about results? With opportunity superadded to dream what has the harvest been? Turn on the X rays of experience, then tell us how far you can see into the human brain? Is it polarization of cells of the gray matter that perverts thought? In those cerebral centers where sound becomes audible to that which takes cognizance behind the ear, what crossed wires in that circuit's telephone put curses on the lips of prayer? Studying from the embryo you think you have found the first dawns of thought; go a little further and tell us of its ending. And when life is over, what is it that has gone away? Have you found a parallax to the infinite? You have carefully mapped out the brain convolutions and measured the depth of the gray matter, and it is well, but, in so doing, have you comprehended all that we call mind? Or are you, too, like your patient, following only phantoms through all these years? The unanswered questions of our youth, unanswered in our age, when the night has come, are these the only sheaves we bring?
"Full well I know I have more tares than wheat—
Brambles and flowers, dry stalks and withered leaves;
Wherefore I blush and weep as at Thy feet
I kneel down reverently and repeat,
    Master, behold my sheaves!

"I know these blossoms clustering heavily
With evening dew upon their folded leaves
Can claim no value nor utility—
Therefore shall fragrance and beauty be
The glory of my sheaves."

Then, out of all these baffled hopes, these dreams of youth to which age brings no fulfilment, these longings after knowledge—longings that are never attainments here, building above the broken arches of our crumbling lives, shaping even out of these life-failures "more stately mansions" for the soul, haply we may come to recognize the logical necessity for, and acknowledge the beauty and the fitness of, being "clothed upon" with an endless life, wherein to answer these questions of the infinite, when this poor finite knowledge of brain is ended.

But this is not the "then" where I intended to arrive when I announced my subject. I was thinking of a far-off June twenty-six years ago, when in 1870, at Hartford, Conn., I attended my first meeting of the Association. It is a single sheaf out of memory for which I claim "no value nor utility," but to my eyes there is "beauty" in its far-away pictures, and for "fragrance," it is like rosemary that you carefully fold away with linen and open the forgotten drawer a quarter of a century later.

"There's rosemary that's for remembrance; pray you, love, remember."

It was the twenty-fourth annual meeting, with thirty-nine members present, the largest attendance up to that time. Probably about one-third of these survive, although the names of only ten appear now on the rolls of our association. Of all the members who took any prominent part in the exercises then—if I except Dr. Barstow, who read a paper on "Irish Hospital Schools"—only one remains, of whom I will speak later. There were two men already eminent then who still survive—Dr. H. A. Buttolph of New Jersey, and Dr. John H. Callender* of Tennessee—but for some reason they were only attentive listeners to others, taking but little part in the proceedings. The other silent listeners, or

* Died August, 1896.
nearly so, who still remain in charge of institutions for the insane, or in active practice in the specialty, are Drs. Brower, Choate, * Evarts, Parsons, D. D. Richardson, and the writer, six in all. Brother Stearns, not then connected with hospitals, was present, but, as I now remember him, keeping very quiet.

But before I call the roll of the principal actors then, the silent majority now, let me name one man who stood there, shoulder to shoulder with them, interested as he always is in everything pertaining to the welfare of the insane, taking an active part in the proceedings as secretary, guiding the order of exercises with a firm hand on the rudder and an unswerving trust in the propositions as the faith once committed unto the saints. I refer to Dr. John Curwen, about as old then as he is now, and as young now as he ever was; Dr. Curwen, who, when the association was organized in 1844, was Dr. Kirkbride's assistant, and so has now fairly entered upon his second half-century of hospital work; Dr. Curwen, who, in 1851, was made superintendent of the institution at Harrisburg, and has since been continuously in charge of Pennsylvania State hospitals for the insane. Is it any wonder that the old Keystone State has honored itself by thus honoring him? Or that his trustees should be proud of the man whose latest report comes to us blossoming all over with pleasant pictures of the home that he has created for these children of misfortune in a hospital over which he so ably presides, rounding out the forty-fifth year of his superintendency strong in that sturdy old Presbyterian faith in God and love for his fellow man, the ideal superintendent of the old school, of which the world is losing the type? O brother, well beloved, whom we would fain call Master! our Nestor in point of service, to whom old age seems something still afar-off—for the years, whose storm beats so pitilessly on the most of us, mean only opportunity to you—go on with your good work here, and in the language of the old Latin, "Servus in coelum redeas," which means, "Long may you wave!"

The Nestor of the Hartford meeting of 1870 was Dr. Wm. H. Rockwell, who, after a service of years with Dr. Todd at the old Hartford Retreat, had, in 1836, gone up the river to Brattleboro, Vt., to take charge of the asylum then opened there, and now, in the thirty-fifth year of his superintendency, had come back to see what changes had been made in the old Retreat and to attend what was, I believe, his last meeting with the association. Dr. Rockwell

* Died July, 1896.
was a tall, spare man, a little bent with age when I saw him, but with strong, rugged features and a clear head, characterized by that Yankee common sense which had enabled him to solve, beyond any other superintendent of that day, the economic management of a hospital by availing himself of the labor of the inmates as a hygienic item on the credit side of the ledger. In that frugal State of Vermont, as elsewhere, "nothing succeeds like success," and if Dr. Rockwell needs any other monument or more enduring one than the simple record of his life among the insane, it may be found in the broad acres of asylum land which he acquired for the institution, acres which stretch away on every hand beyond the rim of hills that encircle the buildings; and, looking across the Connecticut River, the Chesterfield Mountain, which he secured, rising in wooded eminence, where, as I understand, the inmates still cut their winter fuel, and which, towering there in its rugged solitude, may well stand to the old doctor for all monument.

But the men into whose ranks I timidly stepped at that first meeting, and the faces that I recognized there as my masters in psychiatry, had I held a kodak then, how easy to reproduce them now! But without the phonograph it would still be disappointing. I can only outline; your acquaintance or your imagination must do the rest. Let me call the roll of the principal actors then, to which none can answer now:

Ray, Kirkbride, Butler, Earle—four of the six survivors of the original thirteen—Brown, the elder Bancroft, Gray, Gundry, Nichols, Walker, and Wilkins. I well remember them, men of mark, and if I do not outline them all it is because to do so would exceed my paper's limit.

First, the original four. I shall not here do over the work that has been so well done by Dr. Curwen in his painstaking tribute which is rightly accepted as authoritative on these men and their work.* Mine are only half-tones, or, better, off-hand sketches of what as a novice I saw at that Hartford meeting.

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*The only permanent value of this paper, indeed the sole excuse for printing it in this age of too many books, is that it attempts, however imperfect its success, to present some outline of the real men who have been the chief actors in our Association, the superintendents of an era that is passing, superintendents whose lives, built into their work like mural paintings, perish with the structure, or fade early into mere tradition. I have, therefore, thought it fitting to present here some gleanings additional to the data given by Dr. Curwen in his accurate but brief statement in regard to Dr. Samuel White, one of the "original thirteen." For much of this I am indebted to a grandson of Dr. White, the Rev. John Chester, D. D., of Washington, D. C.
Dr. Isaac Ray. I shall not make the mistake that was on my lips of saying, the "old doctor," for not one of those four survivors had then attained to my years to-day. The good doctor with his world-wide fame sat quietly in one of the front seats, not nursing the fame, but with legs crossed, hands folded, and head drooped forward as Dr. Curwen has so graphically depicted him. It was a strong, pale face, deeply lined with intellectual plowings. His beard was cut away far enough so that it might not hide the expression about the mouth; the rest moderately trimmed, took care of itself, as did also the coarse, white hair, strong as the head it covered; the kind of hair which, no matter how white, knows no decadence, and never basely deserts the scalp like some weaker varieties. It was a clear, direct eye, very quiet, with now and then a barely perceptible twinkle at the corner in closing some well-directed sentence. His enunciation was distinct, but he suffered from a troublesome cough that at times interrupted his speaking. But though somewhat of an invalid there was no loss of mental vigor, and his paper on the "Prognosis of Insanity" was listened to with profound attention. He was universally acknowledged to be the ablest writer of the association. When a young man, without hospital experience, he wrote his "Jurisprudence of Insanity," a classic that became at once authority and is accepted as such now. No writer on insanity in the language approaches him in clearness of diction or the purity of his English. In discussion he

Dr. Samuel White was the oldest of the founders of the association, being then sixty-seven years of age, and dying before the next meeting. His grandson, who, as a boy, well remembers him, describes him as a man of most dignified presence, courteous and kind, emphatically a gentleman of the old school in those early years of the century. As Dr. Curwen states, his asylum was the outgrowth of a domestic affliction, and while select in its cases, it was not limited to the wealthy classes. Here, as elsewhere, he did good as he had opportunity.

Dr. White had a wide fame as a physician, and especially as a surgeon, and his consultation practice extended from Poughkeepsie to Albany. He was an all-round man, as beffitted the superintendent of those days, or any other. It is pleasant to note that the aptitude for hospital construction which has characterized the later superintendent was already there. As the leading layman of the Presbyterian church at Hudson, he was practically the architect and builder of the church edifice and acknowledged as such.

But the work which emphatically stamps the character of the man as one fitted for the emergencies incident to the care of the insane, was his pioneer operation for the removal of a foreign body from the alimentary canal by opening the abdominal cavity. I say pioneer, because I can find no earlier case recorded. Ashhurst's exhaustive International Cyclopedia of Surgery gives twenty-three cases of laparotomy for obstructions due to foreign bodies, the earliest case being "White, Medical Repository," 1807, Recovery (see Vol. vi, p. 72).

The article in the Medical Repository (Vol. iv, 1807, p. 367) is from the pen of Dr. White himself, and is valuable, not alone as the earliest record of this operation, but as throwing most instructive side-lights on the personality of the writer. Illustrating this I shall venture to quote somewhat at length from the article. Note the quiet humor in this. After stating that he had observed that the Repository—then in its fourth year—devoted more space to medical
spoke deliberately but with authority, his words carefully chosen and to the point. There was no oratorical display; his sentences, like his thoughts, began, continued, and ended in common sense. In pleasant contrast with some members of the association he was never aggressive. If the brother in opposition was worsted, as he usually was, it was not by Dr. Ray, but by the facts, which were universally recognized as such when attention was called to them by the doctor. Hence, in discussions of moral insanity, Dr. Gray, able and aggressive beyond most men as he was, was no match for him. Dr. Ray, in bodily presence, was in no way imposing, but in letters and in thought a king. When the century makes up its record he will stand with Pritchard at the one end and Maudsley at the other and not suffer by the comparison.

Possessing in another direction an almost equally world-wide fame, and next in point of age, Dr. Thomas S. Kirkbride sat there. Only two years the junior of Dr. Ray, he impressed me at that time as a much younger man. He was hardly of medium size, but a pleasant, thoughtful face showed an intellectual master. Bodily presence was wanting, but there was no want of power. Persuasive and conciliatory in speech, like all strong minds, he had firm convictions and held them most tenaciously. You felt only the silken touch, the grasp was of steel. It was in the administrative and constructive part of hospital work that he justly attained to the widest fame. He kept ever in view the purpose

than to surgical cases, he trusts that a contribution in the latter direction may be acceptable, though he can not hope that anything he can offer will equal in importance the "alternative course that from its Herculean might can arrest the ravages of the lungs, or the uncontrovertible proof of the non-contagion and domestic origin of yellow fever." Life is too short for me to search through the earlier volumes of the Repository for these wonderful articles, but I have no doubt Dr. White had read them, and, knowing well how the tubercular patient melts away under the mercurials, and not caring to risk the non-contagious theory of yellow-fever in his own family, took this quiet way to puncture the windbags of these visionaries.

Then modestly he gives this excuse for publishing a case then unexampled in the annals of surgery. "To show the frailties of human nature, and to induce others, when finding cases varying materially from systematic authority, not to sink under the magnitude of their weight, but with steadfast and resolute perseverance, while life lasts, to keep their minds bent on relief, which, in many instances, can be gained beyond the most sanguine expectations of the physician, so as to arrest a fellow mortal from impending fate." Be sure that such a man would succeed in an insane asylum, or elsewhere.

This is his case: George Macy, age twenty-six, white swelling of the left knee, associated with exostosis of left tibia, and extensive ulcers on anterior portion of each leg. Macy is an old Nantucket name; Nantucket is the place where he finally went, and had we his whole history we should probably find that he had "gone down to the sea in ships" and contracted rheumatism and other things. Dr. White treated him for articular rheumatism; he grew very ill and mentally disturbed; the doctor styles it a "watchful delirium and an artful disposition to procure some instrument of death." On July 7, 1865, he sent his nurse for water, and taking a large teaspoon with fruit jelly swallowed both spoon and jelly, for the purpose of
of the hospital, and no one will question that his life-work was to
demonstrate the most enlightened method of caring for the insane
and to make the hospital that he had planned, and to whose
perfection he had devoted his best years, a model institution in
every respect. His attention to all details was surprising. He
had confidence in himself. The structures he had evolved out of
his careful studies of the needs of the insane were remarkable for
their fitness and completeness; he had reason to be proud of them.
As years went on and men from all parts came to study them they
became a part of himself, the children of his brain, and with that
optimistic way of looking at things which was characteristic
of the man, if by chance any stray duckling was gathered under
the shadow of his wing, it straightway became a swan. A man
endeared to and beloved by his patients, his whole life was given to
his work among them—a life covering a half-century of usefulness.
Hence, though the hospital which he reared is now presided over by
one of the ablest of our number, under whom it has kept pace with
the progress of psychiatry, and shows the impress of new thought
and new departures on a road whose leadings are always upward,
yet the common people still call it "Kirkbride's," and rightly find
in it fitting monument to their greatly beloved physician.

Dr. John S. Butler, about the age of Dr. Kirkbride, but a some-
what older-looking man at that time, was the president-elect at that
1870 meeting. He was a pleasant, large-framed, large-hearted man.

self-destruction. Dr. White followed the spoon's progress through the pylorus and onward
until a month later (August 7th), having become fixed in the ilium, creating pain and constitu-
tional disturbance, with the patient now sane and begging for relief, Dr. White decided to
operate. Remember there was no previous record of similar operation for guidance, no anæs-
thetic, no aseptic surgery, but there was the patient to be relieved, and there was Dr. White,
and that was all that was needed. The doctor details his operation: The incision, the grad-
ual progress through the edge of the muscles; the peritoneum reached "he opened it with a
lancet, protruded the lower turn of the intestines, containing the handle of the spoon, with
the forefinger; pierced the intestine with the lancet "—how handy a lancet was in those days—
"over the end of the handle and extracted it in the same direction with the forceps. I then
laid the divided edges of the intestine directly opposite and secured them with the glover's
stitch, dressing the external wound with strips of adhesive plaster and lint."

"After this I made use of simple dressings to the wound. ** Under this treatment
the wound healed by first intention."

In those days the corrosive chloride stood harmless on the shelf, for the pernicious microbe
was not walking abroad in the land, the grim shadow of death that he has since become; the
'dura lilia' of the reapers of that day were too much for him.

Then see how the doctor closes his article: "In September I applied a large stimulating
plaster to the knee and he soon after left for Nantucket, to gain the benefit of a sea-breeze,
since which he continues to recover, though much doubt remains in my mind as to security of
the limb." The security of his own fame at the success of this pioneer operation does not
seem to have been in his thoughts, but of this poor fellow thus saved from death, crippled
with rheumatism and broken down with specific disease, he had doubts "as to the security of
his limb!" This is the modesty of true greatness, well worthy of the original thirteen.
For upwards of thirty years connected with institutions for the insane, and for twenty-seven years the superintendent of the Hartford Retreat, within the past eighteen months he had remodeling and renovated the entire structure; had built out pleasant bays, added conservatories, carried up turrets for skylights, letting the sunshine into shaded rooms and darkened lives; and now that the work was nearing completion the association had gathered to his house-warming as to a love-feast, even as now we come up to Waverley to view Dr. Cowles’ new departures toward individualized treatment, and thank God we have lived to see the day. It was indeed a love-feast. Dr. Kirkbride insisting on retiring from a presidency which he had held for many years, and welcoming Dr. Butler, his successor, with courteous phrase, as “better known to many of the association than himself,” and Dr. Butler responding, recalling the original meeting and declaring that, “in his opinion, to be elected president of this association was the highest honor of the profession.” But the meeting was not satisfied with any such quiet passing on of their beloved retiring president, and Dr. Gray, by a well-timed resolution of thanks, brought up Dr. Kirkbride for concluding remarks. They were felicitous and appropriate, mostly retrospective of the first meeting, twenty-six years before, and its happy results. One sentence particularly impressed me. He said: “If this association had done nothing more than to have enunciated, with the entire unanimity it did, the series of ‘propositions’ in regard to the construction and organization of hospitals for the insane, and which have been recognized as authority by our national and many of our State legislatures, by most boards of trustees, by many foreign bodies and authoritative bodies—that of itself would have been sufficient to justify the formation of the association.” Dr. Ray and Dr. Earle of the “glorious thirteen,” as Dr. Nichols felicitously styled them, followed with fitting remarks, and that symposium closed with no discordant note. Yet at the final session Dr. Kirkbride introduced resolutions that went over for want of time, but were adopted the next year at the meeting at Toronto, “That this association reaffirm in the most emphatic manner its former declarations in regard to the construction and organization of hospitals for the insane.” Why was this deemed necessary where nothing outward marred the harmony? Possibly he recognized some latent doubt which he feared might not always remain latent. For there was good Dr. Butler beaming all over with satisfaction
at having emancipated his hospital and its inmates from the prison-house of gloomy wards that had been outgrown, exulting in his freedom to fashion the surroundings to the individual need of the insane—a need already recognized, that was destined to become a controlling idea, influencing and fashioning all of his later work.

There, too, was the elder Bancroft, able and far-seeing, but prudent and silent, who was even then looking towards an end of the tyranny of bricks and mortar over ideas. And genial Dr. Brown of Bloomingdale, who had already seen in the practical questions of a great State's provision for its insane that philanthropy may, nay must, "stoop to conquer," and was beginning to tire of reaffirming Procrustean conditions. But the logic of events is more potent than reaffirmations, and though Dr. Ray said in 1871 that it seemed to him unnecessary, "that it was like reaffirming the laws of nature," yet, when seventeen years later, at Old Point Comfort, these propositions were formally laid aside as simple historic truths that had survived all canonical authority, it was but a natural evolution, not revolution, that good old Dr. Butler living rejoiced to see.

To me, with his somewhat frequent correspondence in later years, his is a most fragrant memory, a genial setting sun that well deserved the following encomium from the pen of Dr. C. A. Walker in the closing resolutions of that Hartford meeting: "And last, but always, to our honored president, our old associate, our warm-hearted friend, Dr. John S. Butler, wishing him length of days and continued success according to his rich deservings, with our united right hands, we give him a reluctant good-by and a hearty God-speed."

Dr. Pliny Earle, the youngest of the four survivors of the thirteen, was at that time a little rising of sixty. He was a man above medium height, of good presence, said to have been a very handsome man in his youth. When I knew him he was still good-looking with a bright-speaking eye. He wore his hair long, in locks inclining to curl. He was accounted a poet in his youth, and articles in the earlier numbers of the Journal of Insanity from his pen disclose the poetic temperament. Later he laid aside poetry to take up statistics, and, outside of his careful hospital management, this was his work of widest fame. His "Curability of Insanity," with its side-lights on hospital statistics, bringing out in bold relief the personal equation of the enthusiastic superintendent,
was widely commented on, and got in its work everywhere. Dr. Earle had the misfortune to have, partly by inheritance, a somewhat precarious state of health, but with his philosophic mind, forewarned was forearmed, and he resolutely held himself back from the intense strain that is almost inseparable from the highest effort, and so wisely prevented the otherwise inevitable overthrow. His last attendance at the association was when, at Philadelphia in 1884, he presided at the fortieth anniversary. Of the old thirteen he and Dr. Butler alone remained. Dr. Kirkbride had passed on only a few months before. Dr. Butler was not well enough to be present, so Dr. Earle alone, a shadow of the past, visibly affected by the situation, presided as master of ceremonies at that memorial session. The old order was changing, "giving place to new."

What wonder then, if, looking beyond the men of this generation who occupied those chairs, his eyes saw the shadowy hands beckoning and the faces peering out that he remembered there forty years before! The last survivor of "the glorious thirteen," he lingered on in retirement and deepening shadow until three years ago the light came.

I have briefly alluded to Dr. Bancroft and Dr. Brown, and I must be content with that, though each deserves more extended notice. Dr. Wilkins of California was there, having been sent by his State round the world to study the questions of hospital construction and care of the insane everywhere. He did so, and made a report that is to-day one of the best we have. This, with the building at Napa, must be his monument.

A marked personality there was Dr. C. A. Walker. A manly, erect figure, a piercing eye, a long, flowing beard, even then blanching, that came at last to be like snow. His handwriting always arrested attention, even that of the casual observer of the hotel register. It was of the plain, solid text, old black letter, that might have been produced with the square point of a fence paling. It was written with a blunt-pointed quill, and his correspondence necessarily became weighted down with ink sand. Dr. Walker arrested attention himself quite as much as his handwriting, and to more purpose. He was earnest, enthusiastic, and by his personal magnetism so drew men to his way of thinking that all who came within its influence believed in him. I have heard him spoken of as a stern disciplinarian. True, his hospital was overshadowed by the House of Correction, but I have better witnesses—patients of
his who came under my care—who convinced me that they loved
him like a father, and in that old mediaeval survival at South
Boston he was as tender of them as a mother. That was his
great warm heart. He had an ambition to build for Boston a
hospital worthy of her, and this was slowly crushed out of his soul.
So he went to his grave a disappointed man. But whatever
shadows may have darkened his life at last, to me that face always
appears in sunshine, and his pleasant voice comes back to chase
away all shadows. The resolutions from which I have already
quoted, which he wrote at Hartford, are like him—generous, whole-
souled, and worthy. So I would bring rosemary and heartsease,
write above him, "One who deserved well of his fellowmen," and
say, "God's peace go with him wherever he journeys now."

But the three men who more than all the rest carried on the
debates of that day, Gundry, Gray, and Nichols, how little space
is left me, yet something must be said of these.

Dr. Richard Gundry, he was from Ohio then, and like a true
patriarch he was accustomed to bring all his children with him, and
a pretty considerable family it was. The doctor was built rather
short for an ideal patriarch, but he had a large head, with massive
brow, squarely set on his sturdy shoulders, and there was a great
deal in that head. He wore a full long beared, which, like his
hair, was auburn. This did not mean a fiery temper, but he was a
good combatant, and I think was always found in the opposition.
In argument he had no respect for gouty toes or old traditions.
He thought and acted independently and talked the same way.
He was well read in history, was indeed an omnivorous reader, and
at the time of his death had perhaps the best library in the associa-
tion. He could remember what he read and make it available in
argument. This gave him great power, and when he fought in the
opposition it was to some purpose. He was a pleasant, genial man
to meet in social converse, and always popular in the association.
Short in stature, year by year he broadened and towered mentally
until we were conscious that he was a giant with whom we had
been so familiar that we had somehow overlooked his power. But
he was taken ill; it was too late then to talk of honors from the
association that were his due, and when a few years since, at
Catonsville, I stood beside the open casket where—

"Dead, he lay, among his books,
The peace of God was in his looks,"

then I realized something of our great loss. But the past is at least secure, and the records of the association, running through a long term of years, will show how much he was in evidence at those meetings, of many of which it may be truly said:

"Pars magna fuit."

Dr. John P. Gray. The mention of that name is enough. We all know what a giant he was. But there are perhaps even now some here who never saw him, and a sketch, purporting to be of a meeting where he was present, with no notice of him, would be like the play of Hamlet with the Prince of Denmark left out.

Dr. Gray, a pupil and assistant of Dr. Brigham, succeeded him at Utica, N. Y., early in the '50's and so was among the older superintendents at the Hartford meeting. Dr. Gray was a large man every way except in height. Had nature given him a commanding figure, in addition to his great intellectual ability and his wonderful power to deal with men and carry his ends, he would have

"Bestrode the world
Like a Colossus."

As it was, he came very near to it. Recalling him now, strong in every way, I do not think as an all-round man there was anyone who was his equal in the association. He was well read and had a most retentive memory. Socially, he was genial and winning, full of anecdote and apt illustration, with "troops of friends." Yet he antagonized many men. He was a student of mind, but he also studied men, and he knew what was in them. As a successful superintendent he filled out one of the longest terms, dying in harness. In the Empire State the courts recognized him as the leading expert in the jurisprudence of insanity, and his marshaling of the experts and conduct of the Guiteau trial at Washington gave him a world-wide reputation. As a debater and a writer he was able and always ready. He was never accused of a lack of self-confidence. He was resourceful under all circumstances; no combination of unpleasant events ever staggered him, and his ability, combined with a naturally combative disposition, carried him through. These very qualities made him overbearing and not always generous to a foe. Yet to me he was at his best in conflict, for he was descended from the Norsemen, and, like an old Viking, incapable of fear. When all the disaffected souls, the ambitious
pretenders, the alienists and cranks of New York City, of every description, rose in their envy and their wrath, and swore to depose him, the old chieftain smiled, gathered up his carpet-bag, "came to his own," the Legislature at Albany, and pigeon-holed their whole proceedings. Insects that came in his way he sometimes crushed. Woe to the man who went out to meet him without truth on his side, and that must be very apparent to afford any protection. I never crossed lances with him until after he had received the lingeringly fatal shot of a lunatic, and have always had misgivings since that I had turned upon a sick man. I honor him now as a mailed knight who stood four square as a defender of the faith, ready to meet all comers and ask no odds. A professing Christian, with all the courage of the old pagan,

"He was a man, take him for all in all,
We shall not look upon his like again."

Dr. Charles H. Nichols. At the Hartford meeting he was standing at the summit of his fame, and had just rounded the milestone of fifty years. He was also a pupil of Dr. Brigham, and one of the finest-looking men in the association, of which he was then the vice president. He was tall, erect, with a large frame, a great head, a good mouth, and kind-speaking eyes that could be tender as a woman's. His voice was round and distinct; he spoke with deliberation, now and then pausing over a word long enough to suggest a stammer, but it was not. His Quaker education had made him choice of words, and so he hesitated till it became a habit. But woe to the man who attempted to help him out by suggesting one. He never took the proffered aid, but it was just stimulus enough to his great brain to make him give instantly a word that everybody saw fitted a little more exactly to the thought than the one suggested. He was a strong man, an all-round man, in many respects like Dr. Gray, and yet so different. He believed in himself—all great men do—but he also believed in and acted on the motto of, "Live and let live." He was one of the largest-hearted men in the association. No worthy man ever came to him for his aid that did not get it, and what he did he did with his might. If you had Dr. Nichols on your side you had a power indeed. He was frequent in debate, enlightening it with illustrations drawn more from his experience than from books. He was gifted with his pen, but wrote too seldom. He was an
authority on hospital construction, and as the years added more
and more to his experience he came to be regarded as at the
head on these questions, and to the end he held to the modified
"propositions." As hospital superintendent he stood always
among the first in executive ability and successful management.

But to me all this seems cold and inadequate in the recital. As
a man I think he was beloved and esteemed beyond almost any
member of the association. I am speaking of the friendship of
worthy men. He made enemies—but they were of the kind that
we thank God that they are enemies; envious churls that are
blind to all greatness. Envy! why it never entered into his
composition. He was earnest in good works, and rejoiced in
everything that bettered the condition of his fellowmen. He was
friend, co-worker, well-wisher to all. To me he was more than
this—I can hardly trust myself to say here what I know—he was
my master, counselor, and helper; nay, my "elder brother," as
he called himself, with an affection and a devotion that was
unfading, and even now, in "these lonesome, latter years," I
think of him as aiding and remembering still.

"If God so wills I do not know,
And yet my heart would have it so;
When dimming eyes and silent lips
Shall close these earthly comradeships,
I pray that I may wake in bliss
And find my mansion next to his."

Tell me not that they have perished utterly, the friends

"Which I have loved long since and lost awhile."

Is thought then but cell reaction? The subjects of these sketches,
with their abounding personality, are they only names now? Poor
delver among the broken shards of funeral urns that life has
thrown away, look up, and know that your caput mortuum of ashes
does not hold all. Man is something more than a mockery of
fiends, creation's latest failure. It is still the "unseen" that is
the "eternal," and the individual intelligences that we knew here,
with all their hopes, their unsatisfied longings, and their loves,
outlasting time, have passed unharmed over life's "Great Divide."
Since idocy, as well as its varying degrees of imbecility and feeble-mindedness, depends upon some sort of congenital or acquired defect or disease of the brain interfering with its normal evolution, it is clear that the cerebral functions may be all of them more or less involved, and that no particular psychic faculty can be selected as the one whose disorder retards or influences the development of the other faculties. Séguin is, therefore, hardly correct in stating that the condition of the mental faculties in idiots is normal, though diminished, and that merely the will is lacking to give them proper direction. Sollier has given us one of the best and latest studies of the psychology of idiocy.* Following Ribot and others, he maintains that the slow development of the cerebral faculties is due to want of attention; that spontaneous attention is caused by affective states brought into action by sensations, and that those young children are the most attentive whose nervous systems are most easily stimulated. Hence the faculty of attention is closely related to the activity of the sensations. The greater the power of attention the more intelligent does the individual become. In idiocy, owing to the diminution or loss of the power of attention, the perceptions aroused by sensations are more or less indefinite, and the resultant idea likewise ill-defined. Sensations become more numerous as the organism develops, and the lack of ideas and recognitions becomes more noticeable. While Sollier is correct in the main in this representation of the case, it is obviously not to be taken in too broad a sense, since there are other faculties (such as will and memory, for instance) which are absolutely necessary to all subsequent mental activity. Lack of the power of attention, while common in idiocy, can not be taken in any way as distinguishing this condition of mind from other forms of mental impairment. It is common in many forms of insanity, and may be

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observed even in genius (Coleridge). The idiot child is human in its psychology. Its faculties and qualities, however feebly developed, however stunted in their evolution, have human characteristics, and bear no resemblance to those of lower animals, such as the ape.

Preyer, in his work on "The Mind of the Child," gives a conspectus of the development of the normal faculties during the first forty months of the child’s life, and the following brief abstract is made therefrom for purposes of comparison with the mental development of the idiot:

NORMAL CHILD.

**First Month.**—Sensitive to light as early as first and second days. Pleasure in light of candle and in bright objects on eleventh day. Hears on fourth day. Discriminates sounds last two weeks of month. Starts at gentle touches second and third days. Sensibility to taste about end of first week. Strong-smelling substances produce mimetic movements at birth.

*Pleasure* first days in nursing, in bath, in sight of objects.
*Discomfort* first days from cold, wet, hunger, tight clothing.
*Smiles* on twenty-sixth day.
*Tears* on twenty-third day.
*Vowel-sounds* in first month.
*Memory* first active as to taste and smell, then as to touch, sight, hearing.

Incoördinate movements of eyes.

Sleeps two hours at a time, and sixteen hours in twenty-four.

Reflexes active.

**Second Month.**—Strabismus occasional till end of month. Recognizes human voices; turns head toward sounds. Pleased with music and with human face. Sleeps three, sometimes five or six, hours. Laughs from tickling at eighth week. Clasps with its four fingers at eighth week. First consonants from forty-third to fifty-first days *(am-ma, ta-hu, gö, ara)*.

**Third Month.**—Sixty-first day, cry of joy at sight of mother and father; eyelids not completely raised when child looks up. Accommodates at ninth week. Notes sound of watch at ninth week; listens with attention.

**Fourth Month.**—Eye-movements perfect. Objects seized are moved toward the eyes. Grasps at objects too distant. Joy at
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seeing self in mirror. Contra-position of thumb in grasping at fourteenth week. Head held up permanently. Sits up with back supported at fourteenth week. Beginning to imitate.

FIFTH MONTH.—Discriminates strangers. Looks inquiringly. Pleasure in crumpling and tearing newspapers, pulling hair, ringing a bell. Sleeps ten to eleven hours without food. Desire shown by stretching out arms. Seizes and carries objects to mouth. Consonants l and k.

SIXTH MONTH.—Raises self to sitting posture. Laughs and raises and drops arms when pleasure is great. "Crows" with pleasure. Compares image of father in mirror with original.


EIGHTH MONTH.—Astonishment at new sounds and sights; at imitations of cries of animals.

NINTH MONTH.—Stands on feet without support. More interest shown in things in general. Strikes hands together with joy. Shuts eyes and turns head away when something disagreeable is to be endured. Fear of dog. Turns over when laid face downward. Turns head to light when asked where it is. Questions understood before child can speak. Voice more modulated.

TENTH MONTH.—Sits up without support in bath and carriage. First attempts at walking at forty-first week. Beckoning imitated. Missed parents in absence, also a single ninepin of a set. Can not repeat a syllable heard. Monologue and hints at imitation (má, pappa, tatta, appapa, babba, tätä, pa, rrrr rrra).

ELEVENTH MONTH.—Screaming quieted by "sh!" Sitting becomes habit for life. Stands without support. Stamps. Syllable correctly repeated. Whispering begins. Consonants b, p, t, d, m, n, r, l, g, k, vowel a most used, u and o rare, ï very rare.

TWELFTH MONTH.—Pushes chair. Can not raise self or walk without help. Obeys command, "Give the hand."


FOURTEENTH MONTH.—Can not walk without support. Raises himself by chair. Imitates coughing and swinging of arms.
Fifteenth Month.—Walks without support. Laughs, smiles, gives a kiss on request. Repeats syllables. Understands ten words.

Sixteenth Month.—Runs alone. Falls rarely.

Seventeenth, Eighteenth, and Nineteenth Months.—Sleeps ten hours at a time. Associates words with objects and movements. Blows horn, strikes with hand or foot, gives leaves to stag, waters flowers, puts stick of wood in stove, washes hands, combs and brushes hair, and other imitative movements.

Twentieth to Twenty-Fourth Month.—Bars with pencil on paper, whispers in reading newspaper. Very few expressions of his are recognizable. Executes orders with surprising accuracy. Tries to sing and beat time, and dance to music.

Twenty-Fifth to Thirtieth Month.—Distinguishes colors correctly. Sentences of several words. Begins to climb and jump, and to ask questions.

Thirtieth to Fortieth Month.—Goes upstairs without help. Sentences correctly applied.Clauses formed. Words distinctly spoken, but influence of dialect appears. Questioning repeated to weariness. Approximates manner of speech to that of family more and more.

Frequently evidence of idiocy is to be found immediately after birth in bodily and especially cranial and facial characteristics; and by careful examination as to imperfect action of the sensations and perceptions, we may sometimes recognize idiocy in cases where physical evidence is wanting. The child may not learn easily to take the breast. Its cry is different from that of other children. It cries without motive. Sometimes there is congenital blindness or congenital deafness (there is nearly always deafness in every child for several days after birth). In the normal child the sense of smell may be stimulated immediately after birth, and taste is evident in a few days. In the idiot these special senses may be retarded in their development or absent. The movements of the eyes are generally irregular and strabismus is frequent until the end of the second month in normal children, so that in the diagnosis of idiocy this can not be relied upon as significant unless the eye movements are imperfect after the third month. In the normal child the eyes follow a light between the third and fourth weeks; in idiots this ability may be retarded indefinitely. The normal child starts at gentle touches on the third day after birth. The new-
born idiot may be immobile or feeble in its reactions to cutaneous stimuli. The normal child laughs at tickling in the eighth week, while the idiot or imbecile is not incited to laughter ordinarily at all in the earliest years of life. From these facts it follows that in defectives we must examine the sensory organs themselves, as far as possible, for defects, as well as study their reactions and the impaired perceptions of reactions. Following somewhat the natural order of such examination, with the excellent work of Sollier* as a guide, we first take up the senses, those avenues which lead to psychological development.

Sight.—Between 7 and 8 per cent of idiots are congenitally blind. It is necessary to determine whether the blindness is due to defect of the visual apparatus or to lack of attention. Blindness does not preclude the possibility of education, for some idiots with defect of this sense may be educated to a moderate degree. When idiots can look, without in reality seeing, the apparent blindness is due to a complete absence of attention. In idiots less affected, a greater variety of objects will attract their attention. In the higher grades of idiocy (imbecility and feeble-mindedness) vision may be as good as in normal man. But many present certain visual and ocular defects, such as hypermetropia, defective color vision, strabismus, nystagmus, congenital cataract, inequality of the pupils, microphthalmos, and the like. In hemiplegic idiocy or imbecility we may find hemianopsia. But the determination of the acuity of vision is difficult in this class of individuals. The perception of different colors is often possible in the milder degrees of idiocy. Good binocular vision is uncommon in idiots. The normal child takes pleasure in the sight of objects as early as the eleventh day, the eyes are normally coördinated by the end of the second month, and he begins to distinguish colors correctly about the age of two years.

Hearing.—There is a somewhat analogous condition of the organs of hearing. It is not always easy to determine whether an idiot is deaf from defect in the auditory apparatus or only sensorially deaf. Idiocy of mild degree is not infrequently induced by deprivation of this sense. In the higher grades of idiocy hearing is nearly always normal. Deaf-mutism can not be considered as common. The normal child hears on the fourth day, and is pleased with music in the second month.

*Although differing from Sollier in many of his theses and conclusions, the author is indebted to his book for many facts and ideas throughout this study.
Taste.—This sense is frequently affected. Gluttony is a marked feature in idiocy. It is common for idiots to eat without mastication—many present a precocious taste for alcohol. This is especially true of the higher grades. A difficulty in distinguishing the simple tastes (salt, sweet, bitter, and sour) is not infrequently met with in the milder types, as well as in those with great mental impairment. Inversions and perversions of taste are observed. The normal child evinces a sensibility to taste at the end of the first week.

Smell.—In the normal child strong-smelling substances produce mimetic movements on the day of birth. In idiocy the sense may be much impaired, perverted, or absent.

Tactile Pain and Muscular Sensibility.—As a rule, sensibility to touch and pain is uniformly diminished in idiocy of all degrees, mostly through lack of attention. There may be complete anaesthesia and analgesia, particularly in the lower grades. On the other hand, there are cases in which the sense of touch may be educated to a high degree of delicacy. It is almost impossible to study the muscular sense in idiots, but it is apt to be impaired in proportion to the other senses. The normal child starts at gentle touches on the second and third days, and manifests muscular sense as early as the eighth week.

Thermic Sensibility.—What has been said of touch and pain applies likewise to the temperature sense. But their vaso-motor systems are susceptible to the influences of cold and exposure, and their resistance to external influences and diseases is such that many of them die of pulmonary affections. Some become more stupid in cold weather, and brighter in warm weather, while an elevation of bodily temperature (fever) is accompanied by evidences of more active cerebration.

Morbid Movements.—A small number of idiots exhibit no motility at all, but remain perfectly inert. But the majority are apt to be in constant motion. These movements tend to take on a rhythmical and automatic character. I do not here refer to such morbid movements as epilepsy, athetosis, associated movements, ataxia, and chorea, often present in paralytic idiocy, nor to tremor, found in sclerotic cases, but to a group of automatic or impulsive movements.

These forms of movements are among the most common and striking symptoms immediately noticed in going through an insti-
tution for idiots. A very large proportion of the inmates are observed to be in continual motion. As a rule, the most frequent rhythmical movement is an antero-posterior oscillation. The patient, in a sitting attitude, sways his body slowly or rapidly backward and forward. Sometimes the oscillation is from side to side. Occasionally the hands and fingers are rapidly or slowly flexed and extended, and brought up to the face in movements similar to those in athetosis, but differing from them in that they are entirely subject to the will, just as are the oscillations alluded to. Walking to and fro, rotating, dancing, and so on, are more elaborate forms of the same kind of impulsive movement. Similar movements occur in the insane, as is well known, and particularly in conditions of greatly enfeebled mind, such as secondary dementia. They are spontaneous movements, seeming to have no relation to any stimulation of the brain giving rise to a motor expression. Generally the movements cease for a time when any sensory impression, such as the appearance of a stranger in the room or being spoken to, temporarily alters the feeble current of thought or excites the mental blankness which has given rise to the automatic movement. Children and young animals are full of spontaneous movements, undoubtedly due to impressions received at some time during their lives, or, it may be, impressions inherited; and, while these spontaneous movements of children are undoubtedly similar in their nature to the automatic movements of dement and idiots just described, they do not often present the rhythmical character of the latter. It is probable that in the feeble mind, upon which nerve stimuli seldom make an impression, the simple old motor expressions are retained, repeated, and become habitual or automatic. Automatism of movement is thus a sign of little aptitude or impressionability, as far as fresh mental stimulation is concerned. In the idiot the impulsive rhythmical movements just described may be regarded as the habitual motor expression of the simplest and oldest stimuli; whereas, in the secondary dement, the analogous automatic movements are to be looked upon as reversions to the spontaneous movements of infancy. The smiles and grimaces of idiots and imbeciles belong to the same category of infantile spontaneous motor expressions.

There is probably a certain amount of pleasure in the movements in many cases, as sometimes they manifest displeasure if prevented from executing them. There is nearly always a difficulty
out of proportion to the intellectual development for idiots to perform associated movements with a definite object. They may be able to talk and read, and even write, yet be unable to dress themselves. This is often a fault remediable by education, according to Séguin.

**Right-Handedness and Left-Handedness.**—Some 12 per cent of all children, idiot and normal, are left-handed; but while 88 per cent of normal children are right-handed, only 72 per cent of idiots use their right hand in preference, the remaining 16 per cent being ambidextrous. This peculiarity is said to be present also among criminals.

**Voluntary Movements.**—Many idiots do not learn to walk at all, either because of general debility, inability to learn, or paralysis. In such as do acquire the ability to walk there is great retardation in its acquisition. This is also true of other uses of the voluntary muscles for the common acts of daily life, such as carrying food to the mouth and so on. They are either never learned or they are acquired late.

**Organic Sensations.**—The keenness of visceral sensibility is more or less diminished in all idiots. The sensations of hunger and thirst are lessened, though only very rarely absent. The feeling of satiety after a hearty meal is seldom felt by them, so that if left to themselves they would eat on indefinitely. The necessity of defecation and micturition is not perceived at all by profound idiots. In the lower and middle grades of idiocy it is often difficult to diagnosticate visceral disease, owing to the bluntness of somatic sensations, and they may die without giving any appreciable symptoms. This masking of disease in idiocy is quite analogous to the masking of disease in various insanities. The feeble-minded and imbeciles not infrequently mislead the physician by exaggeration, concealment, or falsehood.

**Attention.**—The lack of the faculty of attention is one of the chief characteristics of idiocy. Naturally it varies in degree from complete nullity to a simple diminution of the faculty, but it is always lessened. The fundamental elements of the faculty are deficient. These fundamental elements are: The integrity of sensory impressions delivered to the brain; an emotional state of pleasure, pain, or interest in such sensations: motor expressions in the eyes, face, limbs, or body of the impressions received. There are two forms of attention, one of which is natural or spontaneous, and the other voluntary, established by education. The latter can not exist without the former.
There are two qualities in attention that are of importance, viz., intensity and duration.

Thus attention is impaired in idiocy by the defective senses, which convey to the brain feeble impressions. The second element, the affective state, is notably lacking in idiots. The motor factor of attention is deranged in idiocy in a great variety of ways (general weakness, paralysis, contracture, epilepsy, chorea, ataxia, automatic and impulsive movements, and the like). The intensity and duration of attention are restricted to the last degree in this class of individuals.

The intelligence and the possibility of education depend directly upon the power of the faculty of both spontaneous and voluntary attention. It is probable that the faculty is localized chiefly in the frontal lobes of the brain. Ferrier considers it proportionate to the development of these lobes, and some very convincing experiments recently published by Bianchi make it quite certain that the frontal lobes are the seat of this faculty. In idiots great lack of attention is coincident with diminutive size of the frontal lobes.

In the low grades of idiocy spontaneous attention is almost nil, and education is impossible. The higher the degree of idiocy, the greater the degree of spontaneous attention presented, which may be so appealed to as to develop it into voluntary attention, with intellectual progress as a consequence. With idiots as with the lower animals, attention is always connected with the sense most perfectly developed, which, in the former, is that of sight. The attention of idiots is most easily aroused through the eyes. Exercises of the attention may thus be employed in the diagnosis of states of intellectual weakness. We find idiots without attention absolutely uneducable, leading a vegetative existence; others again, exhibiting both spontaneous and voluntary attention, but in flashes, as it were, of brief duration and faint in nature; and still others more or less capable of prolonged and habitual attention. It is only in the last-named group of individuals that education is to any considerable degree feasible. The education appeals in some to the simplest sentiments only (such as curiosity, selfishness, the desire of reward), in others attention is aroused by appeals to a higher affective order (such as interest, ambition, and emulation), and in still others attention may be aroused and sustained by habit.

Since the power of attention directed to external events is so feebly developed in idiots, it is not surprising that attention to
internal happenings, or reflection, should be totally absent in all
grades of idiocy.

Ribot correctly regards voluntary attention as habitual and disci-
plined spontaneous attention as an adaptation to the conditions of a
higher social life, as a sociological phenomenon. When the develop-
ment of voluntary attention is rudimentary, and the resulting intel-
lectual defect is marked, as in the lower grades of idiocy, there are
no serious consequences from the sociological point of view. Sollier
calls the idiot extra-social, and makes the imbecile quite distinct as
anti-social, claiming that in the latter there is an undefined amount
of voluntary attention, combined with a relative, though perverted,
intelligence, which two factors render him often a dangerous mem-
ber of society. He speaks of the instability of the attention of the
imbecile. At one moment it may be faint, at another intense as in
normal man. He passes from one subject to another with the
greatest ease, a characteristic which may even be observed in his
infancy. Serious matters must be continually repeated to him to
make him understand. He grasps the first part of a sentence, and
forms his ideas from that, without waiting for the sentence to be
completed. He frequently interrupts, and there is no time to
answer one question before another is put. Sollier further goes on
to say that this instability of the attention for external objects or
ideas is seen also in the acts of the imbecile, who is incapable of
intelligent labor, and accomplishes his tasks, when uniform, by
a certain kind of automatism, without due appreciation of the
object of his work. When the object is understood, the imbecile
believes he can attain it immediately, and seeing the first step is
prevented by failure of attention from properly completing the
work or doing it at all. He seems to forget that he has begun, and
as a consequence, unless watched, may spoil whatever he attempts.
Other imbeciles refuse to work, but make themselves very busy and
important in watching and supervising the occupations of others.
Sollier calls them vagabonds. They wander away, not knowing
where, marching straight before them, with indifference to the wel-
fare of the friends or relatives they desert; traveling by night and
hiding by day; undisciplined, indolent, and mischievous.

This attempt to separate idiots and imbeciles into two distinct
classes of extra-social and anti-social is, to my mind, not justifi-
able. Sollier has here described a certain class of imbeciles only,
and the description is very true to nature, but it is only a group
which does not merit an especial classification. As regards attention, we should still hold to the terms idiocy, imbecility, and feeble-mindedness, as representing degrees of lack of attention, from complete or almost complete absence to mere diminution of the faculty. The adult imbecile, in the middle grade, would have the varying and imperfect attention of a backward child, and his ideas, speech, and conduct would vary with his temperament, with his docility or perversity; in short, with the innate differences of character and individuality, which may be as manifest in imbeciles as in normal children. Imbeciles may and do become vagabonds, uncertain, mischievous, indolent, anti-social; but they may, on the other hand, be good-natured, trusty, docile, industrious. Many of them, too, may show special aptitudes in certain directions. As to education, the difficulties are that in some it is hard to attract the attention, and in others to maintain it.

Reflection.—The internal form of attention (reflection of Ribot), in which images and ideas constitute the subject-matter, is quite deficient in the lower grades of idiocy, but is present in imbecility and feeble-mindedness in varying degrees. It is never perfectly developed as in normal man.

Preoccupation.—This is absent in profound idiocy and feeble in the higher grades. A small proportion of imbeciles are capable of preoccupation, but of an indefinite nature, and sometimes taking on the character of a fixed idea. Often their interest is not aroused so much by what benefits and interests mankind in general, as by bad actions, criminal or egoistic sentiments that attract their attention, and arouse reflection and preoccupation which may result in felony or crime. Many are too selfish to care for the troubles of others, and too stupid to have preoccupations purely intellectual.

Instincts.—The instincts in idiocy are generally defective. The defect may be imperfection of development, or an actual derangement or perversion. The instinct of hunger is present in almost all grades of idiocy, and is so little inhibited that it is often pushed to the extent of gluttony. The instinct of self-preservation is impaired in nearly all, absent in profound idiocy, ungoverned by proper judgment in the milder forms. In some there is no sense of fear, and self-injury is possible. In others there is a comprehension of danger, and an avoidance of it, or possibly an overweening egoism which may lead to a belief in their power to overcome it. Suicide
occurs in imbeciles and feeble-minded, sometimes without determinable cause, sometimes as a result of morbid impulse.

Sleep is good among all classes of idiots, while in the lower grades it may be both profound and excessive. Whether they dream or not depends solely upon the degree of mental development.

The desire and need of voluntary muscular movement vary with the scale of intelligence, being absent in the profounder degrees of idiocy, and approximating the normal the higher the psychic development. The automatic and impulsive movements in some may represent a fulfilment of the normal need, and the extreme restlessness of others is surely a perversion of the natural desire.

The sexual instinct may be absent, impaired, exaggerated, or perverted. It is seldom normal. Idiots of all degrees present many degenerative stigmata as regards the genital organs, more numerous in direct proportion to the mental impairment. Among these anomalies are cryptorchismus, unilateral or bilateral microrchidia; spurious hermaphroditism, insufficient development of the entire genital apparatus, hypospadius or epispadius; defect, torsion, or great volume of the prepuce; median fissure of the scrotum, imperforate meatus, abnormally large or small labia, excessive development of the clitoris, hypertrophied labia minora, pigmentation of the labia minora, imperforate vulva; atresia of, or double vagina; and uterus bicornis. Puberty is often retarded, but occasionally is early; often it is normal. Masturbation is exceedingly common among all classes of idiots of both sexes. In the profound degrees it is automatic; in the higher it is purposive. Onanism à deux and sodomy are frequently discovered among imbeciles and feeble-minded, and sexual psychopathies of the most shocking nature are not uncommonly manifested in some because of the combination of the strong sexual instinct and absence of moral sensibility.

The instinct of imitation, which is a low form of instinct, and strong in children and many lower animals, is one to which idiots are very susceptible. It is usually a purely instinctive or passive imitation, seldom an intellectual or active imitation. Its intensity depends much, however, upon the scale of intelligence to which the idiot rises. It is very apt to be shown in the form which is concerned with moral contagion, so that the acts and language of the vicious, mischievous, coarse, and vulgar are most willingly imitated. Simulation is very common among the more intelligent classes of idiots.
Special Aptitudes.—In the so-called idiot savants we note the development of special aptitudes, occasionally remarkable, more often only noteworthy in contrast to the general mental vacuity. These aptitudes are usually in the direction of music, mathematics, the mechanical arts, building, wood-carving, drawing, painting, memory for facts or dates, playing games, and of a low order of wit or drollery. The occasional preëminence of some particular faculty, where all other traits are defective, would almost lead one to believe in a heterotopia of gray matter in some special locality. Music, the most sensual of the arts, seems to appeal especially to this class of individuals. Often the rhythm of it seems to influence the rhythm of their automatic movements, or it soothes their restlessness or stops their cries. Sometimes unteachable idiots are able to retain, recall, and hum a moderately difficult tune, while higher grades may learn to play instruments by ear, though not by note. Next to aptitude for music, that for mental arithmetic is often surprising. There are also occasionally instances of the talents mentioned above, and doubtless the court fools of the past, with their mischievous pranks and quaint remarks, were recruited to a great extent from the imbecile class.

Play.—There is a lack in all classes of idiots, and in direct proportion to the degree of mental defect, of that “superfluous activity which is expended in the form of play.” Sikorski, quoted by Ribot, says that the activity and attention of normal children are mainly developed through play. This avenue of education is, unfortunately to a considerable degree, closed in idiocy. The lower grades, if they manifest a tendency to play at all, do so in a rudimentary and solitary way, and in adolescence still cling to the simple games of infancy. With others higher in the scale of intelligence, there is still defect of the play instinct, and a proclivity often to prefer games in which noisiness, destructiveness, and other evidence of rather brutal traits are paramount. Sometimes these games are carried on good-naturedly; at others, selfishness, irritability, quarrelsomeness, and a more or less ungovernable nature are evinced.

Civility and Politeness may be taught to many, but naturally with difficulty to the lower grades and to such individuals of the higher as are hard to train in other directions, because of innate vices of temperament and character.

Destructiveness, a propensity even in normal children at an
early age, is an especial attribute of all classes of idiots. In those of low degree it is automatic and possibly a rudimentary form of superfluous activity (play), but in some individuals of the superior grades there seems, at times, to be a vicious satisfaction in inflicting damage or injury, which may even lead to the manifestation of homicidal proclivities or a tendency to arson (pyromania). Self-mutilation or injury may be a result of the love of destruction in the profounder degrees of idiocy.

Sentiments.—In the lowest forms of idiocy the sentiments and sensations are rudimentary, or may be altogether absent. As a rule one may discover various degrees of pleasure or pain, affection, pity, fear, social proclivities, love of property, regard for rights and duty, obedience, shame, esthetic feelings, curiosity, and the like. Pleasure and pain are indefinite or absent sensations in idiots, felt to a greater extent by imbeciles, and well-marked in the feebleminded. Joy, sadness, and anger are usually aroused by physical sensations. The self-mutilation of some idiots points to an absence of the pain sense, and idiot women have been known to bear children without experiencing the pains of labor. Idiots often cry out suddenly, burst out laughing, or throw themselves about, which is probably explicable by variations of perception in the kinaesthetic sense. Moral pain or remorse, usually wanting, is sometimes developed to a slight extent. It is not often that these defectives weep, and if they cry it is but for some momentary pain or deprivation. They live in the present only, and do not concern themselves about the past or future. In the higher grades it is physical, almost never moral, pain that is taken note of. Pleasure is as little experienced as pain in the lower degrees, and laughter is as infrequent as crying. Pleasure is expressed by the imbeciles and feeble-minded by laughter, clapping the hands, or cries, though laughter, even with these, is uncommon. There are, however, certain imbeciles that always have a good-natured smile, and laugh readily and excessively over nothing. Frequently the laughter is a true automatic movement, an infantile spontaneous motor expression.

Affection is a sentiment not uncommon in idiocy, though it varies with the degree, being often rudimentary, vague, indefinite, and probably inspired rather by the ministration to his wants than by the care-taker. It is found that nearly all forms, except the lowest, appreciate kindness and patience, and are repulsed and made unmanageable by brusqueness or cruelty. With certain imbeciles and
feeble-minded, where the moral sense is not too much obtunded, true affection for individuals is manifested. But when the moral sense is deficient, affection is elementary or absolutely wanting, so that kindness is either unappreciated or at once forgotten.

There are variations of the same nature in love for the family and in friendship. Absent in the simplest idiots, it may be shown in greater or less degree in the higher grades. In some it is unstable, changeable, and influenced much by the selfishness of the individual. In others again there is a perversion of family love, so that they are hateful and disagreeable to their parents or brethren. It is much the same with friendship. Often mild types of idiocy form in asylums friendships for each other, though they are too often apt to be associations of a sexual nature or for the purpose of combining together for mischievous purposes. A true solidarity of interests or social proclivity is seldom observed. Maltreatment of animals by idiots is usually due to ignorance, but there are moral imbeciles who perpetrate cruelties on animals as well as human beings from pure perversity and love of inflicting pain. The passion of love, when it exists, which is extremely rare, is founded altogether upon a physiological basis. Jealousy is sometimes, though infrequently, observed.

Pity is quite unknown in all degrees of idiocy. Some are amused or curious and some alarmed at the sufferings of others.

Fear is a common sentiment in all types of cases, more common than in normal people, because of the want of understanding. Often the simplest occurrences inspire fear. On the other hand, when much excited, there are types that exhibit no fear at all.

Courage is wanting in all classes of idiocy. Anger is apt to manifest itself in all degrees and in every age. It is apt to be both causeless and paroxysmal, and to lead to the infliction of injuries upon the individual himself, upon inanimate things, or upon persons in the vicinity. The ungovernable rage is usually increased by efforts to restrain the patient.

Acquisitiveness is shown in imbeciles and the feeble-minded by a propensity for the collection of all sorts of useless objects and trifles, much the same as in cases of chronic mania. There is often a marked tendency to steal, sometimes deliberately, and at others without motive, merely to gratify the desire of possession. The lower orders appropriate everything coming in their way, having no regard for the property of others. Many can be taught
acquisition as a reward for labor, and, on the other hand, there are some who can be made to work only through fear, having, as they do, innate antipathy to occupation of any kind.

With respect to rights and duty the perceptions of the idiot vary with the degree of mental and moral defect. In some even inferior idiots these perceptions may be present, while with some the rights of others are never respected, though to their own they may cling tenaciously, and the feeling of duty may never be instilled into them, because of more or less moral perversion.

Obedience and respect for authority vary, too, with the amount of intelligence and the degree of moral impairment. Quite simple idiots may quickly respond to the word of command. On the other hand some of the most intelligent may perversely resist all attempts at discipline. Compensation and punishment effect them variously. Reward in objective shape or in the form of praise is seldom appreciated by inferior grades, and often unduly by the higher. Punishment, objective or in the form of blame, is useless for the simpler degrees of idiocy, where acts are unintentional, and in some of the more intelligent excites antipathy, an unreasonable sense of injustice, and often causes them to harbor a vengeful feeling.

A true religious sentiment is quite unknown in any form of idiocy. This is true also of the feeling of shame. The only esthetic sentiment found in these defectives is the love of music or rhythm, which is quite general among all classes, though not perhaps so noteworthy as it has sometimes been stated to be. Occasionally we meet with cases having unusual musical aptitude. It is rather a rhythmical noise which appeals to most of them, such as beating of a drum, hammering, the grinding of an organ (even if out of tune and discordant). They have no sense of beauty, but things bizarre, grotesque, glittering, and colossal attract their attention. Curiosity and astonishment are aroused more readily through the sense of sight than that of hearing, and are more easily roused in some of the lower grades often than in the higher types of idiocy.

All classes evince a marked Credulity, and often it is difficult or impossible to eradicate an idea once established. Fairy stories are especially pleasing to many of them, just as they are to children.

Veracity is a virtue which is uncommon among idiots. Many mbeciles are particularly apt to be untruthful and deceitful, with regard to their faults, doings, physical condition, things found in their possession and the like. Naturally the simple idiot, owing
to his feebleness of invention, if given to lying, limits his untruths to the simplest matters, such as denials of accusations brought against him, etc.

Physiognomy and Expression and Character.—Idiots all show deficiency in their general appearance. There is always something ungracious, uncouth, ugly, in their figures, face, attitudes, or movements. Very common among them are misshapen or asymmetrical heads, dwarfishness, lack of proportion of the limbs, stooping and slovenly postures, deformities of the hands or feet, and awkward and wobbling gait. The expression of the face varies from complete apathy and absence of intelligence to a considerable play of features of a low order, such as constant laughing, making faces, leering, or scowling. Besides the absence of those facial traits which are made on the face by the mind, the ugliness is generally added to by asymmetry, disproportion or deformity of the features. The eyes may be too close together or too far apart, or deformed by disease of the iris, cornea, or lids, or by squint. The nose deviates or is malformed, the ears are unshapely and unequal, the mouth half open, the teeth diseased and neglected, the chin deviated, prominent or retreating, the forehead low and bulging or inclined. Microcephalus, hydrocephalus, and cretinism give their own ugly individuality too well known to need description here. Where the head is shapely and the face has any vestige of pleasing lines, it is generally fair to infer that the mental state is due to deprivation of one or more senses, or to the insanity of childhood.

As to character, this too varies with the amount of mental defect, and is difficult to analyze. In profound idiots there are often sudden accessions of excitement without apparent cause. In higher types the basis of character are inconstancy, weakness of will, and blunting of the sensibilities, their humor depending largely upon their environment, showing an appreciation of kindness, and resentment of ill usage. Some are clever and good-natured and funny, often making sharp remarks or doing amusing things, and at one time such cases were in great demand as court or family fools. History shows there were two kinds of fools made use of by royal and noble families—the true or natural fools (idiots or imbeciles), who were the first to create the profession, and their crafty imitators, the artificial fools, who made of it a profitable calling.

I should differ entirely from Sollier in his somewhat extraordinary distinction of imbeciles from idiots. He really selects one type of
imbecile, while we know that there are many, and erects this single type into a great class which he everywhere distinguishes in his book as the imbecile. To him the imbecile is egotistical, boastful, vicious, careless, dangerous, a glutton, a vagabond, a mischief maker, a sexual pervert, unstable, lazy, abusive, obscene, forgetful of kindness, vengeful, shameless, and altogether anti-social.

**Language.**—The primitive physical basis of language in the normal human infant is the auditory tract and the word-hearing center. It is essentially receptive. Then develops the word-comprehending center. After this the motor speech center is developed and associated with the primitive physical basis, thus establishing the emissive faculty. This rudimentary linguistic apparatus is variously defective in idiots. A defect in the emissive power is not so serious, as regards intelligence, as one in the receptive, for idiots of considerable intelligence may not be able to talk at all, while others very inferior may speak with readiness. Any part of this original physical basis of language may be affected, and the result to the defective individual will depend much upon what function is lost. The auditory apparatus may be imperfect. The word-hearing center may not act. The word-comprehending center may be undeveloped. In such instances the intellect will suffer severely. Unlike the normal child, which comprehends many things said to it as early as nine months of age, in cases of this kind comprehension will develop very late, or perhaps never; yet occasionally with the development of the emissive power (without the word-comprehending center) words may be heard, learned, and repeated, constituting an echolalia, speech without idea. Supposing the emissive apparatus alone to suffer, we have hearing and comprehension and the development of the mind, yet without the power of speech.

Like an animal, the idiot may be intelligent, but speechless. The development of language and intelligence is not parallel. Sollier distinguishes two kinds of mutism in idiots, a motor and a sensory aphasia. In the first he can not talk, though he understands; in the second, nothing which is said is understood. Language is very late in development in idiots. The crowing of the normal infant is not often observed, but meaningless and monotonous cries take its place. The laryngeal sounds are earliest and best enunciated, the lingual and labial latest and least distinctly. Wildermuth classifies the dysarthrias and lalopathies of idiots into two groups:

1. Where the disturbance of speech is the direct expression of
the intellectual density. They lack ideas, and consequently have not the words for the expression of them. In the lowest degree, the idiot is a vegetative automaton; in a less profound degree, he is like a child of two or three years, with imperfections of grammar and syntax.

2. When the disturbance of speech is a complication of idiocy, and is mechanical rather than intellectual, Wildermuth has found rarely stumbling speech in the idiot, and never stammering. These defects are sometimes found in imbeciles, who, moreover, talk a great deal and without definite object; who have onomatomania, and who are subject to transitory attacks of excessive and maniacal loquacity.

Considerable loquacity is occasionally observed in cases of acquired idiocy.

Next to hearing, the visual tract and the word-seeing and comprehending centers form a great receptive avenue for language and ideas. Reading will be impossible to such idiots as have defect of the visual apparatus or these centers, and the degree of acquisition of this power will depend upon the degree of defect. There are idiots who learn merely the letters, others who acquire monosyllables, and still others who can be taught to read laboriously. Sometimes such reading is purely automatic without actual comprehension. The higher the grade of idiocy, imbecility, or feeblemindedness, the greater the development of this faculty, though few of either class ever attain to perfectly correct reading.

The writing center and its association tracts are the latest portions of the linguistic cerebral basis to be established in normal cases, and in the idiot are apt to be the least well-constituted. In addition to its intellectual side, there is a complicated muscular coördination required in writing which also renders it more difficult for defectives of this kind. They may be taught to reproduce letters, but the characters are meaningless to them. A few write fairly legibly, though seldom or never well. As Sollier says, their writing is in reality drawing, and they like to copy printed letters, curved lines, and so on. There is a certain tendency to write with the left hand and to write from right to left.

In drawing, such as learn at all copy slowly and uncertainly, without perspective, and never draw without a copy or model; or they do the work impatiently, and, if given free rein indulge in curious and fantastic scrawls, such as are figured in the works of Sollier, Bourneville, and others.
INTELLIGENCE.—Since intelligence depends upon the acquisition, conservation, association, and production of ideas, and these upon the condition of the sensory organs and centers, and language centers, it is mainly in intelligence that the idiot deviates from normal man. The deviation varies much in degree, from almost total absence to a condition nearly approaching the normal. The idiot has fewer ideas than the imbecile, and the imbecile fewer than the feeble-minded. All classes acquire ideas primarily in the same way as the normal infant, through the senses, but while the normal child later on acquires ideas chiefly by means of language and imitation, the defective continues to make use, mainly, of the senses for this purpose, owing to the faulty development of the language centers. Preyer shows that questions and names are understood before the normal child can speak (nine months), while idiots, many years of age, may have an intelligent idea of the use of things, yet not know their names when heard, and be unable to speak them.

As regards concrete ideas, such as the different qualities of matter, it is noticeable that the idiot appreciates colors (particularly red), recognizes surfaces, avoids obstacles, and notices the difference between round and square, while distances and space are not comprehended. As Sollier correctly says, imitation, which is a source of ideas for infants, does not develop the intelligence of the idiot; for to him it does not furnish an idea, but creates a mechanism. In the superior grades of idiocy imitation creates an idea which is assimilated by the intelligence; but as the intelligence can not retain it, the result is the same as though it had not been assimilated. Still, it is not just to infer from lack of intellectual expression, that there is complete intellectual inactivity. That ideas may exist in a brain apparently inactive, is shown by the phenomenon of intellectual manifestation induced in idiots by severe pain, disease, etc. In other words the intellectual receptivity of idiots may be greater than supposed, until some irritation occurs strong enough to show that the preceding stimuli have left their effects on the brain centers. Thus Griesinger reports the case of an idiot who could only speak a few words until he contracted hydrophobia, when he began to talk of events which had taken place several years before.

As regards the conservation of ideas we must remember, says Sollier, that memory is hereditary, organic, or acquired. Hereditary memory is extremely complex and difficult of explanation, but it
apparently occurs in idiots. Organic memory, or unconscious memory (viz., of associated movements, such as walking), although sometimes completely absent in idiots, owing to defective nerve centers and lack of attention, is nevertheless better developed than either of the two other varieties. For acquired memory, attention is still more a sine qua non, and consequently this is the least developed form of memory in idiots. Memory in an idiot develops slowly; at first its existence is shown only by the stimulus of some violent excitement. This indicates that memory exists in so far as the conservation of the image is concerned, but not enough for its reproduction under ordinary circumstances. In a higher degree of the development of memory, the idiot can recall the memory picture by seeing again the original object (memory for food, memory for places). Local memory which does not act by satisfaction of a natural need, is only found in educable idiots. (Remembers his own bed, etc.) This memory is fixed by repetition of the sensation, and has not an emotional basis. These varieties of memory are simple, and do not necessitate language. As soon as language exists, a much wider field opens for the memory.

In simple idiots there is no association of ideas. The primitive forms of association, such as fear and the hope of reward, awaken no associated ideas in them, and even in the superior types of idiocy there is no great development of this form of memory.

It is a curious and inexplicable phenomenon that in certain cases of idiocy there may exist particular, specialized memories, such as for musical airs, dates, and numbers, although memory, in its usual and general sense, may be very deficient. Indeed, as a rule, the memory is feeble in all classes of idiocy, and even in cases where the memory is fairly well constituted it is ordinarily mechanical, useless to the possessor, automatic.

Naturally, as abstract ideas result from reason, comparison, and judgment, such ideas are absent in the lowest order of idiocy. Profound idiots have no idea of differences of persons or things. Higher idiots may be able to appreciate superficial resemblances and differences, especially of color and form, but the discernment is so faulty that incorrect inferences frequently result.

Superior idiots appreciate resemblances more readily than differences. Simple generalizations may be possible, however, to all classes. In the lower types such generalizations occur only after long instruction, and once this power is acquired, they may be
fairly correct, but in many of the higher they are hasty and often faulty. In educable idiots, even those who can not talk, there is an appreciation of number, and they may be taught to count. Addition is more easily learned than subtraction, and multiplication can only be learned by those with fairly developed memories. Division can rarely be taught them, and neither idiots nor imbeciles can understand problems. The superior order of idiocy can count automatically, but rarely are able to do so with proper understanding. They can say two and two make four, four and four make eight; but ask them how many are four and three and they are at sea. To count beyond ten, the number of the fingers, is rarely learned. But there are phenomenal instances where the mathematical faculty is remarkably developed, as in the case of the so-called "calculating boys," some of whom, it is true, are normal in other respects, but many of whom are mentally defective, belonging to the category of idiots or imbeciles.

The idea of time, past and future, has almost no place in the brain of the idiot.

Ideas in the idiot are too feeble to be fixed ideas, and while the higher types are sometimes subject to morbid impulses, there is not a true fixed idea, with consciousness and pain. With them such ideas should rather be called tenacious ideas.

The association of ideas occurs by resemblance, contrast, and contiguity. In the profound idiots, with few ideas, there may be an association of them in a very simple way, viz., the sight of food is associated with the sensation of satisfied hunger, and so awakens the idea of eating. It is an association of sensations rather than of ideas. The association of ideas should arouse the critical faculty. The judgment and reason in idiots are very faulty. They are founded on an association of few ideas, lack precision and firmness, and find their expressions in ambiguous language. A judgment is not always the result of reasoning. For reasoning, there must be some obstacle to an immediate conclusion. Justice, promptitude, and firmness, which are qualities of judgment depending on the attention, are lacking in the judgments of idiots. The idiots judge very falsely on account of lack of attention and of an association of the simplest ideas. All their sense illusions give rise to false judgments. Firmness is lacking in their judgments, as they have so little interest in what they decide upon.

Many imbeciles and feeble-minded, however, maintain their judg-
ments with tenacity. They often have a very high opinion of their own intellectual faculties. This presumption leads them often to extreme blunders. If one of their judgments is admitted to be just, they become very proud of it, and immediately set to work to form others, which are generally absurd. Doubt which suspends action is rarely seen in any form of idiocy. The first impression capable of forming for them a judgment is followed immediately by the act, like a true reflex. Syllogistic reasoning does not occur either in idiots or imbeciles. Errors of the senses proceed from the perceptive apparatus rather than from the sensory apparatus. Since in idiots and imbeciles sense perceptions are retained in brain centers either undeveloped or diseased, and the memory pictures are consequently either confused or false, the associations of these pictures are consequently faulty. In idiots, as the images are weak, the perceptive reasoning is also weak or wanting. In the imbecile, where the images are more numerous, the association may be falsified by a badly acting perceptive center. In him the association occurs so often by contiguity, and consequently the deduction is very liable to be erroneous, as contiguous ideas are not necessarily related; hence, incongruous observations and unexpected actions.

Sollier emphasizes the difference between idiots and imbeciles, which may be seen in the delirium sometimes occurring in these cases. Exceptional in the idiot, when it occurs it is always in the impulsive form, unprovoked and without motive. It is a delirium of acts. In imbeciles there are attacks of maniacal excitement, with impulse to kill, to set on fire, or to break.

With respect to the production of ideas, there is little or none in the inferior types of idiocy, and in the higher grades the imagination is inchoate, of no utility, and often directed to things that are evil.

Will, Personality, and Responsibility.—The elder Séguin looked upon defect of will as the basis of idiocy, but the will is rather a diffuse than a local function of the brain. It has no definite seat in the encephalon, lesion of which would impair or destroy it. As Sollier says, will in its simplest form is manifested by actions accomplished for the satisfaction of natural needs, appetites, and desires. Accordingly, the individual must have a consciousness of those needs. Such a consciousness may be very much blunted in profound idiots, and consequently the will will be almost entirely lacking. Such an idiot is a spinal being, and his
movements may be compared to the reflex phenomena seen in decapitated frogs. In higher idiots, the will is manifested by more complex movements, which are, however, capable of becoming secondarily automatic. Voluntary control of the sphincters occurs only in idiots who learn to walk, and not until they have learned. Volitions do not exist in the lowest order of idiots. The most natural desires and the most primitive instincts are absent. The first to appear is desire for food, but it may manifest itself simply by a stretching out of the hand or a cry. In idiots in whom the will is more developed, and also in imbeciles, it finds its expression more easily in actions than in inhibitions.

*Self-respect*, very little developed in the idiot, plays a very important rôle in the psychology of the imbecile, and by catering to it he can often be made to do things which would otherwise be impossible to obtain.

*Intellectual movements*, or acts accomplished under the influence of judgment or reason, are infrequent in the idiot, and not common in the higher grades. Many idiots are incapable of choice. When the power of choice is present, it is often exercised with difficulty. He does not quickly understand that of two things he must take one and leave the other—he wants to take them both.

It is the same way with ideas. Between two desirable objects, the superior type does not hesitate, but takes without reflection the one he sees first, which he may wish to exchange when he sees the second.

In idiots whose will and motor volitions are so feeble, *suggestion* produces little or no results. It is the contrary in many imbeciles, except in those whose voluntary impulsiveness is too great. Ordinarily the higher grades are very susceptible to suggestion, as is seen by the facility with which mischief is done by a band of imbeciles which has been led on by one of their number. If suggestion is possible in imbeciles, it shows that the ideas which they already possess are very unstable, and are easily replaced by new ones. It has a great analogy with the suggestibility of the hysterical.

**Consciousness and Personality.**—As consciousness is but a phenomenon added to psychic processes, and not producing them, and as the personality is the coördination of psychic acts, it is necessary to form by deduction our conclusions as to these two attributes in the class of people we are studying. In absolute
idiots, it is not probable that any act is accompanied with consciousness. In higher idiots, in whom life is but little more than a succession of disconnected moments, it is not possible to say whether they have consciousness or not; but the personality, if present, must be very rudimentary, since an essential of its existence is a proper appreciation of the continuity of events.

For an individual to have consciousness of a psychic act, it is necessary that the exciting stimulus have a certain duration and intensity. Such factors in the stimuli are generally wanting in idiots; and so it is probable that most of their psychic phenomena occur without consciousness; and if there is consciousness, it must be very feeble. The distinction between the ego and the non-ego is not made by absolute idiots, and is but feebly present in the higher idiots.

In many imbeciles consciousness may be wanting or feeble, but in some it is clearly present, together with a perfect idea of their personality. Further, sometimes in delirium they have ideas of grandeur, showing an exaggerated conception of personality.

Responsibility.—All lower types of idiots are unable to manage their own affairs or to enjoy their civil or political rights, but those of a higher degree, who are at liberty, may have these rights.

Psychological Evolution.—In every degree of idiocy there comes a time, as Sollier well says, when the education stops and further mental progress ceases, and when the only hope is to retain the results which have been gained. This acme of development varies for the different psychic functions, so that one faculty may still improve, while another has already reached its cessation point. The senses continue to develop for the longest time, then the sentiments, and the intelligence the shortest. This is true of all classes, though the periods are longer in the higher grades, where all of the faculties are more equally and proportionally developed. Thus, in inferior types intellectual progress may cease at the age of six or seven, and the sentiments and senses continue their development to eighteen or twenty, while in superior grades the improvement of senses, sentiments, and intellect may cease about the same time, viz., at puberty.

Sometimes the faculties remain stationary; at others, they retrograde when the limit of development is reached. Retrogression follows the same law as dementia, namely, progressive enfeeblement of will, intelligence, sentiments, and sensations, in the order
named. When retrogression begins in the simpler forms it is very rapid, but in the higher types goes more slowly and more irregularly. Purely intellectual gifts which they have acquired (reading and writing) disappear very rapidly. In the intellectual downfall of the superior types, one sees from time to time flashes of intelligence, like reflections from their weakening minds, but such are not observed in the lower forms.

DISCUSSION.

Dr. Bucke: I was very much interested in Dr. Peterson's paper, and should much like to ask the doctor a question. We know that in nature there are all degrees of mental defect, from mere simple-mindedness to the absolute deprivation of the acephalous idiot. We speak of idiots, imbeciles and feeble-minded persons. What I want to ask is: What constitutes the line between the idiot and the imbecile? This has been an interesting question with me for some time, and I have answered it for myself, but do not know whether that answer is well founded. We all know that the basic human faculty—that which distinguishes man from the lower animals—is self-consciousness. Some so-called idiots are self-conscious, but I know by actual observation that many others are not. The question is: Is it correct to say that an idiot is a human being (this is more or less of a contradiction in terms, but I can not help that) in whom mental evolution has not reached the plane of self-consciousness? If this be answered in the affirmative then an "imbecile" is a person of very defective mind but having self-consciousness, and a "feeble-minded" person is one having more intelligence than the imbecile but less than the ordinary individual. I would be glad if Dr. Peterson would also say where he draws the line between the "feeble-minded" person and the "imbecile."

J. J. Putnam: I would like to know what relation Dr. Peterson considers to exist between the deformities of the head and other stigmata of that sort and the mental changes in these shades of imbecility and idiocy; i.e., whether the physical stigmata are at all proportionate to the degree of mental deficiency. I ask because a great deal of interest has attached to this question of physical stigmata of late years and Sommer has pointed out that in a series of cases observed by him, where idiocy and stigmata were both present, the feeble-mindedness was inherited from one side of the family, and the physical peculiarities of the formation of
the head and the like from the other side of the family where the intelligence was good. He tried to draw a distinction between those physical peculiarities which seemed to be in a sense related to the mental defects in a causal way and those that simply occurred side by side with them.

I would also be glad to know whether in these cases of peculiarity of speech there has been found a deficiency in the development of the speech tract and centers.

Dr. Peterson: In regard to classification,—that is, I think, entirely empirical. I think that many will not agree upon exactly what would be regarded as an idiot and what an imbecile and what feeble-minded. There are various grades of idiocy, imbecility and feeble-mindedness, shading one into the other from the lowest form where every faculty is absent up to almost the normal state. I should be inclined to call an idiot one who is most deformed and probably paralyzed, and in whom the intellectual faculties are almost in abeyance, one who pays no attention to anything about him and has to be fed, dressed and cared for. An imbecile is one of those defectives who is able to be about and manifests a certain amount of intelligence. He may be very defective and not know how to talk or say a single word and yet he can dress himself, run errands, and so on. The feeble-minded are still higher.

In reply to Dr. Putnam, I would say, that I think there is a strong relation between the number of stigmata of degeneration and the degree of defect of intelligence. An idiot will show more stigmata than an imbecile and the imbecile more than the feeble-minded, and as far as the deformities of the hard palate are concerned, they will be found more frequently in the lower orders of idiots than in the higher.

I do not know of any accurate studies of the brain in these subjects, so I cannot answer Dr. Putnam's last question. I know of no examination of the speech tract in cases where the speech has been defective.
Dr. Walter Channing read a paper on "The Palate of Idiots," in which he took the ground that an exaggerated and unwarranted importance had been given to certain physical defects as proofs of degeneracy. They were called "stigmata of degeneracy," but whether they were or not still remained to be proved.

He took issue with those who regarded the shape of the palate as an unerring indication of the mental, moral and physical make-up of the individual possessor of the same. For several years he had been making careful studies of casts of the palates of one thousand idiots, and of these he found 40.9 per cent to be so well formed that he had ventured to call them of the "average type" in his classification.

He contrasted these figures with those he had compiled on examining a collection of two hundred and twelve casts of children from the general community sent to two dentists for correction, and found a smaller per cent of the "average type" in the latter than in the former. While these children were exceptional, perhaps, in presenting unusually deformed palates, they were average members of the community, and, properly speaking, could not be called degenerates.

He further compared his percentages of normal and abnormal palates with some compiled by Clouston, and concluded that the latter's plan of classification was not a good one, and his percentages of normal too low and of abnormal too high.

He analyzed the results he had obtained from a study of casts of five hundred school children's palates. In these he found a variety of shapes, but no marked degree of deformity. Comparing these casts with those of idiots of about the same age, he found a striking similarity.

One result which came out from his observations was, that a number of forms of defective development of the palate did not get into tables of classification of palatal deformities. There was, for instance, the "infantile type," which was found in an
important per cent of grown-up idiots. Such palates were examples of positive deformity when considered in relation to the age and size of the subject, yet in themselves were of normal shape.

He was impressed by the fact that comparatively few marked deformities are found before the second teeth came in. Hence irregularity in second dentition was the most important factor in producing palatal deformities. Back of this was aberrant development of the jaw itself; there was inharmony of relation between the long diameter of the jaw and the teeth. But if no second teeth were erupted we should get few of the prominent varieties of deformity.

DISCUSSION.

Dr. Peterson: I am very much interested in this subject, as I have also taken a large number of casts and have written a paper on the "Hard Palate in Degenerates." Now I think there must be a good deal of confusion as to what is meant by the hard palate. I may be wrong in this matter, but in my paper I have taken the view that the hard palate is composed of the palatal bone and the palatal portion of the superior maxillary bones. As far as I can learn Dr. Channing calls the hard palate the teeth and alveolar processes. In describing the arch he always means the dental arch and not the arch of the palate. In my illustrations here, which are specimens selected because of the very great deformity of the hard palate, there is no particular deformity in the dental arch. I do not look at the dental arch, but at the vault of the palate only. If you examine Dr. Channing's specimens of hard palates of normal and idiotic children, you will observe great differences in the palatal arch, very marked deformities in many of those of idiots. If you look at the dental arch only as Dr. Channing has done, I agree with him that there are no particular differences.

Dr. Brush: I can agree with what Dr. Peterson has said. I have done some little of this work, and possibly I have gone so far wrong as to have been looking at the vault when others were looking at the dental arch. I had simply regarded the narrow or badly arched vault as a significant sign of a narrowing of the skull base. We could not get in and see from above the skull base, but we could look at it from below. I have gone upon that theory in
the cast I have made and in the papers I have presented and based my conclusions upon that ground. If wrong, I am very glad to be set right.

Recently I saw casually a reference to an article in Régis’ Manual of Mental Medicine, in which he called attention to the relation existing between the distance between alveolar margins of the last superior molars and the biparietal diameter, which, he says, in normal individuals is 1 to 3½, whereas in degenerates it is 1 to 4½ or 5, and in idiots 1 to 6.

This shortening of the distance between the alveolar borders of the molars would naturally contract the dental arch, to which Dr. Channing calls attention, but the true index of a narrowed or contracted skull base lies, I believe, in the hard palate, and the high, narrow vault is what we examine. Changes in the dental arch due to faulty dentition or other causes can exist, as we have seen, coincident with a broad and normal or nearly normal arch of the palate—but narrowing of the skull base is shown almost invariably, if indeed not always, by the contracted, saddle-shaped vault.

Dr. C. G. Hill: I am sure that Dr. Channing and others who have labored so faithfully in this field deserve commendation, but it seems unfortunate that this particular part of the anatomy should be selected as a study of evidences of degeneracy. Following a line of analogy that I believe is well established in evolution, that disuse leads to atrophy and finally to complete destruction of a part, it is very plain that civilization should affect this part of the anatomy very early. I met a gentleman sometime ago who had spent much of his time in Hawaii and was deeply interested in his description of the primitive mode of eating by the savages of that island. They sit down to their meal about once a day and before them is a great pile of fish, uncooked and uncleaned, which is their staff of life, and a mass of starchy matter which they eat raw and partly fermented—and with this they gorge themselves as long as they can cram it down. The palates and teeth of the savages are much admired. The deterioration in the civilized man is due as much to his habits of life as to any general type of degeneration, and particularly can this be illustrated in the matter of the negroes who are less removed from the savages and who are noted for their beautiful teeth. Their new modes of life have, however, changed this a great deal so that the typical beautiful white
teeth, with perfect arch, so noticeable a few generations ago, are disappearing. The arts of the chef have done away a good deal with the necessity of a good, firm palatal arch. We do not eat the fish scales and bones, but we have our succulent beefsteaks and white bread. In the element of the nutrition of this part we also suffer. What is deemed our best bread is deprived of the phosphates that contribute to the growth of the teeth and the alveoli.

While these labors are much to be commended, as is everything that tends to establish facts, it is not surprising that they should really lead to no definite results, as has been candidly stated.

Dr. Channing: This whole matter of classifying and studying the shape of the palate began with the dentists. The term "gothic arch" was used by dentists and the expression "V-shaped" as far as I know was first used about thirty years ago by Dr. Langdon Down. I do not think it is fair to say that the hard palate is made up of either one part or another; we have to take it as a whole. The question is in regard to what rule we can best follow for purposes of classification. I think the various kinds which are designated by Dr. Peterson only cover a limited number of deformities. He uses the word "asymmetrical." Of course such a term includes a great many varieties. What does his asymmetry refer to? He also uses the term "horse-shoe," but as I understand it incorrectly, that expression having been first adopted to describe what was regarded as a normal and not abnormal palate.

In my opinion there would be much less confusion than at present exists in classifying palates if the word "arch" applied to what is commonly called the "dental arch," including in that the whole of the alveolar processes. This arch would be an antero-posterior one, with its apex in front, and would give in nearly all cases the best idea of the palatal deformity. If it is desired to speak of the transverse arch of the roof of the mouth it should be specifically stated.
GENERAL PARALYSIS IN TWO SISTERS, COMMENCING AT THE AGE OF TEN AND FIFTEEN RESPECTIVELY.—AUTOPSY IN ONE CASE.*

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General paralysis in early life, i. e., under the age of twenty, has not been reported in this country so far as I can see from the literature; in fact altogether I can find no more than about fifty cases, among which certainly thirty-five have been described since the year 1890 and over twenty in the last two years. Among all the cases about the same number, i. e., twenty, have been described by English and German observers, about seven cases are found in the French and a few in the Russian literature.†

The two cases to be reported may therefore prove of interest, particularly since they present the occurrence of the disease in two members of the same family; particularly also since the autopsy in one of our cases showed changes which by themselves I consider of special interest.

The cases are typical, and by the examination of the nervous system the diagnosis is raised above all doubts.

The younger sister I have not observed myself. She was under the care of Dr. Cushing in Haverhill who furnished me with some information; the bulk of the history I got by collecting the data from the different members of the family whom I went to see. The clinical picture can therefore not be expected to be in any way complete, and the following description will only give in a very general way the course of the disease.

CASE I.—Ida. The patient was a healthy baby and according to the statement of different members of her family in every way normal. She was even considered a very bright child, whereas her sister, whose case is to be spoken of later, is said to have been of moderate average intelligence. The time of onset of her disease is

* A somewhat more complete paper on the subject with illustrations will be published later.

† For a complete bibliography up to 1895, see the article of Alzheimer: Die Frühform der allgemeinen progressiven Paralyse. Allgemeine Zeitschrift für Psychiatrie etc. Vol. LII, page 533.
difficult to fix and was certainly very gradual, but when the patient was about ten years old it was thought that she was growing lazy. Instead of playing with other children, she would sit around the house in an apathetic way. She frequently complained of pain about her stomach, but had no vomiting. On account of this trouble she is said to have been kept out of school. When about eleven years old she began to have marked motor symptoms, staggered about a good deal "like a drunken man," and on that account she had to be guided around. One of my informants, her sister, expressed the course of the disease with reference to the motor symptoms in short as follows: "Two years we dragged her around, two years she sat in a chair, and two years she was in bed." From about fourteen years the patient's legs had a tendency to be drawn up, and while the patient was in bed in the latter part of her life, this became so marked that even passive extension was difficult. Later a similar condition appeared in the arms, and towards the end they were drawn over the chest. For the last two years it was impossible for the patient to sit up in a chair. The voice was noticed to be coarser than it had been and the speech to be indistinct; towards the end of the patient's life it was nothing but a mumble. In the meantime the mental condition approached more and more a complete dementia and for about a year before death the patient was so feeble-minded that she knew no one; she lay in bed in the above described contracted condition, untidy, mumbling, picking at her bed-clothes, unable to help herself in any way. The course was apparently one of progressive dementia without any excitement or any delusions. At no other time during the course were any convulsions noted until shortly before death, when she had a series of them; she died in convulsions a week after their onset.

The autopsy was made by Dr. E. W. Taylor in the presence of Dr. Putnam. To the former I am indebted for the description of the gross appearances of the nervous system; to Dr. Putnam it is my privilege here to express my indebtedness, not only for the pathological material which he put at my disposal, but also for drawing my attention to these cases. It was with him that I first saw the sister who is now living. In this place I would also express my thanks to Dr. Cowles for his kindness in admitting the latter to the McLean Hospital.

Before giving the anatomical details gained from a study of the
tissues, I wish to give an abstract of the clinical notes made on the sister whom we had in the hospital as well as give some data with reference to the family history.

Case II.—Rosa, now 19½ years old, has been a healthy child and of average intelligence up to the onset of the present disease; for the latter there is no cause to be made out. From her 15th year on she began to get along badly in school, and since about her sixteenth year she is even, according to the judgment of her family, feeble-minded. She has never had any motor excitement nor any delusions or hallucinations. Her mental weakness was evidenced first in her inability to follow school-work, then in a lack of interest in anything, in a certain childishness, in loss of memory, and finally in an inability to understand even simple things. To give an example: She has for the last few years very frequently done crochet work, always using the same stitch; the most painstaking attempts on the part of her sister to teach her even the slightest modification of this were fruitless. For two to three years her gait has been changed and she is somewhat uncertain. Her speech has also been altered, the change coming on gradually. She has had no convulsions. This is in short the history up to the time I saw her. The observations which we made during her stay in the hospital, i.e. during about five months, may be summed up as follows: to give a résumé of the notes made is particularly easy since the change has not been great—no new symptoms having appeared—but she has become somewhat more demented, her walk more uncertain, her tremors more marked. She gives the impression of being feeble-minded; after her arrival, although she had been told that she was coming to this hospital, she was not clear where she was; she at once was satisfied and when her sister left her she did not mind it. Afterwards she frequently cried, and said she was homesick, but a few words completely changed her feelings and they were evidently but very superficial. In spite of being in a rather noisy ward, associated with persons with many marked peculiarities, this did not disturb her or make any impression upon her—in other words she was, although quiet and orderly, absolutely unable to appreciate her surroundings. A picture was shown to her, and her description of it which she was asked to give was very elementary and superficial; her behavior was often silly—during an examination she would often tell of a perfectly irrelevant incident which had happened in her neighborhood, or laugh convulsively. She was
able to recite fairly well a number of poems she had learned when in school, but it was evident that she hardly grasped the sense of them. Then it happened that she left out lines and words without noticing it, thus making the meaning incomprehensible. On several occasions the patient was asked to read, and the results here obtained were quite characteristic. From a number of tests made on different occasions I shall only give a general abstract. She was asked to read a paragraph from "Alice in Wonderland." She made mistakes like the following: Instead of unfortunate she read uniform; for execution, express; for sneezing, snize; for choking, colking; for lizard, laze, and other similar errors; while many words were also read correctly. Individual letters could always be read correctly, smaller words almost always, when shown alone, sometimes only after spelling, e. g. mock, fashion, etc. Longer words like squeaking, or even turtle could not be read, even after spelling; in the same way words which probably she had never heard or seen, like gryphon or guinea-pig, could be spelled, but no attempt was made to pronounce them. Figures could be read alone or two or three together, frequently even four, but never more. Writing was difficult to obtain, since the patient could not be made to write much, but the few specimens show not only mental defects analogous to those expressed in reading, but also very marked motor disturbances, i. e., tremulousness. Anyone familiar with the subject would call her handwriting that of a general paralytic. She calculated very badly, and with the exceptions of the smallest multiplications, with 2 or 3, possibly with 4, she did not give correct answers. Multiplications were better than additions or divisions. This is evidently due to the fact that the multiplication tables have by practice become more fixed associations than the additions or divisions. She evidently depended entirely on some well-rooted associations, for when examples with any higher figures as e. g. 5 times 6, or 13 times 11 were given to her, she not only did not do them at once, but knew no means of getting at the results; in other words no matter how long a time was given to her to solve the problem she never reached a solution. Quite a large number of tests were made and the patient both of her own accord and with the assistance of the nurse, attempted frequently to write down the multiplication tables—she improved her calculation hardly any by this practice. It should be emphasized here once more that the patient was in school up to her fifteenth year
and had been perfectly able to read, write and calculate. Rayer and his pupils have pointed out that disturbances like these, if at all pronounced, are only seen in the dementia of general paralysis.

The gait was markedly abnormal. It was tottering, the legs placed far apart, and held somewhat stiffly; the feet came down on that account somewhat as in a flat-footed person. She wavered much from a straight line. The arms, during walking are held away from the body as if for balancing the latter. She can stand with her eyes closed and feet close together, but can not stand on one foot at all. The speech is indistinct, monotonous, high-pitched, and has a certain vibration to it; frequently words are somewhat slurred over; at the same time there is a coarse tremor about the mouth and chin and a similar tremor is seen in the tongue. The face is somewhat one-sided; this is seen at rest as well as in motion. The patellar reflexes have been throughout markedly exaggerated and there has been on different occasions a more or less well marked patellar clonus, but only a slight ankle clonus. The reflexes in the arms were increased particularly in the latter part of her stay in the hospital. The pupils have been the same all along. The right was larger than the left on every examination, and neither eye reacts to light or accommodation.

The condition of the sensibility is still of interest. She perceives tactile impressions very well, but there is marked diminution in her appreciation of pain sensation. At first she failed not rarely to recognize the pin as such; when her attention was drawn to it she frequently differentiated the head and the point of the pin correctly, but she never minded the pain; in fact a fold of skin could be transfixed without her wincing. The same thing was seen in applying the faradic or galvanic current of full strength—they were borne without pain, even if the metal of the electrode was directly applied.

The patient shows no signs of hereditary syphilis. The upper teeth are badly decayed, those left are not Hutchinsonian; the cornea are clear; the shins smooth; the liver dulness normal. So much for the clinical history of the second patient.

*Family History.*—These two girls are the youngest members of a family of seven children. The others are healthy and normal. None show signs of hereditary syphilis. None have died except Ida. The mother had no miscarriages.

The father, a Dane, has been unable to work for about twelve
years, although he is now only sixty-one years old. He frequently became dizzy and was said to be unable to direct his hands properly. Six years ago he had an attack in which he got pale, fell down and was weak on one side. He recovered completely. He now falls not unfrequently, partly, as he says, because he becomes dizzy, partly because he trembles. He is said to have frequently sores break out over his body, and last year two "boils" appeared on the forehead which were present most of the summer; they finally broke open and dead bone was found in them. At the same time he had a good deal of headache. He is irritable, but has been so for years. Never does any work, but sits about the house, perhaps reading in his old Danish bible. He denies positively ever to have had syphilis. On examining the man I found him looking certainly older than he was, and quite infirm. There was a tremor of the head from side to side, a tremor of the muscles about the face when he spoke, but the speech was not altered. There was a certain amount of difference on the two sides of his face. Tongue protruded straight and does not tremble. He has some tremor of the hands and the handwriting is tremulous. The muscular strength of the arms and legs is fair and equal on the two sides. The gait is very infirm and tottering but not ataxic; it became worse when his eyes were closed, but he stood very well with his eyes closed. The knee-jerks are diminished. No changes are seen about his eyes, the pupils react to light and distance. On the forehead there are two deep ragged scars and there is evidently loss of bone. The arteries are somewhat thickened. I do not see that we can make a definite diagnosis in this patient; he certainly has not general paralysis. The most likely explanation seems to me to be sure after too short a period of observation that the man is prematurely senile; he has a certain amount of arterio-sclerosis. That the man had syphilis is made probable by the appearance of the two "boils" on the forehead.

The mother also is infirm and complains of all sorts of pains. She dates her trouble from the sickness of her daughter whom she nursed. Examination was negative. She is intelligent and seems merely nervous and hysterical.

Autopsy on Case No. 1.—(Dr. Taylor).

December 1, 1894, girl sixteen years old. Size of body that of a child of ten years of age—body emaciated. Lower limbs
particularly thin and emaciated, in comparison to the body, where there is considerable subcutaneous fat. The head is well-formed—no deformity.

Slight erosion of the inner table of the skull on the left side; normal thickness of skull. Dura mater is normal. Considerable serum fluid runs out on removal of the skull-cap. The pia mater is opaque and milky in appearance, especially over the sulci. The brain-substance is firm on pressure. The convolutions are very pale and bloodless, and the substance firm on section. The cortex is considerable thinner than normally. There is considerable fluid in the ventricles. The pons, medulla and the spinal cord show no abnormality, microscopically.

The internal organs are normal. The uterus is very undeveloped.

Microscopical Examination.—Microscopically there were examined different sections of the brain cortex, portions of the cerebellum, of the basal ganglia, and different heights of the pons, medulla and of the spinal cord.

Cortex.—The pia mater is thickened and there is great infiltration with lymphoid cells. The cortex shows also the changes commonly found in general paralysis. The tissues having been hardened in Müller's fluid, and being mounted in celloidin, were stained by Weigert's method, and by haematoxylin and a very dilute aqueous solution of fuchsin. It is therefore impossible to say much about the ganglionic cells. The most striking feature is the large number of coarse spider-cells, which are particularly evident in the first and third layer.* The combination of atrophy of nerve elements and increase of the neuroglia gave rise in many places to the characteristic meshy appearance of the cortex. The vessels were in places very conspicuous through the great, sometimes very great, infiltration of their adventitial spaces with lymphoid cells. The medullated nerve-fibres appear much diminished, not only in the tangential fibres in the first layer which (with the exception of some places in the occipital lobe) are completely absent, but also the horizontal fibres lower down, and even the radii. This diminution is very great and very widespread. It may partly be due to the method, but on the one hand the change was well marked in the coarser fibres, and on the other hand the fibres in the white matter were well stained, although distinctly diminished in many places.

* According to the division of the cortex into three layers.
It should be remembered that the patient began to become affected with the disease very early in life, at a time when the cortex does not show all the fibres which it has in mature life.* The changes on the whole then were very pronounced and well marked all over the cortex, although less marked in the posterior than in the anterior regions.

In sections from the optic thalamus very similar changes were seen as in the cortex; here also large, sometimes huge, spider-cells were found, and the vessels showed large accumulations of lymphoid cells. The latter condition in fact was seen all through the nervous system, no matter what portion was looked at. But aside from this the vessel walls looked normal with the exception of a few places in the basal ganglia, where there was distinct hyaline degeneration of vessels, and where also amyloid bodies were seen. In the cerebellum the pia showed similar changes as in the cerebrum, though less pronounced. The changes in the cortex were very interesting. In places it was perfectly normal, the Purkinje cells well-formed with well-stained nuclei. In other places they showed marked changes, they looked hyaline, deeply stained with fuchsin, with ragged outlines, misshapen, and with nuclei that stained very deeply and evenly and which presented irregular outlines. These changes were seen in different degrees in different regions, and in places there were no Purkinje cells at all. Where these alterations are seen the entire cortical substance above the Purkinje cells is much altered; it has a fibrillar appearance instead of the normal homogeneous one, no doubt due to the growth of the neuroglia following the disappearance of the great branching system of the nerve-cells. Some small spider-cells are seen, and the whole thickness of the cortex is much diminished. This uneven distribution is quite striking, and it is of interest to note that the affected parts are chiefly in the most peripheral portion of the cerebellar cortex, whereas the deeper portions are normal, a fact the significance of which I can not explain, but which is worth recording.

*Spinal Cord.*—In the sacral cord there is a degeneration chiefly confined to the lateral pyramidal tracts, although it extends evidently also somewhat inward.

In the lumbar cord the same condition is found, namely, the degeneration of the lateral pyramidal tracts; here it extends perhaps somewhat ventrally along the periphery of the cord. As we ascend, the field of degeneration approaches nearer to the gray matter, whereas at the periphery it is less pronounced; this corresponds again to the portion of the lateral pyramids, while here is also present a certain amount of degeneration along the margin. In the dorsal cord we begin to see with certainty a degeneration in the field of the anterior pyramidal tracts; the light appearance in the lateral column (in Weigert’s sections) is well marked but not quite confined to the pyramidal tracts; it extends forward, although it is better marked in the former region. It must be stated that at no place is there anything like a complete degeneration in the lateral pyramidal tracts, but the changes in a Weigert section are clearly enough marked to be very well seen with the naked eye. The field of the direct cerebellar and of Gowers’ tract is entirely free from degeneration. In the upper dorsal cord the direct cerebellar tract is well stained, but ventrally from it there is a distinctly lighter appearance, i.e., in the region of the Gowers’ tract. The degeneration in the lateral columns is well pronounced in the region of the pyramids, but shades off in a ventral direction and blends with the degeneration in the region of Gowers’ tract; it also extends along the outer surface of the anterior horns. In the angle between the gray matter of the posterior horns and the pyramids degeneration is present but not so well marked as in the region of the pyramids; so that in this direction also the degeneration is not quite confined to the lateral pyramids, although again it is more pronounced here. The anterior pyramids show distinct changes, particularly on one side, but these do not extend along the anterior border. Very similar is the condition of the cervical cord. The direct cerebellar tract is perfectly normal, the pyramidal degeneration standing off in a ventral direction and around the anterior horns, blending with the degeneration in the region of Gowers’ tract, which has now become more pronounced. The anterior pyramids show here also more pronounced degeneration. As we go up still higher, (the height of the accessorius), we find similar conditions. Here, however, there is a field of degeneration in the region of Gowers’ tract which is more circumscribed and more pronounced than in any region below; it extends in a triangular projection towards the anterior horn, and does not extend dorsally.
as far as the outgoing root of the accessorius, but only to a point which is about on a line with the ventral border of the lateral projection of gray matter; interesting is also the fact that it extends inward and ventrally to the field of degeneration in the anterior pyramids which here shows, unlike the lower down, a marked extension outward. The connection between this and Gowers' tract is well marked, but the degeneration here is only a small strip. It is necessary to note here that unfortunately the different heights were not marked and that a large part of the cervical cord could not be examined, so that it is impossible to say where this more pronounced field of degeneration began.

As we ascend from here into the medulla, at a place where the nucleus of Goll is well formed, but the pyramidal decussation is not yet finished, we find the degeneration in the field of Gowers' tract well marked and having about the same place as lower down; it is connected by a strip with the degeneration in the pyramids—a strip which is indirectly separated from the periphery by normal looking nerve-fibres. There is also a slight degeneration extending from the well marked field slightly dorsally and inward to the anterior horns. Still higher up where both the nuclear gracilis and cuneatus are well formed, at the height of the sensory decussation, the degeneration is still in the same position, separated from the periphery by some longitudinally cut fibres and blending with that of the pyramids, which is still well marked; here also it extends inward. Still higher up, where the olive appears, we see in Weigert sections that the field adjoining the pyramids, namely, the region around the olive inside of the external arciform fibres, is considerably lighter than normal, and in the angle just ventral to this region there is a somewhat lighter appearance than normal. Above this region, i.e., where the olive is well formed, the degeneration can not be made out with certainty. The angle above the olive is light, but it is also so normally, so that a slight degeneration could probably not be made out easily in any event, in Weigert sections, nor was it any more evident in fuchsin preparations. The pyramids are still seen to be partly degenerated. This latter degeneration can be followed through the medulla and partly through the pons; in the higher portions of the antler it becomes questionable, and in the crura cerebri it can no longer be made out.

The Gray Matter.—There are here and there ganglionic cells in
the anterior horns which are with certainty changes, having the true hyaline characters as seen in the Purkinje cells described above; these changes are perhaps more marked in the dorsal cord. In the nuclei of the medulla and pons similar cells are found, but pronounced degeneration is found in none. As was stated above, the infiltration around the vessels with lymphoid cells is seen here as well as in other portions of the central nervous system. This is particularly well marked in some vessels in the pons. Another important alteration to be noted is the very marked change, in the gray matter of the spinal cord. We find in sections from the upper dorsal and the cervical cord a marked growth of neuroglia which is seen in the appearance of numerous well-pronounced coarse spider-cells which can be seen even with a low power. These cells are chiefly seen at the base of the anterior and posterior horns and in the center of the gray matter on both sides, although isolated large neuroglia cells are also seen in other places. In the lower region of the spinal cord this feature is not present. In the nerve-roots as far as they were examined (those which were attached to the spinal cord sections) no changes were found.

Remarks on the Pathological Findings.—The changes in this case are then very profound. They are well-marked not only in the cerebral cortex but also in the basal ganglia, in the cortex of the cerebellum and in the white and gray matter of the spinal cord and the medulla. With reference to the spinal cord the question arises how to interpret the changes which we have described. In the lateral as well as the anterior columns we have seen a partial degeneration confined in the latter to the anterior pyramids. Degeneration in the lateral columns is not an infrequent occurrence in general paresis as is well known; it has of late been attributed by Pierre Marie in some cases to changes in the gray matter of the cord which give rise to a degeneration of tract cells, and then to loss of short tracts in this region. As reasons for this assumption the facts have been adduced that the degeneration is not confined to the lateral pyramids and is not present in the anterior pyramids. In one section however we find all along the entire length of the cord a degeneration which in some places is entirely confined to the lateral pyramids, in others certainly better marked in this region; besides it diminishes downward pari passu with the diminution of the pyramidal tracts. Moreover, we find a degeneration in the anterior pyramids which
we can distinctly follow down the dorsal cord. All these are features which make the degeneration look like a secondary one due to cerebral changes. At any rate it is fair to say that we have before us a system degeneration in the central motor neurons; although the changes in the nerve-fibres surrounding the pyramids must probably be attributed to degeneration of short tracts; in other words the latter is not merely an extension of the process into the surrounding tissue but is probably due to alterations in the gray matter of the cord. Whether, in spite of the appearances in the crura, there is a degeneration which is not evident in Weigert sections, or whether the process becomes really completely lost in the upper pons it is difficult to say. It is, however, possible that, as has been suggested by others, only the most peripheral portions of the neuron become first affected owing to its distance from its trophic center, and that gradually the process extends nearer to the latter. With gradual chronic changes and a low degeneration of nerve cells, as in general paresis, this view is not improbable. We would see then in this degeneration of the pyramids a secondary effect of changes in the cortex.

The next question of interest concerns the degenerations in the antero-lateral portion of the cord. We have seen that here we find degeneration as low down as the upper dorsal region, but that it becomes more marked as we ascend, so that in the upper part of the cervical cord it represents a well marked field, which we can also trace through a certain distance in the medulla. There can be little question when we look at our sections but that we are dealing with a degeneration of fibres of Gowers' tract. An interesting feature is, however, that the degeneration only begins high up in the cord. It is probable that Gowers' tract receives fibres from the gray matter of the cord at different heights, and the idea suggests itself that many cells which give off fibres to this tract in the upper regions of the cord are degenerated; if this is true we would have to be able to demonstrate changes in the gray matter which are present in these portions only; as we have seen, this is actually the case. We find a marked increase in the neuroglia, (and have a right to postulate a previous destruction of nerve-tissue) in the base of the anterior and posterior horns and the center of the gray matter on both sides. According to Lenhossèk the cells which give rise to the fibres of Gowers' tract are situated apparently partly in the center of the anterior horn and partly in
the central zone of the gray matter. While to these changes which we find in the gray matter we must probably attribute the degeneration in the ground-bundles, it seems fair to suggest that the degeneration in Gowers' tract is also due to the destruction of cells in this region which corresponds in part to the place where, according to the author above quoted, the origin of the fibres of this tract is to be sought for. That we are unable to follow the degenerations higher up than the lower portions of the olives is not surprising since we are not dealing with a complete degeneration, and since it is well known that above this region Gowers' tract is difficult to discover in Weigert sections. Another feature of interest in these cases is the fact that two members of the same family are affected at this early age with this disease. I have been able to find this in only one other instance in the literature. The cases reported by Tustschenke, are a brother and a sister, who were attacked by the disease at the age of fourteen and fifteen respectively. Both patients had signs of hereditary syphilis.

Cases like these are qualified more than any others, it seems to me, to point to the rôle which hereditary interference plays in the production of general paralysis at such an early age. It has been shown by Alzheimer who has collected 41 cases of juvenile general paralysis, among them three of his own, that there was a neuro-pathic heredity in about 70 per cent; but the heredity which seems most important in these cases is syphilis. The same author finds that 50 per cent had with certainty a syphilitic heredity; if those were added who had probably such antecedents, the figure rose to 85 per cent; and if still those were added in whom a syphilitic heredity was from certain data probable, to 91 per cent, an unusually high percentage. It is of course impossible to say definitely how many of these cases are in some way due to hereditary syphilis; but considering the frequency of the association of the two, we may well keep in mind the interesting study of Hirschl, who, in the attempt to prove syphilis the cause of general paralysis, has among other evidences, cited the results of an inquiry into a collection of cases with well-known tertiary-lesions from Lang's clinic in Vienna, and has shown that there also, in spite of a most careful anamnesis, it was impossible to find a syphilitic history in all cases; indeed, taking everything into consideration, there was on this point a remarkable resemblance between general paralysis and tertiary syphilis. We must concede, therefore, that even the possibility of
all these cases being due to hereditary syphilis must be admitted, although this is not by any means proved by any statistics. That our patients have such a heredity we can not be certain, but we have seen that the father has had symptoms which were very suggestive.

Concluding Summary.—We have then here two sisters who, apparently in good health previous to the onset of their disease, gradually developed the symptoms of general paralysis, the one beginning at the age of 10, the other at the age of 15 years. There is a neuropathic heredity inasmuch as the father is prematurely senile and the mother a nervous woman. Besides, it is probable that the father has had lues and we have seen that a luetic heredity is common in such cases. The clinical course in both sisters was one of simple progressive dementia, a feature which most of the reported cases of juvenile general paralysis present. The disease lasted in one case for six years, in the other it has so far been going on for four years.

The autopsy in the one case proved the diagnosis. The lesions of the cerebral cortex were those commonly seen in general paralysis. Similar changes were found in the basal ganglia. In the cerebellar cortex was seen a hyaline often shrunken, degenerated appearance or a complete atrophy of many Purkinje cells with marked diminution in the thickness of the cortex, changes which were present only in places; the latter being situated deeply in the periphery of the organ. There was a system degeneration of the pyramidal tracts, which could distinctly be followed up into the pons, but was apparently lost in the crura. In the cord the anterior and lateral pyramids were affected. From the upper dorsal upward there is seen degeneration in Gowers' tract, the field of degeneration becoming best marked in the high cervical region and the beginning of the medulla oblongata. This degeneration is probably due to the changes in the gray matter which we find well pronounced in the upper portion of the spinal cord, in the center of the gray matter on either side—so that we would have an isolated degeneration of the higher portion of Gowers' tract.

Discussion.

Dr. Putnam: I will say a few words about this matter, not because I really have anything of importance to add, but rather because I saw one of these patients, who came originally to my
office for consultation, and therefore have taken great interest in Dr. Hoch's work. As regards the matter of the etiology of this remarkable disease, whether occurring in child or adult, one must admit of course that the rôle which syphilis plays is a very mysterious one and that in these cases of hereditary syphilis the part which it plays is still less easy to define than where it is acquired. As I understand it, neither of these patients presented at any time any lesion which would have been called syphilitic. When it comes to the examination of the microscopic specimens, whether in the adult or in a case like this, there is a very marked likeness in certain respects between some of the diffuse lesions which one finds in brains which are otherwise unquestionably syphilitic and those seen in brains of patients with general paralysis.

In spite of the fact that, as Dr. Hoch has said, a large percentage of these cases, perhaps over 90 per cent, may be assumed to be of syphilitic origin in some sense, yet we have still ten per cent where we have no right to assume that syphilis was the cause. So, although we can not say it is not the cause, we ought certainly to keep our minds open for the possibility of other causes. That same fact has occurred to me with regard to tabes where the same statements about the frequency of syphilis are very often made. So far as I have been able in this matter to arrive at any conclusions, I think we must regard syphilis in all these cases as usually the predisposing cause like other predisposing causes. It is a partial cause and we must look for other causes as well. We must consider that the nervous system is vulnerable more especially in certain parts, and, given that vulnerability, there are various causes which may excite actual degenerative processes of one kind or another.

One special point that seems to me of interest is the matter of sensibility. It has been observed, as Dr. Peterson noted yesterday, that sensibility is absent or very low in the case of idiots and it seems to fade away quite easily in cases of mental failure from various causes, and also in persons of rather defective nervous organization. When one thinks of the very important part that sensibility plays with normal, healthy individuals, it seems certainly strange that it should disappear so readily. No other symptom is so easily affected by hypnotism as the sensibility to pain. No other symptom disappears so readily if a person is engrossed. So in these cases where the mind is moderately defective it seems to disappear also very readily.
Dr. Hurd: I do not rise to discuss the paper but to speak of the obligations under which the Association is to Dr. Hoch for bringing us one of the first results of the work at the new laboratory of the McLean Hospital. It is a most encouraging fact in the history of the Association that at this meeting we have had excellent papers representing the pathological work of two of the hospitals for the insane in the State of Massachusetts. I look forward to the time when our sessions will be crowded with such papers, and instead of hearing from two pathologists we shall hear from a dozen in the course of a single meeting.
A STUDY OF LEUCOCYTOSIS ASSOCIATED WITH CONVULSIONS.

(A PRELIMINARY COMMUNICATION).

BY FRED G. BURROWS, A. M.,
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During the past few years considerable attention has been given to the varying conditions of the blood under different conditions and at different times. One of its most variable constituents has been found to be the number of its white corpuscles. There are several kinds of these white cells; and these several kinds are normally present in a fairly constant relation to each other. These relations vary, however, under pathological conditions.

An increase in their total number is termed a leucocytosis. The occurrence of leucocytosis has been carefully studied, under both physiological and pathological conditions, by many different observers. I wish to speak to-day of a pathological condition in which a leucocytosis occurs; but has hitherto been unobserved. The apparatus used; the preparation of cover-glass specimens; and Ehrlichs' staining process are doubtless familiar to you all: but for the sake of completeness it may not be amiss for me to say that about one-thirteenth of the body weight is blood; and that approximately thirty per cent of the blood is corpuscles, that normal blood contains about five million red corpuscles and seven or eight thousand white corpuscles or leucocytes per cubic millimetre.

These relations are determined by actually counting the corpuscles in a carefully measured sample of the circulating blood.

An increase in the numbers of white corpuscles to eleven thousand or more per cubic millimetre is considered a leucocytosis. By the term leucocytosis, then, we mean an increase above the average normal number of white corpuscles in the circulating blood. This increase may, or may not, be accompanied by a change in the number of red corpuscles and the amount of haemoglobin. But by an ordinary leucocytosis is meant one unaccompanied by a change in the red corpuscles. Such a leucocytosis accompanies pneumonia, diphtheria, appendicitis, etc.

For the purpose of determining which of the several kinds of
leucocytes predominates in a given leucocytosis Ehrlich's method of staining cover-glass preparations is used. By this means it is found that the polymorphonuclear neutrophiles are greatly increased in the leucocytosis of pneumonia; the lymphocytes or small mononuclear elements in lymphatic leukemia; while many myelocytes are found in myeloginous leukemia. A digestive leucocytosis is characterized, on the other hand, by a maintenance of the normal percentages.

A physiological leucocytosis is found in the new-born infant; during the process of digestion in the normal adult; and in the female during pregnancy. The leucocytosis of infancy is probably a relic of the haemic conditions of foetal life and disappears as the individual becomes adapted to extra-uterine conditions. The leucocytosis of digestion is supposed by Prof. Chittenden to be produced by the nucleins that are freed during the process of proteolysis. When the proteoses and peptones thus formed pass into the circulating blood they become foreign bodies; and, to quote Prof Chittenden, "the main efforts of the system are directed to the removal of these unwelcome strangers as speedily as possible; for their marked physiological action renders them somewhat dangerous visitors." And Starling has shown that this physiological action under these conditions is that of an irritant.

No satisfactory explanation has yet been offered to account for the leucocytosis of pregnancy. It is not constant, occurring in about two-thirds of the cases; and, according to Dr. Richard Cabot, rarely exceeding fourteen thousand per cubic millimetre.

Leucocytosis has also been observed to accompany many pathological conditions:—pneumonia; diphtheria; appendicitis; rheumatism; processes of suppuration, etc.

The leucocytosis of pneumonia is supposed to be due to the toxine produced by the diplococcus lanceolatus. Certain fatal cases of pneumonia are not accompanied by a leucocytosis; just why this is so, is not known. If we reason from analogy and consider some experimental leucocytoses produced in animals by the injections of anthrax bacilli, it would seem that the poison is present in too great a quantity or in too virulent a form for the leucocytes to be of service in protecting the organism against its action. It was found by Metschnikoff that if like doses of anthrax bacilli were injected into two different animals, one of which was susceptible and the other insusceptible to the anthrax poison, entirely
different conditions of the blood would be found to exist soon afterward. The susceptible animal succumbed to the poison and died, without any morphological change having taken place in his blood. But the insusceptible animal developed a leucocytosis and got well. The development of a leucocytosis took place, not only in those animals possessing a natural immunity, but in those artificially immune as well.

The leucocytosis of diphtheria has been studied by various observers. It is found to be constantly present; greatest in fatal cases, and to diminish progressively during convalescence. Gabritschewsky has also shown that it diminishes after the injection of antitoxine. And Morse has shown that there is a marked correspondence between the amount of membrane formed and the severity of the accompanying leucocytosis. Morse's conclusions are bases on both clinical and experimental studies. For his experimental studies he injected pure cultures of the Klebs-Loeffler bacillus into healthy animals and examined the blood from time to time as the membrane formed.

The leucocytosis of appendicitis is due to a focus of suppuration. The phenomenon of chemotaxis accounts for the local increase of leucocytes; and the toxine formed by the pathogenic organism is probably the cause of the general increase. The power which protein and certain other substances have of attracting leucocytes is termed chemotaxis, and it is now generally conceded that the collection of leucocytes at a point of injury or infection is a protective measure. Metschnikoff claimed that this protection is due solely to the phagocytic properties of the leucocytes; but it has since been shown that a protective influence may be exerted when the bacterial proteids alone are present. Hankin has shown that the blood of febrile animals contains a substance capable of killing bacteria; under other conditions the blood has the power of destroying certain bacterial proteids but not the bacteria producing them.

From this cursory glance it is seen that a leucocytosis has been observed to accompany many conditions; and that the significance of some of these leucocytoses has been explained. The subject of leucocytosis, therefore, aside from its biological interest, has, at the present time, a diagnostic importance in some cases; and will, we hope, when our knowledge of leucocytosis, as such, has become more perfect, be of service in determining the etiology of some now obscure conditions. Among these obscure conditions are
seizures occurring in various classes of patients in our institutions. In studying the blood of general paralytics at the McLean Hospital last year, Dr. J. A. Capps found in making an examination of the blood of one of these patients, after a convulsive attack, that a leucocytosis was present. He observed this condition of the blood several times in this patient; also in another patient who likewise had convulsions. These observations of Capps led to the present study. This study consists of frequent observations of the blood of several patients who have had convulsions from time to time. The observations have been carefully and systematically made. The results of the observations of the blood after a convulsion have been compared with the results of observations of the same patient's normal blood. The following cases are of interest and give a fair summary of the results obtained.

Case I.—M. W. M., aged 64 years. Senile dementia. This patient has been insane for five years; was admitted to the hospital three years ago; and has had convulsive attacks at intervals during the past year and a half. These convulsions have been of an epileptiform character; of from one to twenty minutes' duration; and accompanied by a complete loss of consciousness.

On Jan. 5th, a convulsion occurred at 6 A. M. A blood count was made forty minutes later and at two hourly intervals until it became morphologically normal. The observations showed a leucocytosis of thirteen thousand immediately after the convulsion, which rose to sixteen thousand five hundred, its highest point, four hours later. It then gradually decreased to the normal in six hours more or ten hours after the convulsion. Cover-glass specimens were prepared and the percentage of the various kinds of leucocytes determined by counting one thousand for each observation made.

From these differential counts it was seen that the polymorphonuclear elements were greatly increased and that the small mononuclear leucocytes or lymphocytes were greatly diminished. The increase in the polymorphonuclear elements was not only absolute but relative. In the first specimen they constituted seventy percent of all the leucocytes. But when the leucocytosis had reached its height, notwithstanding the fact that the absolute number of leucocytes was greatly increased, the percentage of polymorphonuclear elements was from seventy to ninety-one. As the leucocytosis diminished the normal percentages gradually returned. So
that, when the actual number of leucocytes had reached seven thousand seven hundred per cubic millimetre, the polymorphonuclear elements constituted only seventy-two per cent; and the lymphocytes had returned to eighteen per cent. Synchronously with the increase in the percentage of polymorphonuclear elements and decrease of lymphocytes there was a decrease in the eosinophiles. As the percentage of polymorphonuclear elements decreased that of the large mononuclear elements increased; eosinophiles remained low. It is thus seen that this leucocytosis is such a one as is found to accompany inflammatory processes.

Another attack consisting of two convulsions eight hours apart began at 7.37 p.m., February 19th. The first convolution lasted eight minutes, was general; but not of great severity. The first specimen was taken immediately after the convulsions and was found to contain eighteen thousand leucocytes per cubic millimetre. Subsequent examinations were made every two hours, from which it was found that the leucocytosis gradually decreased during the six hours following the convolution and then rose slightly during the next two hours. The second convolution now occurred and a specimen of blood taken during this convolution showed a leucocytosis of seventeen thousand two hundred, or almost as great a leucocytosis as that accompanying the first convolution. From this point the leucocytosis gradually diminished and reached the morphological normal thirteen hours later. This was twenty-one hours after the first convolution.

An examination of the stained specimens showed that the percentage disturbance was present at the first examination, but became greater a few hours later; and was more variable than in the former attack. Yet it was of the same character and belonged to the inflammatory type.

On March 16th I was called by the attendant, as he thought the patient was about to have a convolution. I found the patient in a very restless, nervous condition; his eyes had a scared, wild expression and were rolling about in an unsteady, jerky manner; his face, arms, and legs twitched at intervals. I was anxious to get a specimen immediately before a convolution, so took one then, thinking that perhaps while I was counting it the convolution would occur. I counted the corpuscles and found a leucocytosis of ten thousand four hundred.

The patient did not have a convolution that day; when I went
back for another specimen two hours later I found him quietly sleeping, pulse 78, and twitching entirely gone. The examination of the specimen, taken at this second visit, showed that there were but six thousand five hundred leucocytes per cubic millimetre present. Repeated examination of this patient's blood when he is in a normal condition have shown that his normal average number of leucocytes is less than seven thousand per cubic millimetre. The ten thousand four hundred observed may, therefore, be considered a leucocytosis for him. I think that he was in the same condition, only to a less degree, as at the time of convulsion; that this was, therefore, an abortive convulsion.

On May 8th at 2.20 a.m. the patient had a very slight convulsion. I reached him twenty minutes after the seizure and found him in what seemed to be a quiet sleep. His pulse was 76 and he looked as well as usual. The nurse said the convulsion was very slight and had lasted less than two minutes. A specimen of blood was taken forty minutes after the attack and nine thousand leucocytes found, thus showing an almost normal blood. Another count was made two hours later and showed a similar result.

A similar attack with a similar condition of the blood occurred on May 15th.

I would emphasize the fact that these last two convulsions were very slight and of very short duration.

Case II.—Miss C. S., aged 88 years; terminal dementia. This patient has been demented for more than fifty years, following periodic insanity. She had suffered from convulsions of an epileptiform character during the past ten years. The attacks have been few and have occurred at long intervals; sometimes only two or three occurring during the years. Observations of her blood have been made after two of these attacks. On January 8th she had four convulsions between 1 a.m. and 2 a.m. The first blood examination at nine o'clock, seven hours after the attack, and subsequently every two hours until it was found to be morphologically normal fifteen hours after the attack. It was found that the patient had a leucocytosis of twenty-one thousand five hundred at the first examination and that this leucocytosis gradually diminished and the blood became morphologically normal in fifteen hours. The convulsions were general and were preceded by pretty general muscular twitching for three or four hours.

The differential count of the stained specimens shows this leucocytosis also to be of the so-called inflammatory type.
The second seizure studied occurred at 2.50 p.m., May 10th, and the first specimen of the blood was taken forty minutes after the onset of the convulsion. The convulsion was general and lasted about five minutes. The first blood count showed a leucocytosis of twelve thousand six hundred eight hours later.

The differential count showed the leucocytosis to be of the ordinary inflammatory type.

Case III.—Mr. W. C. S., aged 42 years. General paralysis. Insane about two years. This patient was a large, strong man, athletic build, who had always been well, with the exception of syphilis, until the onset of general paralysis about two years ago; at the time of the onset of the convulsive seizure of which I am about to speak he had been sleeping well, eating well, and going to drive daily; he was still in good physical condition although a well-marked case of general paralysis of the insane.

He had a slight convulsion at 4 a.m. February 15th accompanied by a leucocytosis of thirteen thousand one hundred; from which height it receded and reached the morphological normal at the end of five hours.

On March 11th, at 12.35 a.m., he had another convulsive attack which lasted six and a half days and terminated in death. From the onset of the convulsions he was unconscious. The onset of the attack was very severe, the convulsions coming very rapidly and with great intensity. During the first twenty-four hours he had sixty-two convulsions; during the second twenty-four hours he had eighteen; during the third twenty-four hours, thirteen; during the fourth twenty-four hours, seven; during the fifth twenty-four hours, five; during the sixth twenty-four hours, one. He therefore had one hundred and six convulsions in six days. But they began with great severity and frequency and gradually diminished in number until they ceased entirely thirty hours before his death.

A blood count was made thirty-five minutes after the onset of the attack; at hourly intervals for the next six hours; at two hourly intervals during the remainder of the day; and at four hourly intervals during the remainder of the attack. At the first examination he was found to have a leucocytosis of twenty thousand five hundred; this leucocytosis increased until 4.20 a.m. or a little less than four hours after the onset of the attack, when it reached the exceedingly great number of forty-three thousand five hundred. From this height it receded somewhat; but persisted
as a marked leucocytosis throughout the attack. During the first four hours he had thirty-two convulsions, and his leucocytosis was forty-three thousand; during the second four hours he had eight convulsions and the leucocytosis at the end of that time was twenty-four thousand. So, if we take any period of four hours we will see that there is a relation between the numbers of convulsions and the height of the leucocytosis. This relation is not a simple one; we can not say, because one convolution has an accompanying leucocytosis of sixteen thousand, two convulsions will be accompanied by a leucocytosis of thirty-two thousand; three convulsions by a leucocytosis of forty-eight thousand; and so on. But we do not find by such comparisons that as the convulsions increase or diminish in a geometrical ratio the accompanying leucocytosis increases or diminishes in an arithmetical ratio. During the first four hours he had thirty-two convulsions and at the end of that time a leucocytosis of forty-three thousand; during the second four hours he had eight convulsions and an accompanying leucocytosis of twenty-four thousand; during the next four hours he had one convolution and the accompanying leucocytosis dropped to fifteen thousand.

The leucocytosis did not fall below this point at any time during the attack until after the last convolution on the sixth day; although there were several four hour periods occurring at different times during which there was but a single convolution. And indeed, during the period between four and twelve o'clock p.m. on the second day no convolution occurred. But we have seen in our other cases that the leucocytosis accompanying a single convolution persists, although possibly in a diminished degree, for from eight to fifteen hours after the attack; and in some cases it increases during the first three or four hours. The relation between the number of convulsions and the amount of the leucocytosis is not a simple one; but when this relation is expressed graphically there is seen a striking similarity in the two curves that must be drawn to represent the condition. If, therefore, we represent on a four hour chart* the number of convulsions occurring in each succeeding period of four hours, allowing the first space above the base line to represent one convolution; the second place two convulsions; the third place four convulsions; the fourth place eight convul-

* See accompanying chart.
A STUDY OF LEUCOCYTOSIS ASSOCIATED WITH CONVULSIONS.

The dotted line represents the leucocytosis; the broken line accompanying it represents the convulsions. The curve at the top of chart represents the temperature; its scale is at the extreme left.
sions; the fifth place sixteen; and the sixth place thirty-two convulsions, then we will plat a curve which begins at the sixth line and gradually but irregularly approaches the base line as the convulsions grow less frequent in occurrence; and this curve will become tangent to the base line on the sixth day when the convulsions entirely cease. If now we allow each space parallel with the base line on this same chart to represent four thousand leucocytes, calling the base line the normal number or eight thousand, the first line above the base twelve thousand, the second sixteen thousand, and so on; and plat another curve to represent the leucocytosis observed during the progress of the attack, we will see that the two lines thus drawn, although irregular, run a strikingly similar course. It will be seen that these lines are both at their height at the end of the first four hours of the attack; and that their descent though irregular is essentially a constant one. In platting these curves the intensity of the convulsions could not be expressed; simply their number. On the second day the number of convulsions was much less than on the first day; but some of them were very severe. This circumstance probably accounts for the great irregularity of the leucocyte curve on that day. After the second day the convulsions were of much the same character as during the first day and continued so throughout the attack. The accompanying chart was platted according to the foregoing principles. The broken line represents the number of convulsions; and its index of geometrical ratio from zero to thirty-two is drawn at the extreme left hand margin of the chart. The dotted line represents the number of leucocytes; and its index of arithmetical ratio from eight thousand to forty-four thousand is shown in figures, also at the left hand margin.

It has often been asked what relation elevated temperature has to an accompanying leucocytosis. My observations show that there is no definite relation between them. The temperature of this patient was taken every time a blood count was made. The temperature curve is platted on this chart above the other two curves. From this curve it is seen that no constant relation exists, either between the number of leucocytes and temperature or between the number of convulsions and the temperature. Indeed at the beginning of the attack when the number of convulsions and leucocytes was greater than at any other time the temperature was subnormal.

An examination of the stained specimens shows that their leu-
Leucocytosis was also of the inflammatory type, but with greater percentage disturbance than in the other cases. In one specimen taken early in the attack there was twenty-four per cent large mononuclear elements and seven and three-tenths per cent eosinophiles. Before the leucocytosis reached its height a few myelocytes appeared and were present in varying degree during the progress of the attack.

These observations have established the fact that there is a leucocytosis associated with convulsions; and that there is a very definite relation between the number and severity of the convulsions and the amount of the accompanying leucocytosis. I do not think the leucocytosis associated is caused by the convulsions. But it looks probable that both leucocytosis and convulsions are produced by a common cause. What that cause is has not yet been determined. It has been suggested by a French observer named Guerin that the convulsions of general paralytics are due to auto-intoxication. It has also been suggested by Voisin and other observers that the attacks of epileptics are due to auto-intoxication; and they have observed toxicity of urine in these cases. But Bouchard has shown that normal urine is toxic; and that the toxicity varies greatly from time to time, and is dependent upon many conditions: exercise, fresh air, etc., having the power of modifying it to a very great extent. In one of his cases this toxicity was reduced twenty-seven per cent by exercise in the open air. But belief in auto-intoxication is not new; it has long been believed that the convulsions of puerperal eclampsia and uræmia are due to the renal insufficiency, and the consequent lack of elimination of waste products. Furthermore, those who have advanced the theory of auto-intoxication to account for the occurrence of convulsions have done but little, if anything, to prove their claims. In the light of evidence gained from a study of leucocytosis it seems possible that a toxine is present in the system at the time of the convulsive seizures. But that the seizures are produced by such an hypothetical poison has not been proven.

I do not wish to be understood to say that I do not believe they are due to auto-intoxication. But I do wish to emphasize the fact that if any are due to this cause it remains to be demonstrated.

I do not know of a more fitting manner in which to bring my paper to a close than by suggesting that the demonstration of the cause of convulsions should be attempted; and that it is an interesting field for experimental investigation.
DISCUSSION.

Dr. Putnam: I shall be glad to make one remark upon this interesting paper for the sake of calling attention to the work of Dr. Rachford of Cincinnati done in the last few years, a second report of which was given at the meeting of the Association of American Physicians at Washington last month. He found that paraxanthin was increased in the urine in cases of epilepsy, and was inclined to think that the epilepsy which occurs rather late in life and in persons having migraine early in life was due to this body. The examination of the urine for paraxanthin is extremely tedious and made with a good deal of difficulty, so that I presume the number of observations was not as numerous as might be desired to clear up these points. What relation that might bear to the leucocytosis I could not undertake to say, but the possibility that there is some connection is worth considering.

Dr. Hurd: I can not help thinking that there must be some connection between leucocytosis and the muscular effort which follows the convulsive seizures. It is known by observations made by Dr. J. K. Mitchell, of Philadelphia, that after massage, conducted for some time, say fifteen to thirty minutes, there is a very marked leucocytosis. It was also observed by Thayer in Baltimore that after a cold bath, such as is given to typhoid patients, there was a marked increase in leucocytosis. I would inquire, therefore, if the leucocytosis which accompanies an epileptiform seizure may not be the effect of the seizure rather than the cause.

Dr. Putnam: I should like to second the inquiry of Dr. Hurd. As I understood him, Mr. Burrows found the leucocytosis in one case where the convulsive seizure was at least very slight. It certainly seems that the convulsion may be the cause of the leucocytosis and the appearance of paraxanthin in the urine rather than a consequence. It is interesting to remember in this connection the report of Dr. Mary Putnam Jacobi very many years ago which proved that in women preparing for menstruation certain cyclical changes in nutrition take place. One can imagine that certain changes of that sort might occur in epileptic seizures occurring with certain regularity.

Fred G. Burrows: The possibility suggested by Dr. Hurd has been thought of and considered, but, as Dr. Putnam mentions, I did find a slight leucocytosis in one instance when no convulsion occurred.
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